Roland Mösl

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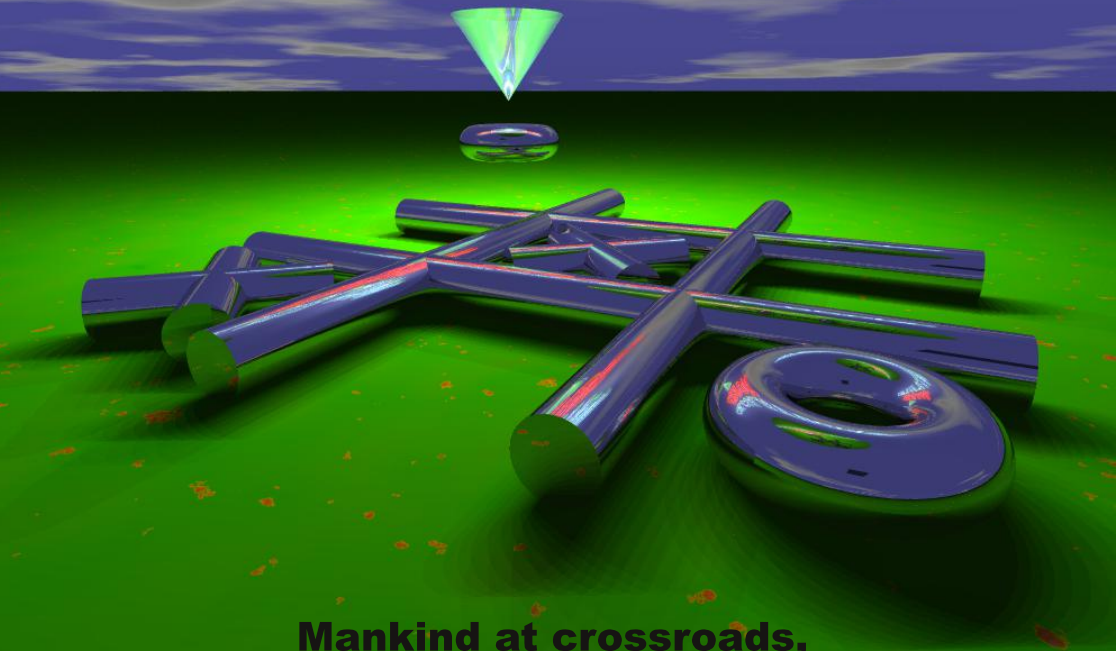

Mankind at crossroads, self-destruction or limitless future

a publication of

PLANETARY ENGINEERING GROUP PEGE

Roland Mösl

Calculation ERROR

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A publication of

PLANETARY ENGINEERING GROUP

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Christian Deinlein for providing electric scooters to test

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This book is dedicated to all the people suffering
from the calculation errors of the elites
instead of being half the way to solar age
like it was intended in my first book
“Advance to solar age” 20 years ago.

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Foreword

Mankind is in an all-out war against its own future. The costs of this war are extremely high, and the warring countries are heavily indebted and face financial collapse. Whilst the population is becoming increasingly war-weary and impoverished, war profiteers gain enormous wealth.

Is this a true description of our current situation or not? Let's apply the duck test; If it looks like a duck, swims like a duck and quacks like a duck, then it probably is a duck.

The situation is very serious. For the second time in a century, the fate of humanity is threatened by a destructive cult.

Let's look back in time. Supporters of the Nazi racial policy in 1933 took over the German government. They started a war against everything and everyone which was seen worthless by the Nazi racial policy.

Only 12 years later, this destructive cult was defeated. Even with 70 million worldwide victims and immense destruction Germany recovered fast from this disaster, and 1948 saw the start of the German economic miracle, only three years after the crash.

At this time, there was enough fossil energy to boost the economic development for a world population of 2.5 billion people. That equates to only 1/8 of the current world oil production from easily exploitable oil wells.

However, how long will the boost by fossil energy persist? A study by Marion King Hubbert in 1956 into this important question predicted that US oil production would peak between 1965 and 1970.

He was right; US oil production peaked in 1970. In 1972, The Club of Rome published the book, "The Limits to Growth" and in 1973, the first oil crisis was seen at the Yom Kippur war.

All of these events should have changed economics. All of these events should have raised three key questions about the future of the economy:

1.) Are alternative supply chains available for the same service?
2.) What are the possible future shortages and price developments of these supply chains?
3.) How do we switch from one supply chain to another before a shortage hits the economy?

The second oil crisis occurred in 1979 and the third in 2008, but how far are the economists with these three key questions? Well, they didn't even start to research these key questions because it violates the dogma of the "perfect market".

The "perfect market" should have done all this research. The "perfect market" should have invested all the money necessary to buildup the oil replacing industry.

As my research shows, changing the tax system is necessary to steer the society in the right direction before the society crashes into the wall. So, the "perfect market" should also have influenced politics into the right actions.

The stock market should have been inspired to the greatest business of the 21st century, to a total change of the energy system back to renewable-energy, but with a yield of two orders of magnitude higher than before the civilization jump; these are the actions necessary to reach a new, stable civilization level.

Without this inspiration, without this new big game, without pressure to perform this big task, the so-called "perfect market" degenerated to "casino capitalism".

A destructive cult is a belief system so far away from reality that it is destructive for the real world, regardless of whether the cult believes "The superior race should conquer the world" or "The perfect market will solve all our problems" or "We need a minimum of 2% annual economic growth forever".

This book opens the door to a stable, harmonic society.

Changing the supply chain

It started all September 1991 with a simple house project. Dissatisfied with the offers, I started my own research. It did not only address the energy to make warm water. This was a usual approach at this time.

It did not only address the energy to heat the house in cold north European winter. This was state of the art at this time.

It did not only address to produce all the electric power used in a household. This was state of the art at this time.

To produce also all the electric power for electric mobility. This was something beyond imagination 1991. However, to produce all the electric power for domestic warm water, heating the house, household electric power and electric mobility have been only a small step in the evolution of the GEMINI inhabited solar power plant.

To produce an adequate share for all the electric power usage in an industrial country? Even this was not enough. Electric power usage is only a part of the total energy usage of a country.

The GEMINI inhabited solar power plant addressed the production of an adequate share of the total energy usage of an industrial country with high-energy usage for industrial production far in the north with cold winters.

After changing nearly everything to electric power, the electric power usage in Germany will increase from 500 TWh 1992 to 1200 TWh in 2040.

1200 TWh electricity divided by 80 million inhabitants in Germany times two people living in a house makes 30,000 kWh a year.

I started spring 1992 to write the book “Aufstieg zum Solarzeitalter” (Advance to solar age) about this. It was published autumn 1993.

Here are now the key messages of my first book and a review what happened with this in the last two decades:

Roland Mösl

Aufstieg zum Solarzeitalter

eine Veröffentlichung der

PLANETARY ENGINEERING GROUP PEGE

German book "Advance to solar age" published 1993.

Present situation

Page 16 from “Aufstieg zum Solarzeitalter” 1993

Present situation

Are our current measures enough to secure survival of our civilization? Are the actions of our politicians appropriate to our present situation or to the next election?

Some environmentalists draw our future in a very pessimistic way.

Such pessimistic predictions of possible calamities and wars of redistribution are so bleak that it lets the Second World War seem like a harmless dispute.

If only a fraction of those predictions come true – how will we justify our actions at present? Nowadays, lots of young people don't understand how it could come so far as the third Reich with all its consequences. They address many awkward questions to their parents and grandparents. But which questions will be addressed to the young generation of today? Which compurgation will sound more authentic?

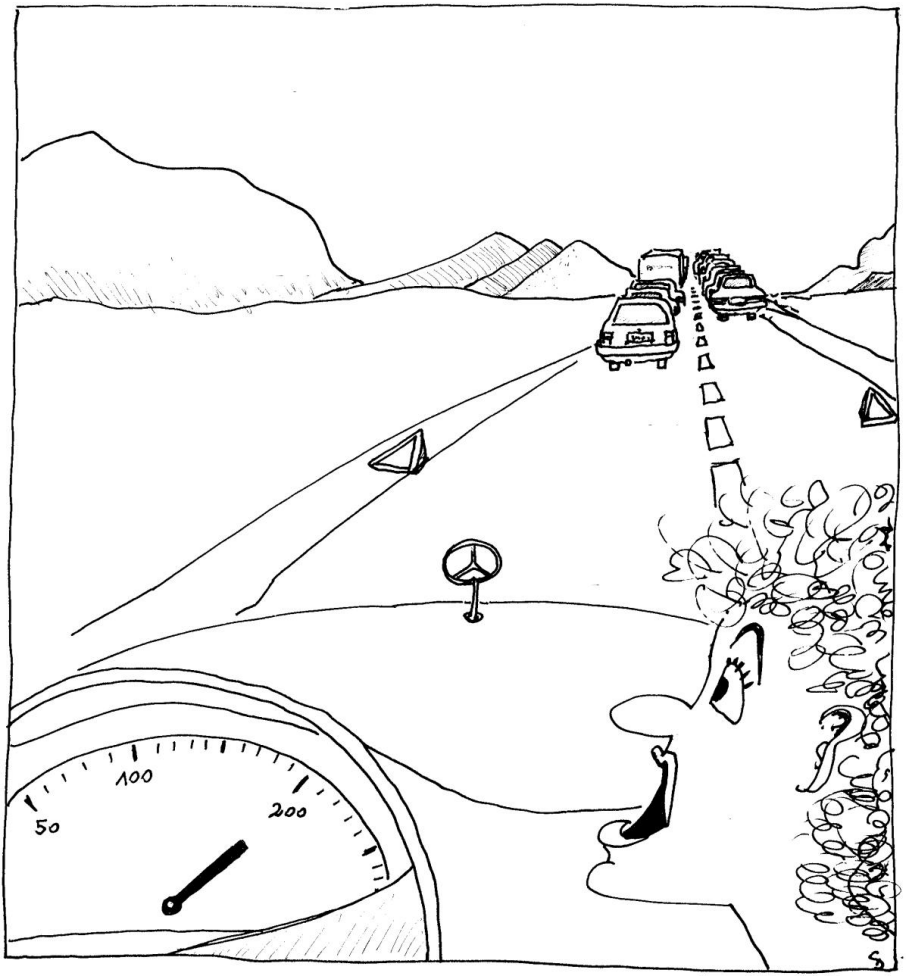
We give poor countries foreign and development aid. Yet can we actually afford any success of our foreign and development aid? A success that leads mere up to a half of the per-capita energy consumption of Germany wouldn't be a success, it would be a disaster. As long as our high living standard is dependent on the wastage of stored energy reserves, it is not an acceptable article for export.

There we have the first new word - energy reserves: these are all the energy relating materials in geological accumulators like coal, fossil fuels, gas and uranium. In contrast to the just named is the regenerative energy, which will be regenerated by the sun also in the next couple of billion years.

As the name reserve already tells us it should only be touched in cases of emergencies. Like a driver who jumps his car with the starter to the petrol station which is just 500 m away. He can do it, but it is very risky. The battery could be dead before he arrives or the starter could burn out. There must be an urgent need to take such a risk.

Environment situation: measures of politics

We know the climate will change because of the green house gases. We know we should emit much less CO2. We can estimate when the oil and gas will be exhausted.

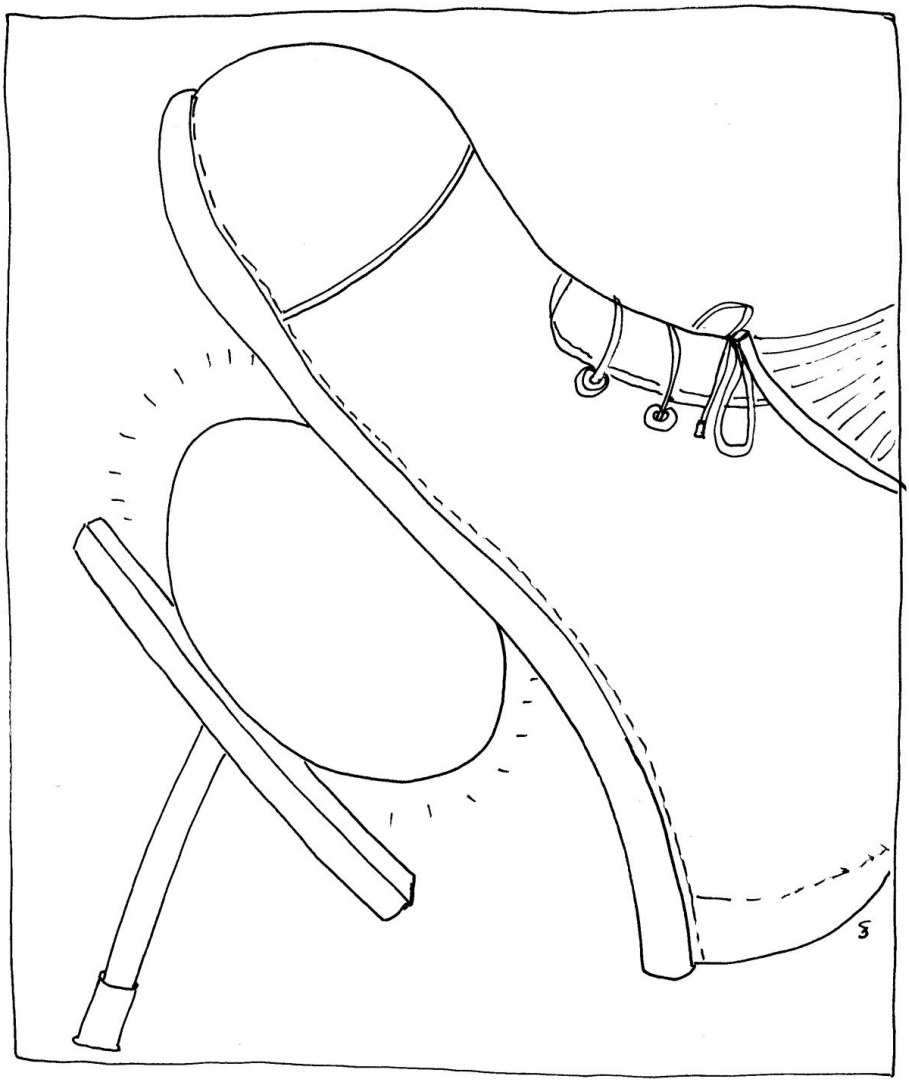


When they come with 200km/h speed to a traffic jam, they brake like there would be a raw egg between foot and brake pedal.

Page 18 from “Aufstieg zum Solarzeitalter” 1993

We know 4 billion people dream from a living standard as high as in the rich industrial countries. We know we have to change as fast as possible to renewable-energy sources.

But our politicians... 2 pictures say more than 2000 words.



Page 19 from “Aufstieg zum Solarzeitalter” 1993

Justification 1990: Hitler

Why did you do nothing against Hitler?

You should have known, that this would have bad consequences!

Child, you have no idea, what this was for a time!

GESTAPO, KZ, people's curt, the death penalty.

Page 20 from "Aufstieg zum Solarzeitalter" 1993

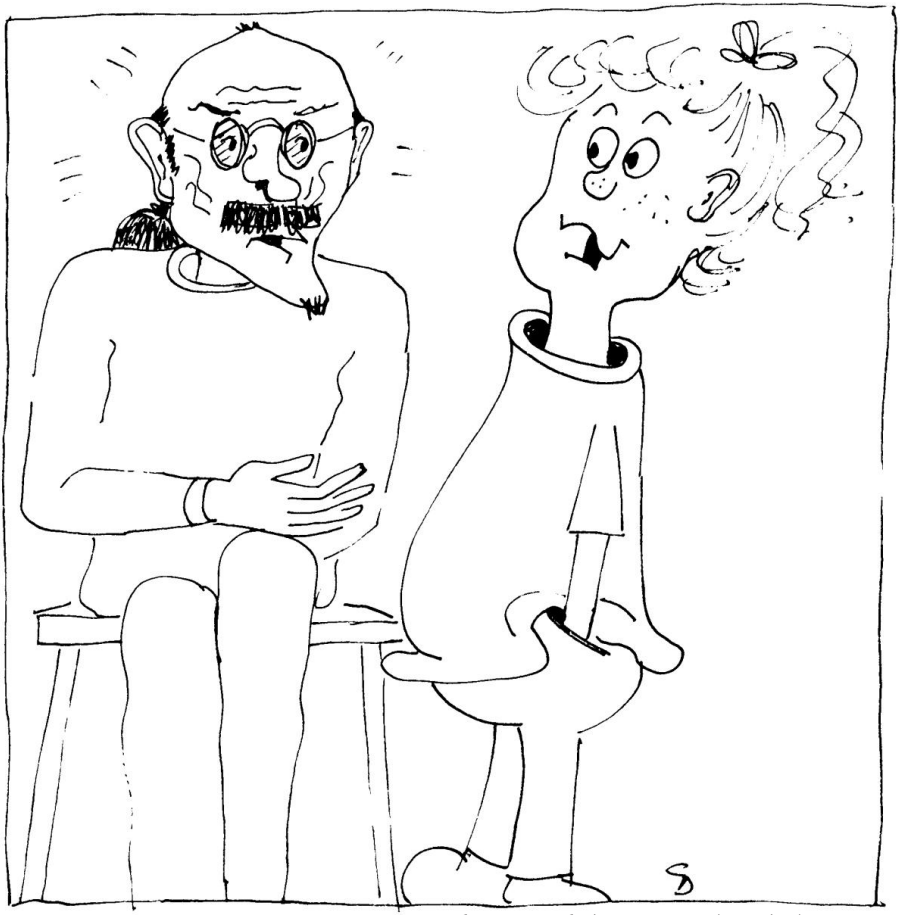
Justification 2040: Climate catastrophe

Why did you do nothing against the green house effect?

You should have known, that this would have bad consequences!

Child, you have no idea, what this was for a time!

The oil price was so low...



Page 21 from “Aufstieg zum Solarzeitalter” 1993

Energy consumption

Do you know how much energy you actually use? I don't believe so, I was surprised by myself. The energy consumption of an average person is far higher than the electricity bill, and the amount of money paid at the petrol station for fuels and for the domestic heating oil. For every consumed product, energy is required for its production.

Primary energy

Primary energy is the amount of energy that is actually used. In a caloric power plant about 3 kWh of primary energy is used to deliver 1 kWh of final energy to the consumer.

In 1987, 388 million tons of coal equivalent in primary energy were consumed in Germany. 1 coal equivalent corresponds to 8.14 kWh of primary energy. That adds up to a per-capita consumption of just above 51,000 kWh of primary energy per year.

Final energy

Final energy is the amount of energy that really can be consumed. In case of the caloric power plant, for one kWh for the consumer, approx. 3kWh primary energy was burnt.

1987 257 million tons of SKE final energy were consumed in Germany. That adds up to a per-capita consumption of just over 34,000 kWh per year on final energy.

This final energy is taken to 99 % from the energy reserves. A meagre 1% comes from the regenerative energy: mainly hydro energy.

In Austria, it looks a little bit better due to hydro power. However Austria is together with Germany and the other industrial states on the same planet. In planetary issues, there is no Isle of the happy. Therefore, to solve such problems, it is necessary, to think in planetary dimensions.

I also don't mention the low-energy consumption of a developing country. There they don't use little energy because the population is thinking ecological but because they are poor. But there they dream of the living standard of the rich industrial states.

Page 22 from "Aufstieg zum Solarzeitalter" 1993

About page 23: As I wrote this 1992, the oil price was at US$ 20. Now, I would have to replace “The oil price was so low.” with “We have been too stupid to replace oil by cheaper renewable-energy and electric mobility before our economy crushed.”

Review 2012: Environment fundamentalist

The first step to solve a problem is to recognize the magnitude of a problem. Today it’s so easy to find all the statistics about energy usage in the Internet.

But what does this help, when environmentalists ignore all the facts? When environmentalists want and promote a complete unrealistic world? EF stands here for environment fundamentalist.

RM: A part of the photovoltaic on all roofs will produce enough energy for all the electric cars.

EF: People don’t need cars. They should drive bicycle or use public transport.

RM: Most time of the winter, the electric power for the heat pump can be delivered by the photovoltaic from the own roof.

EF: So much heating is unnecessary. People should wear warm clothes at home. 12 degree Celsius are enough.

RM: Remember 1910 as the world population was only a quarter of today, Haber invented the process to produce fertilizer. They called him the man who makes bread from air. But this needs energy, today 1.4% of the total energy consumption. A part of the photovoltaic on the roofs will produce the energy to make the fertilizer in the future.

EF: I eat only bio-food. No fertilizer!

The Haber-Bosch process tripled the agricultural yield. Bio-food is more expensive because it requires so much more area to grow.

Most environmentalists refuse to accept the demands of the real world.

Two stage change over

To adjust the habits of the huge amount of energy consumers to solar energy, an energy carrier who already is equipped with a good infrastructure is ideal. This applies to electricity. Electricity as we know comes out of a wall socket and for consumers, there is no difference if there is a hydro-electric power plant, a nuclear power plant, a brown coal operated dirty monstrosity, wind turbines or photovoltaic (transformation of light to electricity) behind those sockets. Therefore, electricity is perfect for the 2 stage changeover. The power source can be changed to electricity everywhere where it makes sense. Then one only has to make sure that on the other side of the wall socket, energy is attained from solar energy. It makes sense to convert to electricity where there is a reduction on the consumption of primary energy is also given if the electricity is produced in a caloric power plant. But what about the possibility of getting electricity directly from the sun?

Naive sun games

Let´s hypothesize we wanted to attain the 34,000 kWh per capita consumption on final energy per year from photovoltaic. Take 100 kWh photovoltaic per square meter and year with today's technology. To set up 1 sqm photovoltaic you need 2 sqms ground. That gives us a floor space of 680 sqms per capita. In a very densely populated continent like Europe with not even 7,000 sqms per capita this is a nonsensical idea. Furthermore, in winter heating consumes a very high quantity of energy, but in summer a lot more solar energy is produced.

The need to save

We have to find a solution away from the reserve energy that is drawing to a close. That is why a more elaborate approach to solving this problem is needed. As you can see from these first games with numbers, it doesn't work with solar energy without saving energy. Hence saving energy doesn't have anything to do with the loss of comfort. Ask an inhabitant of the former GDR who has changed from a petrol gobbling Trabi to an economical diesel vehicle from the West.

Review 2007: Fivefold own electric power usage

Tell an environmentalist that you will be proud to increase your electric power usage fivefold. Chances are great that you will be smashed before you continue to tell him, that in exchange, you will use 16,000 kWh less natural gas, 900 liters less Diesel and 500 liters less gasoline.

To increase the electric power usage from my household from 1649 kWh per year to 7,849 kWh per year, to produce 10,000 kWh by the roof of my projected house was my speech November 17th 2007 at a conference for “green economy” in Salzburg.

To show how I replace 500 liters Diesel by 300 kWh electric power, I parked my electric scooter in the convention center directly beside the podium.

The sign of the electric scooter tells us: photovoltaic is cheaper than gasoline. Four years later, the price for oil increased by 50% while the price for photovoltaic halved. For scooter driving, gasoline in Austria is now 6 times more expensive than electric power from photovoltaic.

Where we live

We have to free ourselves of the illusion to be able to attain solar energy from somewhere else. We'll have to catch it where people are living.

Not in far away deserts or in untouched landscapes, no, in the areas where the prices per sqm of photovoltaic and property will meet soon on their way up or rather on their way down. So we have found a place for our harvest of solar energy. A place where the transport loss isn't gigantic and the environmental activists aren't against it.

However, as soon as our roof scape is checked the next disappointment is due to come.

Solar power plant Loser in Altaussee. 263 sqm photovoltaic produce an annual yield of 37,000 kWh. The question is: At how many sqkm will the environmentalists start to protest? Photo: ENERGIE AG

Page 29 from "Aufstieg zum Solarzeitalter" 1993

Review 2012: not enough solar architecture

There is still no general solar architecture for new buildings. The low level solar architects see only the own energy usage of the building. So they see only 3,500 kWh electric power demand and the energy demand for heat and warm water. The whole rest is ignored in 99.9% of the new buildings.

This low level solar demand can be easy integrated in conventional architecture. But where is all the electric power to drive all the electric cars after peak-oil? From where is all the electric power to produce all the products?

With 2.33 inhabitants average for a one-family house and 15,000 kWh total energy demand, high level solar architecture deals with 10 times more, with 35,000 kWh electric demand.

The new approach to solve this problem is the "Land for Energy" project later in this book at page 314. A settlement has to provide living room and energy production.

We have not to see the area necessary for the settlement alone, we have to add the area to produce all the energy necessary to maintain the settlement with all the activities of the inhabitants.

Review 2012: Photovoltaic and ground price

In 1992 1 m² of photovoltaic was completely installed for about 1,500 EUR. More expensive than 1 m² ground in Salzburg city. Now it's about 200 EUR per m². Only more than 15 km away from Salzburg is the ground cheaper.

Well, 50 years ago they
wanted to start with the solar architecture. But we fought back. That wouldn't have fitted in our beautiful landscape. How many environmental damages are our traditional way of building worth?

Page 35 from "Aufstieg zum Solarzeitalter" 1993

Review 2008: Solar architecture restricted

For those not familiar with Austria: Behind this scene should be fir-trees, a green landscape. The desert landscape with the cacti should express the dangers of the climate-change.

I searched 2008 for a ground to build a plus-energy-house for own usage. All the roof only photovoltaic. At 2/3 of the grounds construction regulations were making this impossible. Solar energy is still seen as something unnecessary disturbing to the look of the village.

Many wind energy power plants were stopped by environment protectors. When they drive with their gasoline cars to enjoy the mountain landscape, they do not like to see wind power plants there.

Many environmentalists are very easy to manipulate. They cannot develop any strategy, because they refuse to view the facts.

Berlin November 25th 2008: A Greenpeace demonstration against electric cars. They refuse to accept that photovoltaic is cheaper than gasoline.

Building license

1.) Burning ban. More than the candles on a birthday cake are not allowed to be burnt.

2.) Limited thermal energy requirement. The limit for thermal energy requirement is far above the today's regulations for the insulation of windows, walls and other parts. The calculation of the thermal energy requirement is carried out with a computerized simulation of a typical course of the weather. Only such a dynamic model offers an adequate accuracy. Today's statistic computation models provide imprecise data for the tiny rest on thermal energy requirement.

3.) Minimum production of electricity. For most of the properties, a minimum production of electricity via solar energy is dictated. This is also asserted with calculating a regular year.

    For building lots that are marked as "Inhabited solar power plants", there must be a minimum yearly production of 50 kWh to 100 kWh, depending on the position of the lot.

4.) Regulations for shadow. With the growing importance of the solar energy for consumers, it becomes an important question of how much shadow the neighbor may cause.

    These regulations for shadow are particularly severe on building lots that are marked as "Inhabited solar power plants".

5.) Usage of rain water. Drinking water is too precious to be wasted for other than drinking. Separate pipes for drinking and raw water and stipulated size of the tanks for the rain water will be common.

These would be the regulations which have to be fulfilled - the minimum requirements to build a house in 100 years from now.

Page 43 from "Aufstieg zum Solarzeitalter" 1993

Review 2009: Will be ICE cars forbidden?

The German minister for environment Sigmar Gabriel is on a visit in China. He is not a real environment minister; he is more a minister for the shortsighted wishes of the German car industry.

He announces in China that the German car industry should change quicker to electric mobility, or they will be in China in front of closed doors.

Review 2011: BMW 5 plug-in hybrid

BMW shows a model 5 with 75 km electric only range in Shanghai. A plug-in hybrid. It's not shown at the Geneva International Motor Show; it's not shown at the IAA. Europeans are now only second class customers. I assume China will do with cars the same like with gasoline scooters in some years. No more registration possible with less than 50 kms in electric only mode. Point one is on its way in China.

In Austria and Germany significant progress was made in limiting the necessary energy to heat a house by improved insulation's standards. The calculation methods to determine the energy consumption has been also greatly improved.

So point 1 and 2 are on the way, points 3 to 5 have still to make much progress.

Review 2012: Announcement from Shenzhen

Until 2017 all 13,000 taxis and 10,000 buses will be replaced by electric vehicles. One of these buses, a 12 m long electric bus with a 324 kWh lithium iron phosphate battery giving 250 km range for public transportation in a city, from BYD is tested successful August 2012 on the Gaisberg near Salzburg.

The cost factor

After the requirements for buildings, that will seem to our “too lazy to think” architects of today like a ban to build, and all the demands for more living comfort, there is only last but not least the question of the costs to clarify.

Ultimately, we pay far too much from our hard-earned money for the most unfeasible living quarters. The burden caused by rent or mortgages are aggravated by constantly growing energy costs.

How can the demand on such requirement specifications be actually fulfilled under such circumstances?

Sellers market: the customer is beggar

This is because we are dealing with a pure seller market. Supply is less than demand. The provider can thus practically sell any crap.

You can’t pay 900 DM for the rent? The next prospective client please . . . You have children?!?! The next prospective client please . . . Read the ads heading “house-hunt”! It is embarrassing, how people praise

Page 50 from “Aufstieg zum Solarzeitalter” 1993

themselves as “diligent”, “childless”, “ambitious”, “quite” to curry favor just to be at the receiving end of a flat for too high a rent. That is how a sellers’ market works.

Typical for a seller market is the absolute lack of innovation. Why risk a single penny for innovation? The customer has anyway no choice but to buy from us. This is the setting of the entrepreneurs on a seller market.

A seller market lives solely from the fact that the consumers have no way out. The consumer will buy the product. No matter how miserable it is.

The end of the cookie-cutter house cartel

Every market of sellers will collapse at one time, as soon as a competitor appears on the scene, who sells a product that is superior and in ample quantity. Next time you meet a managing director of the Trabant factory, ask him about it.

Housing shortage in Austria and Germany slowly but surely is becoming so high that a collapse of the housing market will not be far away.

Today already possible

All the demanded claims of the specification sheet will be met on today’s price standard after the crash of the absolute sellers’ market. It is even possible with today’s technology to meet nearly all demands at low cost. The only demand that can’t be met is the extreme high minimum revenue of electricity that is stipulated for many plots.

Although today’s prices for photovoltaic are still too high and the world production is too low, it is still possible to provide a sufficient replenishment for later. You can start with small equipment for self-supply.

The Trabi was built for 30 years without any technical changes. Delivery time: 15 Years. This is only possible on an absolute sellers’ market where there are no possibilities given to choose. But as soon as the people of the GDR had the possibility to choose...

Page 51 from “Aufstieg zum Solarzeitalter” 1993

2007 Austrobau construction fair in Salzburg. "IG Passivhaus" shows a typical wall from a passive house with insulation u=0,1 (USA r=57). As I proposed this insulation value 1991, it was very exotic.

Review 2012: improvements by law

As I started September 1991 with the GEMINI project, I found out that one of my neighbors living in the same apartment building are Birgit Markart and DDI Franz Mair.

In May 1991 she organized the first symposium about solar architecture in Salzburg. He is the energy consultant of the Salzburg provincial government. Before 1994 was the rule, that people can get a low-interest rate credit as a furtherance for an apartment or a house. The furtherance was only depending on the family size.

Since 1994, the energy standard of the house has more and more influence in the furtherance. Real estate brokers are only interested in quick buying ground, quick building a house, quick selling all the apartments.

They have absolute no interest in making better houses, state of the art houses. It's like it has been in the GDR before 1989. The Trabi producer had no interest in making better cars.

But the message of the Salzburg provincial government is clear: Dear real estate broker, it depends on the energy standards how much furtherance we give to your customers. Most customers will not be able to purchase an apartment with bad energy standards, because they will get not enough furtherance and will have to pay too much for energy. So it's better for your business to follow our energy policies.

So Salzburg where my project started now has one of the best laws worldwide to enforce good, energy efficient buildings. However, even this is far distant from the standard "Produce an adequate share of the total energy consumption of the country".

Compared to the German and Austrian thermal insulation standards for new buildings, most US people live in shanties.

Photovoltaic and heat

Simple thermic solar collectors are much cheaper as a photovoltaic and have an effectiveness of 80 %.

In comparison the photovoltaic only reaches 17%. So at first sight it seems senseless to win heat from the electricity production of a photovoltaic.

Until now, not one of the architects I know has surpassed this first sight. Although in critical situations the photovoltaic is far superior to a solar collector.

If it is hot, and the sun shines a simple black garden hose can produce warm water.

In the chapter about solar collectors it was already revealed that only very complicated constructions can produce heat sufficiently in difficult circumstances. But all solar collectors have two things in common no matter how good they are:

1.) The efficiency decreases with the temperature.

2.) The efficiency decreases with the solar radiation.

The more immediate the need of heat is the effect of a solar collector diminishes. With the photovoltaic it is the opposite. The colder it gets the better it works. A heat pump can triple the degree of efficiency of the photovoltaic.

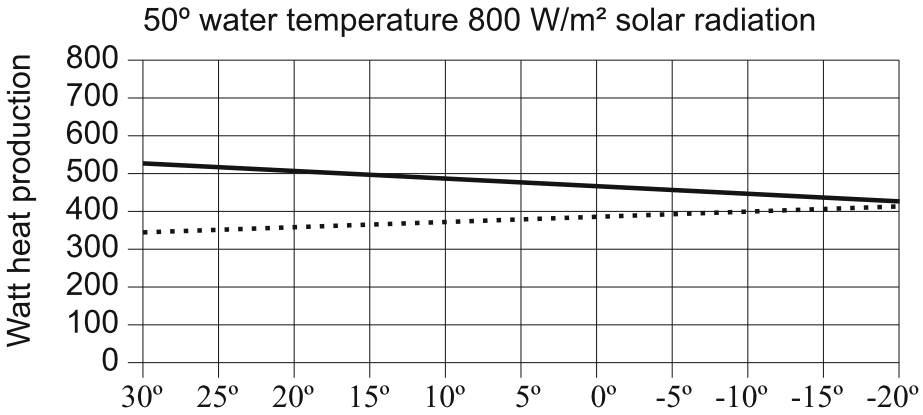
This ratio of 1:3 from 15 degrees Celsius to 50 degrees Celsius is easily met with a small-scale heat pump.

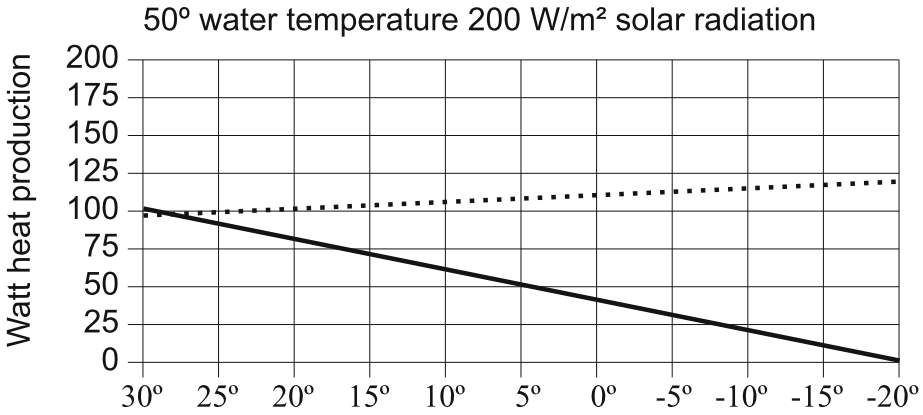
If it happens that nothing works anymore due to sky cover or fog the heat pump can produce cheap heat by electricity that comes from somewhere else.

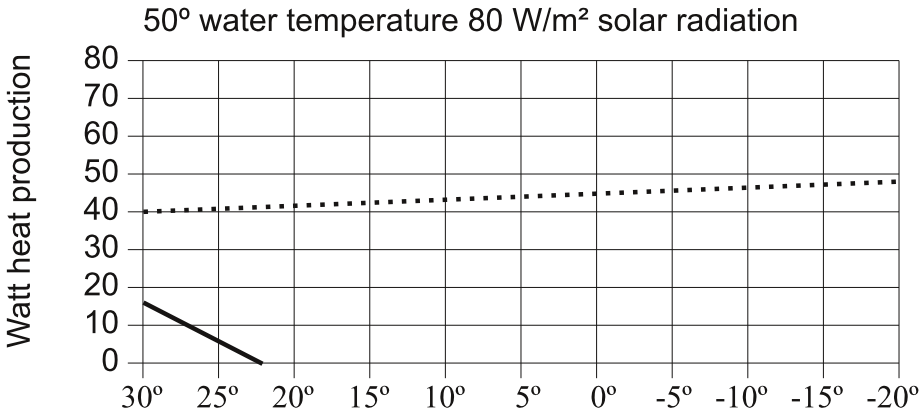
The evacuated tube collector. The award winner in chapter "solar collectors"

Photovoltaic with 17% efficiency at 25 degrees Celsius, a heat pump that extracts heat from a 15 degrees Celsius medium.

Page 110 from "Aufstieg zum Solarzeitalter" 1993







Page 111 from “Aufstieg zum Solarzeitalter” 1993

The heat pump

A solar collector produces heat. The combination of a heat pump and a photovoltaic can produce heat and cold.

If both are necessary the degree of efficiency of a photovoltaic and a heat pump are much more superior to the solar collector.

People who have looked closely at heat pumps will moan about the extremely high costs. That is not necessary. The engine of a car is clearly cheaper than the huge diesel engine of a 38 tons heavy truck. In the same way, a heat pump for a sensibly insulated house is much cheaper to run than a huge one for heating a house like a heat sink.

Such a heat pump doesn't even cost a 1000 DM. It is enough to have a model with less than 2kWh heat capacity. Such models are offered today as a heat pump combined with a 300 liter hot water tank for 3000 DM to 3500 DM. Take off the price for the hot water tank and you are left with a price of under a 1000 DM for the heat pump.

Different types and sizes

The usual small-scale heat pump stands in the cellar and extracts heat from the air. Such a system is not in question here. The noise and more than 400 cubic meters of air per hour are not agreeable with the wanted living comforts.

Direct heat exchangers are systems where tubes filled with a cooling agent that evaporates through heat are installed in the ground. These Systems have some advantages but there is also a crucial disadvantage. It is impossible to setup more than one cooling circulation: By switching from one cooling circuit to the next the cooling agent would stay in the cooler circuit.

So now we remain only with water filled cooling circuits. These can be switched at will. Why do you need more than one cooling circuit? To cool the ceiling of the room if it´s too warm.

Also if there is no comparable surrogate technique found for today's cooling agents – with the surrogates that are already known today the GEMINI project is not to be pictured without the heat pump.

Page 112 from "Aufstieg zum Solarzeitalter" 1993

Review 2012: Are there so many possibilities?

Remember the foreword:

1.) Are alternative supply chains available for the same service?

This is an example for different supply chains for the same service. Both supply chains are made with the direct usage of solar energy. The thermal solar collector compared with photovoltaic and heat pump. All the last years I had discussions at the Intersolar fair in Munich about this theme.

Exhibitors with thermal solar collector solutions had to admit; the photovoltaic solution is better. From year to year more and more superior, because the price for thermal solar collectors stagnates, while the photovoltaic is fast falling in price.

There is always this fairy tale about so many different possibilities at renewable-energy. We can choose from so many different systems. This is not true. Most renewable-energy forms can cover only a small part of the total energy demand. Other renewable-energy forms cannot compete with more efficient usage methods of renewable-energy.

Can you choose between steam piston engine, steam turbine, gas turbine, Wankel engine, Stirling's engine and piston ICE internal-combustion engine in 2012 for your car? No! There are only two types of internal-combustion engines on the main market: Diesel and Otto's type ICEs.

All the other types were been wiped out by different problems. The thermal solar collector is like the steam engine car in this competition. 1900 there have been steam engine cars, electric cars and gasoline cars on the street. The steam engine car vanished; the electric car was killed by inferior battery technology. Who killed the electric car? The lead battery!

1995 was clear, that new lithium battery technology will reduce the usage of the ICEs to an emergency generator in a car.

It's important to concentrate the development on winners, to sort out losers in the technology race as early as possible.

Formation of PEGE

Page 152 from “Aufstieg zum Solarzeitalter” 1993

Formation of PEGE

After the concept of GEMINI was finished in November 1991 it was clear that this is more than a mere concept for one house. Moreover, there was enough material for an energy policy, architectural and social revolution in this concept.

On the 20th of November 1991 was the intellectual birth of PEGE. Logo and definition were soon drawn up; still the publication wasn't until mid January in 1993.

To have PEGE not only with one sole project, there was another problem found and solved – the Charging Lane for electric cars.

In essence, this part of the book corresponds to the first part of the PEGE journal of February 1992. Part of the book PEGE Project Charging Lane contains the second part.

Definition

Planetary Engineering concerns itself with the adaption of a planet to the needs of the inhabitants. In a usual case, it concerns uninhabited planets, which have to be changed for the future inhabitants. In this specific case, it is about the preservation of habitability, which is in danger because of the destructive behavior of the habitants.

The logo of PEGE. Founded, because there was no ecological and civilization planning on this planet.

Page 153 from "Aufstieg zum Solarzeitalter" 1993

Target

1.) A better standard of living for the entire humanity than there is today in western Europe and in the U.S.A.. This standard of living also includes a rich flora and fauna where biodiversity isn't reduced.

2.) The awareness to be able to exist long-term.

3.) The possibility for humanity to expand further.

Stagnation cannot be a target, because nothing in this universe remains for a long time on the same level. A civilization always needs new targets and challenges to exist in the length of time. The next target is clear and is well defined on all three points. With this goal, humanity would be busy for about one century.

But to avoid stagnancy and boredom the next target is necessary. Then of course, the conditions for a new target must be present. Constrictions and abdication cannot be a requirement, because this topic is too serious to repeat failed experiments.

The experiment to cut down on wealth and property of people, as we could see with the economic crash of the former Eastern Bloc, has failed without doubt.

Name

"Planetary Engineering Group Earth." This name explains the purpose. "Planetary" stands for the responsibility towards the whole Planet. "Engineering" stands for a technical assignment that has to be solved. "Group Earth" here science fiction literature and the imagination that we are not the only civilization in the universe play a role. It shall express competence, confidence and routine.

It clearly shows what PEGE is not: an ideology neither an association of "observers" nor a club that has recommendations without ideas for solutions.

Purpose and policies

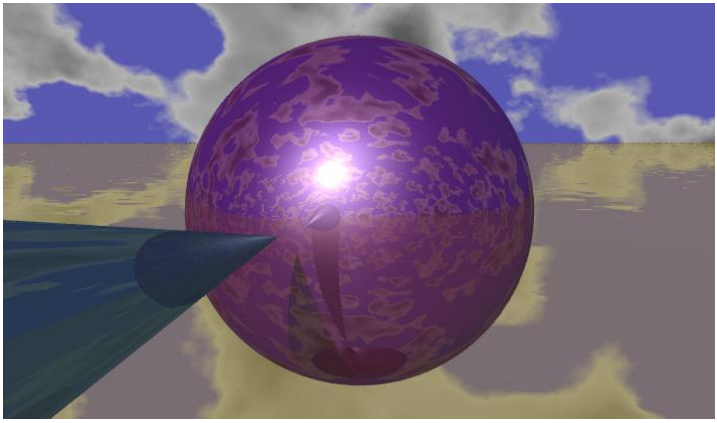
1.) The creation of strategic products and plans to break through cost and performance barriers that delay a broad turning away today from the only short time available energy reserves such as oil, gas, coal and uranium in time.

2.) To produce a clear imagination of which potential possibilities of development are ready for use and which concrete problems have to be surpassed to reach the more beautiful alternatives of the future.

Policies

There are some clearly defined policies for the solutions of problems and products of PEGE. These policies give us the possibility to separate the good corn from the bad out of the flood of ideas and suggestions.

Such a tool to detect rapidly unsuitable, is of great importance. There are a lot of “solutions” that are published to calm the public. Unsuitable “solutions” have to be exposed. Unapt solutions impede people to reflect on important problems, because there are “solutions” anyhow.



Some solutions burst like soap bubbles; if they are tested by the terms of reference from PEGE.

Page 155 from “Aufstieg zum Solarzeitalter” 1993

The 10 billion trial

At the beginning of 1992, the world population of is around 5.2 billion. Nevertheless, the growth of population has not yet stopped. Just the industrial nations have a stable number of inhabitants.

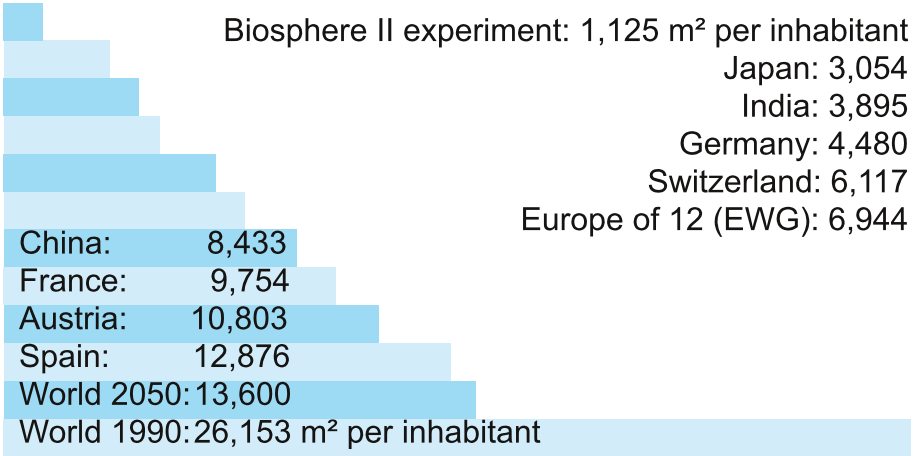
The developing nations are still in the transition's period in which the birth rate and infant mortality are in an unbalanced proportion. Maybe we manage to control the population explosion already at 6 billion world inhabitants. But that would be very optimistic. To be realistic, let's agree on 10 billion as a test criteria.

Test criteria? Yes, here we are not talking about an exact prognosis for the world population. We are talking about a basis for assessment, to decide if a technology is serviceable.

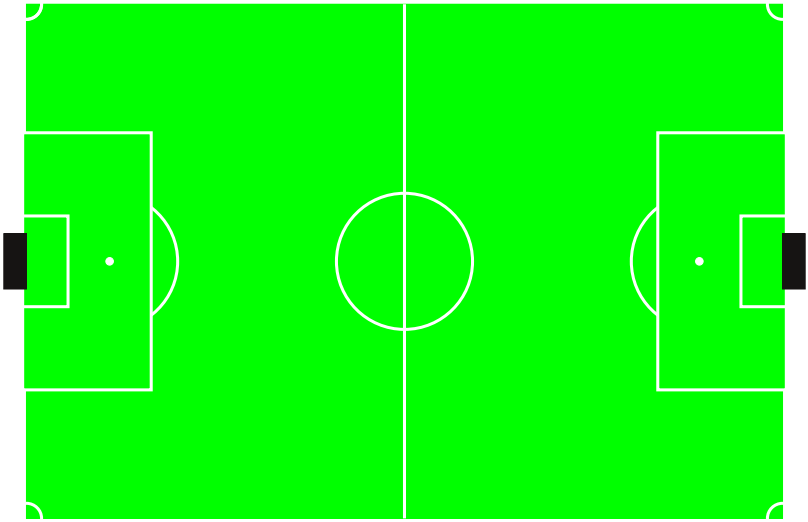
Is this technology feasible for 10 billion people?

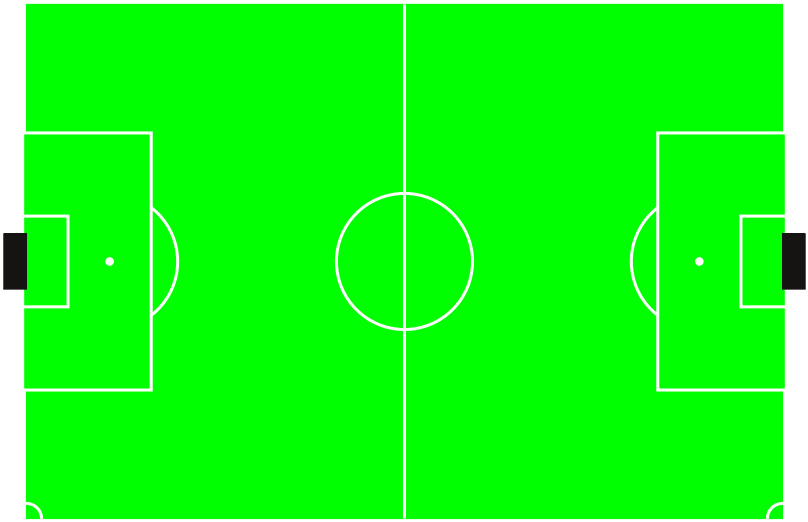
This is the test. A few examples: A car with a combustion engine for every second person gives us, calculating with 10 billion as a basis, we come to 5 billion petrol and diesel cars. I do not think it is necessary to calculate with exact figures to come to the conclusion, that this technology does not pass the test.

With a population of only 5 million people on earth, there would be no reason to have doubts toward combustion engines. But already now the population is a 1000 times higher.



Page 156 from "Aufstieg zum Solarzeitalter" 1993





above: Only 13,600 sqm earth's surface are in accordance with two soccer pitches. That is the amount of space that remains with 10 billion people per capita.

left: Whom this may seem too little, in many countries the density of population is clearly higher.

Page 157 from "Aufstieg zum Solarzeitalter" 1993

Required space

Today most species don't die because of hunting but because of the destruction of their natural habitat. The human civilization's need for space exterminates them.

That is why a further important criterion is the required space. There should be as much space as possible left for nature. Maybe, there will be even more space than today.

"Is there enough space left for nature, if this technology is used?"

This is the second Test and the out for biofuel. The combination of photovoltaic and electric cars requires far less space than biofuel and cars with combustion motors. 5 Billion electric cars that are supplied by photovoltaic and wind energy are however, easily possible.

Enforcement

In a widespread benchmark test over a few decades and with different cultures as a basis it has been found that the social free-market economy is the distinct winner versus the state-directed economy.

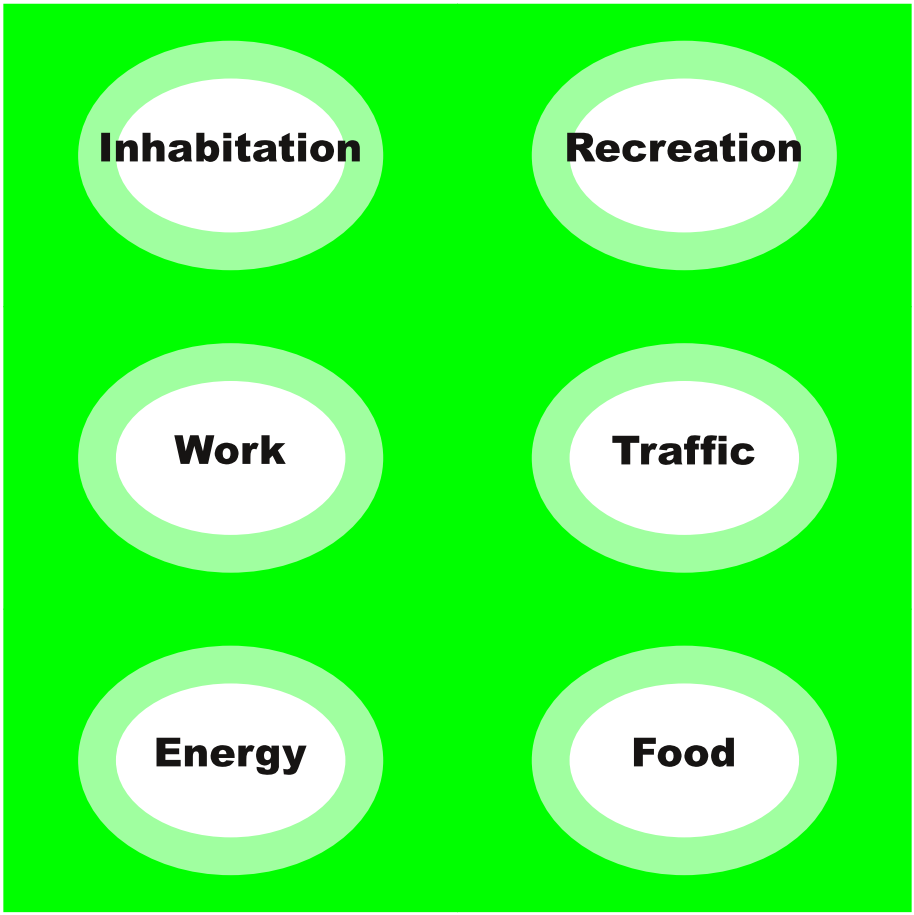
There is no sound reason to change a successful system. We only miss a few price labels for the costs of the nature and for the elimination of the environmental damages.

But how quickly shall the truth about those costs be initiated? This is a tightrope act between necessity and reasonability.

"Planning reliability for the phase-out of old and the introduction of new technology"

This is not just a guide line for PEGE but also a claim from PEGE. We can live with price calculations and arguments of the market economy but not with senseless instructions and official delaying tactics.

Page 158 from "Aufstieg zum Solarzeitalter" 1993



Different components of our civilization burn holes into our nature. With 10 billion people a mere 13,600 sqm remains per person. Space must be well organized that there remains as much as possible for nature.

Expected useful life

Our sun's energy can still be used for 5 billion years. Considering these numbers it does not make sense to invest in nine days' wonder related to energy policy.

"Is the technology usable for such a long time that it is worth all the trouble?"

Page 159 from "Aufstieg zum Solarzeitalter" 1993

“Sei!” is German and means “Be!” in English.

Page 168 from “Aufstieg zum Solarzeitalter” 1993

Solar Energy Initiative

Be! Is the imperative of TO BE. It's a demand to exist.

Our present civilization is not a lasting one because of the dependency on energy sources that are available only for a short time.

Civilization in its present way can only exist for 1/100,000,000 of the time that our sun will still shine. The decision to continue like now is a decision not to continue to exist.

That's the reason for the demand: Be!

Summary

This excerpt is a short summary of the entire book. It is a copy of the PEGE journal in March 1992.

History of SEI

At the beginning of February 1992, 32 pages about the GEMINI technique were written for chosen interested persons. Hereby it was examined what can be reached with this concept.

The investigation revealed that GEMINI exploits the resources of the present optimal, but having insufficient maximum photovoltaic insertion capability at very low prices. These at the time were only 54 square meters.

From the own power supply to the total power supply. The solar-energy initiative began.

Production

Situation: Production of the photovoltaic

At present, the world production of photovoltaic is at 50 megawatt Peak per year. To reach the annual revenue of a hydroelectric power plant like Urstein along the river Salzach it needs two annual world productions.

This world production will rise to a few hundred megawatts in the next years. But that is far too little.

Solution: Production of the photovoltaic

Secured high demand in the market economy, the magic formula to increase the production. At the moment, photovoltaic areas are being bought by idealist at pilot plants, special cases in the hinterland of public energy supplies. Demand is too little.

1,000 GEMINI houses with 30 sqm standard equipment per year would mean already 7 % of the world production.

A favorable market forecast for GEMINI and other products of extreme solar architecture and the world production would raise noticeable faster.

Review 2012: 37% yearly growth since 1980

On page 25 was a table about the photovoltaic world production starting with 3 MW in 1980 and ending with 50 MW 1990. This was 37% yearly increase.

The production for 2012 is estimated 40 GW. What a surprise, these is also 37% yearly increase.

At this growth rate, 1000 GW will be reached 2023. This will equal in electric power production of 200 new nuclear power plants per year.

Page 170 from “Aufstieg zum Solarzeitalter” 1993

Installation

Situation: Installation of the photovoltaic

How many roofs with a view to the south are there? At 1985 408.7 billion kWh electricity was produced in the BRD. If there is an annual revenue of 130 kWh/m² possible with a future more efficient photovoltaic there will be 55 sqm of photovoltaic per inhabitant of the BRD. However, electricity is only 28% of the used primary energy. Do you have a 55 sqm roof? Without shadow and usable incline to the south? Per inhabitant of the house? Okay, there are also different locations. However, the demand for area is a problem in a dense populated country.

Solution: Installation of the photovoltaic

"Inhabited solar power plants" is the concept to get the needed area. Today's trials for solar architecture do not comply by far to the needs of the next century. Today we do not have the 100 years of time to await the development like we had with the car. From the first carriages without horses to the present designs.

In Austria, there is a total of 22 skm of houses with suitable areas (source next page). Already 94,000 GEMINI houses with maximum equipment reach the same size of area.

Review 2013: only 6% of PEGE estimation

The "solar lobby" demands only 70 GW photovoltaic for Germany. This is only 8% of the amount which was proposed in the book 1992 and only 6% of the 1200 GW in "100% renewable energy for Germany" on page 394. That are only 500 km² for Germany which has 10 times more inhabitants than Austria. But there are also green-field PV-plants. So the situation is exactly like described in the book 1992.

The latest PEGE concept to correct this is described in the chapter "Land for Energy" page 314.

Page 171 from "Aufstieg zum Solarzeitalter" 1993

Mounting

Situation: Mounting the photovoltaic

Today one counts on 18% of the overall costs for mounting on bigger projects. The mounting of small constructions on not prepared roofs can be more expensive.

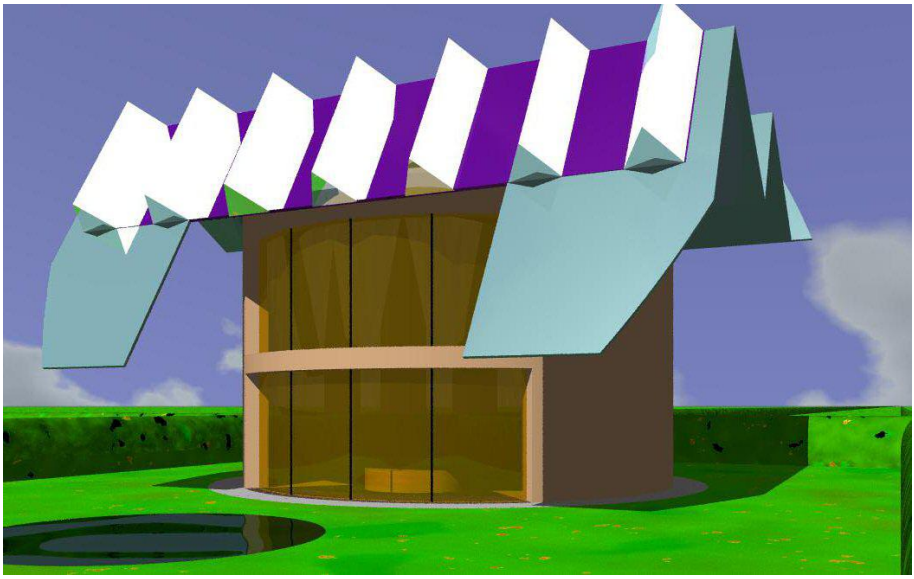
Should the price of a photovoltaic sink to a quarter of the price now, the mounting costs are already 72 % of the area price.

So the mounting costs are a considerable cost factor of the sun energy.

Solution: Mounting the photovoltaic

Horizontal tracking results in 30% more energy. For that reason suppliers of photovoltaic sell the tracking to a price that corresponds exactly to the profits. A house that turns itself and where everything is prepared to expand the photovoltaic from 30 sqm to 150 sqm, is an offer that cannot be refused in this context.

Source for the roof areas: ÖZE Austrian journal of electricity industry 2nd of February 1992 page 44, an article by Prof. Dipl. – Ing Dr. Gerhard Faninger, Austrian research center Seibersdorf, A-2444 Seibersdorf. For the GEMINI House, the 35 sqm for windows was included. The area was then multiplied by 1.3 because of the turnability.



House and solar plant: 18 sqm photovoltaic concentrated and with horizontal tracking with today's 13%. From 2800 to 4200 kWh annual revenues are enough for this house. However, there is not much left for an electric car. Photo taken with DKB.

Review 2012: cost advantage of large systems

When a solar tracking system brings 30% more yield, is the tracking system cheaper than 30% more photovoltaic? Yes for the photovoltaic price in 1992, no for the photovoltaic price in 2012.

What cost advantages have great photovoltaic power plants vs small roof system?

The cost difference is shown in the German feed in tariffs:
0.195 EUR / kWh for small roof systems with less than 10 kW,
0.135 EUR / kWh for large greenfield PV-plants.

Page 173 from "Aufstieg zum Solarzeitalter" 1993

To adopt a solar-energy program

At the beginning, there is the personal supply. GEMINI has many tricks to cover the personal needs in electricity and heating with only 30 sqm photovoltaic and windows. Even an electric car is included in the personal supply.

With a lot of effort, these 30 sqm are included in the price for the prefabricated house. What is meant by personal supply? Heating, electricity, energy for the own car and with these there are already more things listed than with other projects that are contented with heating.

But is this really the personal supply? You additionally consummate at least food. Tractors and truck are driven for you, and electricity was used for you in cooling and lighting in the supermarkets.

Every inhabitant of the BRD annually uses 50,000 kWh in primary energy. Surprised? I was also surprised, and still trying to make real, where these 50,000 kWh are consumed.

But instead of giving up now, it is time to develop concepts to surpass this a problem.

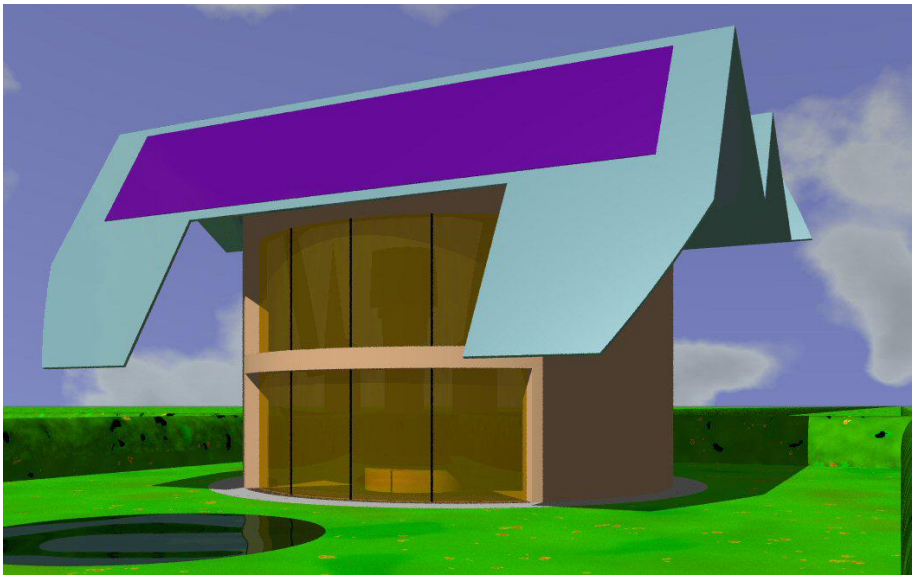
Amounts

Why so much electricity? The normal 30 sqm are already enough for living and for an electric car. Apart from that photovoltaic is going to have a far better efficiency in the future.

The reason: As soon as the structure of costs will change, it will not be about the personal supply but about the total supply.

A lot more energy is needed than just for the personal supply for living and mobility. Industries and commercial transport need energy, but in such a concentrated form that a self-supply with the sun is impossible. A freight forwarder does not have enough space in his garage to supply the truck fleet with electricity. An airport is too small to supply the aeroplanes with hydrogen as fuel. There are also the factories. Everyone needs energy.

Page 174 from “Aufstieg zum Solarzeitalter” 1993



House and solar plant: 30sqm photovoltaic horizontal traced with today's 17%. From 4400 to 6600 kWh annual revenues are comfortably enough for a house and electric car. Photo taken with DKB.

Review 2012: Photovoltaic to fuel airplanes

Airplanes with hydrogen? Today, it's far more realistic to convert electric power, H2O and CO2 to any desired hydrocarbon. Not like in the oil refinery, hydrocarbons exactly best suited for the application.

At the current research state, the efficiency is lower than at the hydrogen electrolysis, but liquid hydrocarbons are easier to carry and to store than hydrogen.

Page 175 from "Aufstieg zum Solarzeitalter" 1993

Not to forget historical cities and buildings. Their architecture is not aimed at these demands, and being cultural inheritance, we want to spare them unsuitable photovoltaic areas.

Inhabited solar power plants

There are many energy users that are not capable to cover their energy demand with the solar energy that can be won on their ground.

As soon as the energy made from fossil fuel is unbearably expensive, these users will need land for their solar power plants.

On the other hand, there is a serious housing shortage in the cities. Most people prefer to live on the country than in a concrete monolith.

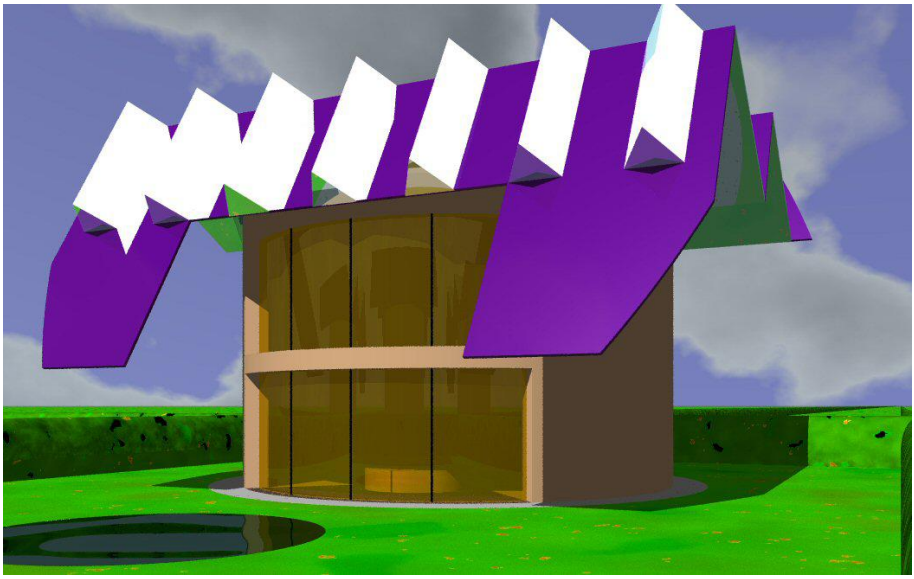
The space on the planet can only be allocated once. Therefore, property is becoming more and more expensive. Hence space must be used for more than one thing. In inhabited solar power plants.

At the moment, we are achieving an effectiveness of 17%. With an effectiveness of 20% a 150 sqm would achieve about 30,000 kWh per year. That is several times more than the personal need.

Fibbed

Until now, we have avoided to tell the truth about the need for area for covering our energy needs. Fossil energy is somewhere under the earth. There are a few oil rigs standing in the desert, a few holes to mine coal and that is it. Mines like in the GDR we in the west don't accept anymore since the 70ies.

Soon, there is no more fibbing. Then there won't be oil rigs anymore in foreign and far away countries that we see on television sometimes. Then we will see how much space we will need for our energy. Many of us will live in inhabited solar power plants.



The path to solar power plants: 48 sqm concentrated photovoltaic and not concentrated 20 sqm at today's maximum 17%. From 12,000 to 18,000 kWh annual revenue leaves us, with 2 included electric cars, an excess of energy. Photo taken with DKB.

Review 2011: The strange allies

The old-style industrial tells, that only fossil energy can deliver all the needed energy, and the environmentalist will deny the demand. He will start to explain what we all do not need, how we should all reduce our living standard until we need nearly no energy.

So this was 1991 a new idea and still was a new idea in 2012.

Page 177 from "Aufstieg zum Solarzeitalter" 1993

We will be able to live in the green. We do not all have to live in huge skyscrapers. But it will only be the surface of the earth that is green. Above our heads, the forest of photovoltaic areas will begin.

Diffuse light

Diffuse light and the blue sky have a different spectral composition as direct sunlight. Silicon solar cells are most suitable for direct sunlight.

The other spectrum of a cloudy sky reduces its effectiveness by half. This is very inconvenient because a cloudy sky gives less light, which is also utilized badly.

However, there are also different materials for the photovoltaic. I have an article by Prof. Dr. Michael Grätzel, Institute for physical chemistry, Eidgenössische Technische Hochschule, CH-1015 Lausanne. In which a photovoltaic with an exactly reversed characteristic is being introduced. That means a better efficiency with clouded light. This photovoltaic shall not cost more than a window in the next few years.

In the following level of improvement, the 150 sqm of photovoltaic are extended with 120 sqm area for utilization of the diffuse light. Due to the other qualities, these 120 sqm deliver far more electricity on cloudy weather than the 150 sqm with silicon cells.

That is the reason why in comparison with the report in “GEMINI TECHNOLOGY”, the vertical tracking was discontinued. The effort for a vertical tracking is invested better in this new photovoltaic, which converts diffuse light in such a good way.

Page 178 from “Aufstieg zum Solarzeitalter” 1993

Fully developed inhabited solar power plant: 150 sqm photovoltaic with future 20%. From 26,000 to 39,000 kWh annual revenues are a multiple of the immediate personal supply. Photo taken with DKB

Review 2012: Demand to research

The EEX - European Energy Exchange shows a very wide range of dynamic electric power prices. (page 385)

But there are still no studies on how dynamic feed in tariffs would affect solar architecture. There are still no studies about dynamic electric power tariffs in an 100% sun and wind system with huge storage demand.

A good yield in winter and at cloudy conditions can reduce this storage demand.

Page 179 from “Aufstieg zum Solarzeitalter” 1993

Land demand civilization

In the PEGE news on the 2nd of February 1992, the guide lines of PEGE were already introduced. One of the essential demands is to use as little space for the human civilization as possible, so there remains enough space for the nature. The here introduced concept of an inhabited solar power plant goes directly in this direction.

A fully developed house achieves up to 30,000 kWh on a good spot. This is calculated with a degree of efficiency of 20%. At the point that a house will be fully developed this degree of efficiency will be normal. 15 such houses can be built on one hectare. This gives a 450,000 kWh annual yield.

With biological systems, it is only possible to produce an amount of biomass with a fuel value of 9000 to 18000 liters oil per hectare. This are between 106,500 and 213,000 kWh primary energy. These can be converted into a total from 35,000 to 70,000 kWh electricity.

Hereby an inhabited solar power plant surpasses a field with energy plants in the production of energy by far. You cannot live in an acre of energy plants. In an inhabited solar power plant, 15 families can live on one hectare in very comfortable houses, which are equipped with the most modern energy-saving technique and hardly consume energy.

Let's assume that these 15 families used to live in conventional houses and had an annual consumption of 2,000 liters of heating oil. These families therefore consumed 30,000 liters of heating oil. This heat demand alone never could be covered by a hectare of growing energy plants.

In the combination of "energy production", "living in comfort", and "energy saving" the inhabited solar power plants according to the GEMINI concept are the best method to fulfill the contrary demands by PEGE of a high living standard and using little space.

Page 180 from "Aufstieg zum Solarzeitalter" 1993

You can give the name “nature” to huge monocultures with energy plants just as much as to the photovoltaic power plants. But inhabited solar power plants are a piece of nature for their inhabitants.

Energy farmer

Seeing that the profession of a farmer is slowly being extinct, this profession comes back in the future just in a different form. Inhabitants of GEMINI houses which are fully equipped will become “Energy farmers on a sideline”. This will simplify the future of social policy.

Imagine the expenditure on energy for a poor family would change from minus to plus. Instead of expenditure the family has earnings. With the solar energy, this is the direction that we are approaching.

With the GEMINI basic equipment of 30 sqm the inhabitant’s energy costs are reduced to nil.

Having reached nil it will still take some decades to turn the energy costs for a family into earnings. Photovoltaic is getting cheaper and electricity more expensive so the world production of photovoltaic will increase by several 1000 times.

We will have to build more new houses than after the Second World War. Nevertheless, behind all this work is a goal that is worthwhile fighting for. We are fighting for a civilization with a high living standard and the awareness to live in perpetuity.

Review 2005: The yield of biomass

In 2005 I made several reportages about biomass. One of them about a farmer in lower Austria is growing sun flowers with 1000 liter oil yield per ha. About the wood power plant in Güssing and a maize to biogas power plant with a yield equal to the energy of 4000 liter oil.

The yield of biomass was assumed much too high. Instead of 9000 to 18000 liter oil per hectare, they got only 1000 to 4000.

Page 181 from “Aufstieg zum Solarzeitalter” 1993

Order of magnitude

Page 182 from “Aufstieg zum Solarzeitalter” 1993

Order of magnitude

Imagine you would have been responsible for the German energy logistics in the 70ies. There are two visitors listed for today. The first visitor explains to you that with 22 nuclear power plants 39% of the electricity needs can be covered in the year 1988. The second visitor demonstrates that it is only the question of equipping all the roofs in Germany that face to the south with photovoltaic. With that in 1988 4.5% of the electricity needs are covered.

Later with a better technique you would reach a few more percent. You are fascinated by the Idea to produce energy directly from the sun. But the Magnitude isn't correct. Too little effect for a cause, that means equipping all the roofs that face the south.

I don't want to take this example as far as a decision and calculating the budget. This could bring heavy inner conflicts onto you. I just want to communicate to you the Idea that with every technique, one also has to take into account its magnitude and its use.

If I want a lot of means for research, I must show that the magnitude of use stands in a good ratio to the expenditure.

That is why in this chapter, the GEMINI concept stands in comparison to the reality of a civilization of a gigantic use of energy and big central energy producers. There will be inhabited solar power plants in different sizes.

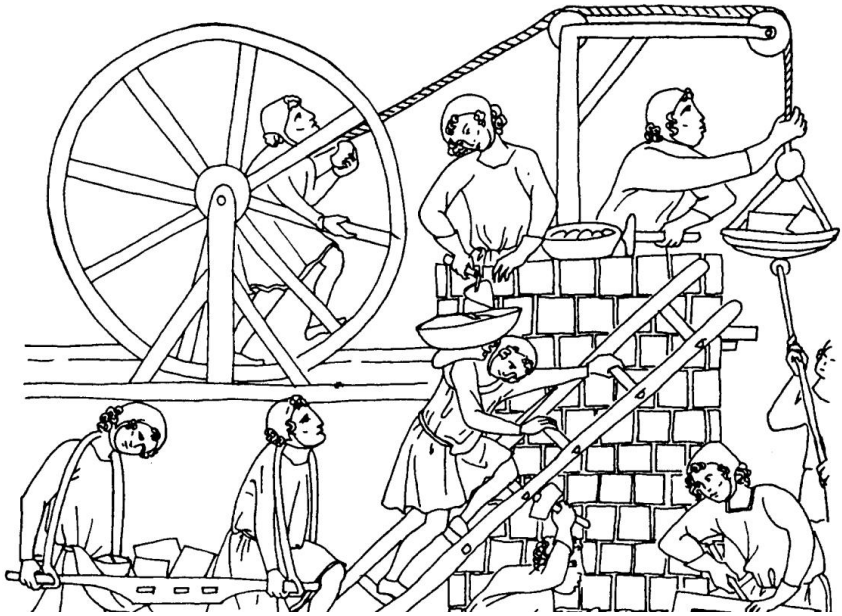
The examples all refer to the type of roomy single-family house introduced in the chapter GEMINI basics. One house, one family, one ground and one solar power plant. So it makes it easier to imagine the comparisons of magnitude.

But I want to bring you a few examples to get a feeling for the development of energy costs in the last few centuries:

Treadmills

A long, long time ago solar energy was the only energy source. It mainly was used indirectly. Water power and wind power and biomass were everything that man had. In this time, the human muscle power was used to produce mechanical energy. The treadmill was such a devise to convert biomass into mechanical energy. In ten hours work, one kWh mechanical energy was produced.

Imagine something like that today. 10 hours of strenuous and heavy labor in a treadmill and all that is produced is one kWh that has the worth of 40 pfennig. The structures of the price have changed immensely since then. With 40 pfennig for a day's work, we would die of hunger.



The Conversion of bio energy in mechanical energy. 10 hours labor and a lot of food for this strenuous work was necessary to produce one kWh mechanical energy. Old Testament, 14th century

Page 184 from "Aufstieg zum Solarzeitalter" 1993

Comparison of energy costs

Have you compared the price for petrol and heating fuel with the price for chocolate and sugar? The different costs for energy sources that are suitable for living creatures and the ones that can only be utilized for machines have a big effect. Big supermarkets out-of-town were made possible only by this difference in price.

A client drives for 20 kms to the shopping center and 20 km back home. His car uses a total of 40 kWh of energy for these 40 km. There he/she buys the biggest part of groceries that he/she will use during the following week. Back home 40 kWh energy has disappeared out of the tank, instead there are 21 kWh contained in the groceries that are in the trunk.

In the old days, the client went daily to the grocer's at the corner and used an amount of energy for the walking distance easily below 1 kWh.

This is not about being critical but for an understanding of this development's effect.

Energy source	Amount/kWh	Price	Price/kWh
Heating oil	1 l / 9.8	0.80 DM	0.08 DM
Diesel	1 l / 9.8	1.10 DM	0.11 DM
Gasoline	1 l / 8.9	1.40 DM	0.16 DM
Electricity	1	0.40 DM	0.40 DM
Chocolate	100g / 0.64	1.00 DM	1.56 DM
Milk	1 l / 0.76	1.50 DM	1.96 DM
Wholemeal bread	500g l / 1.45	3.00 DM	2.06 DM
Fishfingers (freezer)	450g / 1.1	6.00 DM	5.44 DM
Grünkerntaler (freezer)	300g / 0.64	4.00 DM	6.21 DM
Marillenknödel (freezer)	450g / 0.87	6.50 DM	7.45 DM
Broccoli (freezer)	300g / 0.12	3.50 DM	30.00 DM

Energy for humans and machines has very different prices. Already in former centuries the prices for energy for humans and energy for horses were different, but during the development of civilization, this difference became bigger and bigger.

Page 185 from "Aufstieg zum Solarzeitalter" 1993

Tradition

In the past, the people on the countryside produced the entire energy in the society. Food for man, fuel for the entire distribution system, fuel to heat the houses and for a variety for factories. Apart from producing energy, traction engines and building materials were produced.

Fuels were hay and wood for heating; the machines were horses and oxen. The building material was wood and food are ultimately a kind of energy source.

This type of generation of energy was very work intensive. Visibly more than half of the population was a fulltime producer of energy.

Chopping wood

In winter, the whole family sat around the warm oven. The front room was the only heated place in the farmhouse. The rest wasn't heated. Like this it was most comfortable. To cut more trees, to chop more wood and to build more ovens that have to be heated would have been very strenuous.

It was just more comfortable to content themselves with one heated room and to avoid the work that would have been needed to heat the entire house.

Potemkin-villages

The tradition is being preserved, and the houses look just the same as centuries ago. But it is only from the outside. Behind the facade, there is nothing left from a tradition of a population whose task was to produce energy.

Energy now comes from a foreign country. In a few minutes, the tank is filled with heating oil unlike in the past where there was a lot of work needed to chop the wood for the fire. And because it is so fast and cheap a lot more energy is used today compared the old days. Some branches of today's farming need more energy than they produce.

Page 186 from "Aufstieg zum Solarzeitalter" 1993

Whoever sees a farmhouse believes to stand in front of the living and working quarters of an energy producer. But that is not so. In reality, one stands before a net energy user. What do we call such an accumulation of hypocritical pictures? We call these Potemkin villages.

Progress to tradition

Nobody wants to return to the hard-living conditions of the past. The real tradition is buried under cheap oil. Left over is just the facade of the past. However, with technical progress it is possible to return to the tradition.

Inhabited solar power plants like GEMINI meet the tradition of producing energy. This progress gives us the possibility to choose between tradition as purpose or as a facade.

About people and cars

Cars are the biggest enemy for environmentalists. In spite of that there is nobody who wants to go without a car. Luckily, this is not necessary. It's just a matter of choosing the right car.

Required area for harvesting

An important criterion for a decision is the needed area for harvest to win the operating power. It is surprising that a car needs less area of harvest than man.

The necessary area for bio fuel seems to be tolerable on first sight; however only fertile acres can be used for it. This makes the area one needs for growing bio fuel 10 times worse as it seems first.

The effectiveness of the performance of the photovoltaic which is far superior to the plants is lost by the transformation from electricity into hydrogen and from hydrogen into an energy source. Only with a direct electrical connection to the electric motor the photovoltaic shows it's full superiority towards the plants.

Page 186, 187 from "Aufstieg zum Solarzeitalter" 1993

Noise and emissions

How quiet would our big cities be, if the main roads were under the earth? In this question, we have an if, because it isn't possible yet.

Even if the emissions are detoxicated by a catalytic converter or burning hydrogen leaves only steam, there is a big amount of air in the tunnels that has to be changed. Otherwise there is the danger of being poisoned by CO2 or in the more harmless case with cars that drive on hydrogen the tunnel would seem like a steam bath. A car with a combustion engine needs 100 times more air than a human being. That makes the ventilation of a tunnel that is frequented by cars with a combustion engine to a very expensive affair. A lot of electricity is needed for the ventilators, and the waste air has to be transported out of the tunnel.

Underpass instead of bypass

Let's assume a bypass is needed for a village. Plans are being made, and citizen's initiatives block those plans. New possibilities that are more environmental friendly but also much more expensive are worked out.

The most complex of all the possibilities is a road running in a tunnel directly under the village. Only electric cars reduce the price of this possibility. And the aeration of such a tunnel can only be mastered without problems with electric cars. This makes the decision to preserve our nature and to transfer our road under the earth easier.

Comfort

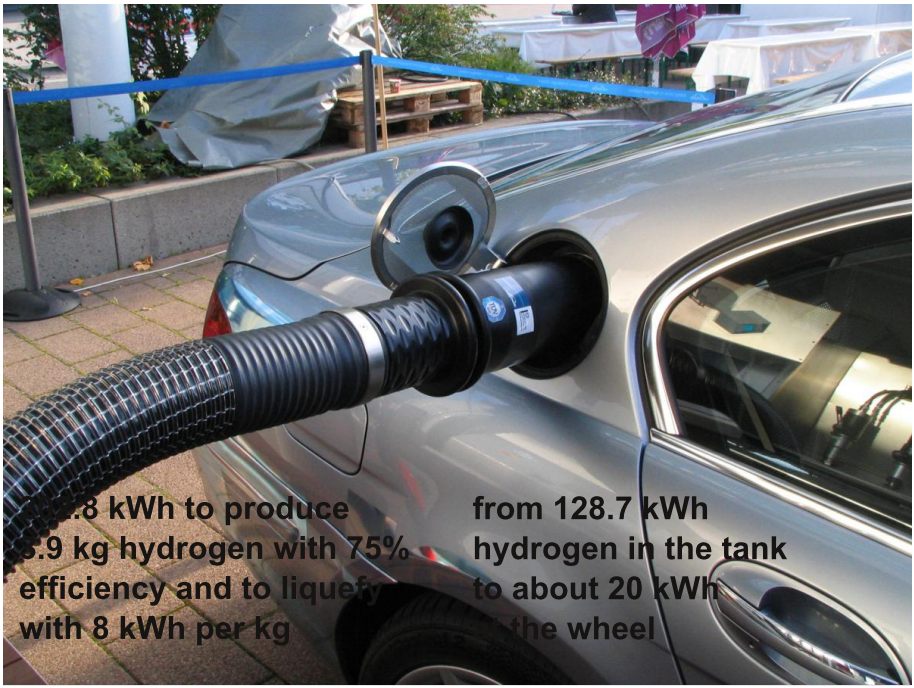
To go on a short car ride is fun. On a long drive still 100 kms away from home and looking in vain for the autopilot's switch the fun seems to disappear.

Equipped with a charging lane the roads have this comfort determined by the system.

The winner in all points is therefore the combination of electric cars and charging track. To invest billions in developing other systems is not profitable.

Review 2007: BMW 7 hydrogen

February 28th 2007, I read that the environment minister of Bavaria dreams from a BMW model 7 hydrogen. Time to analyze the energy consumption. BMW states 3.9 kg hydrogen per 100 kms. Hydrogen has 33 kWh per kg, but the electrolysis has only around 75% efficiency, and the hydrogen has to be cooled down until it's liquid. This adds up to 52 kWh per kg and at the consumption of the BMW model 7 hydrogen to 202.8 kWh / 100 km. An electric car of the same size would use only 1/8. My estimation from 1992 was correct.



Conversion losses from electric power to hydrogen to fill the tank and from tank to wheel.

Page 188 from "Aufstieg zum Solarzeitalter" 1993

Here are differently supplied cars with an average of 15,000 km mileage coverage per year in comparison. This is a principle depiction without claim to be exact in the last percent.

There are too many unknowns to be exact. Photovoltaic with the typical for GEMINI houses 600 sqm ground and 150 sqm photovoltaic.

Review 2005: efficiency of biofuel

Yield for biofuel was wrong investigated. The new calculation is 1000 liter yearly yield per hectare, a car with 5 liter / 100 km.

So this rectangle is now 7500 mm² for 7500 m².

The energy for the fertilizer

Agricultural machines and the production of artificial fertilizers have a significant influence on the real yield of biomass. At the other end the biomass must be manufactured from a smorgasbord of chemical compounds to something that is suitable for an internal-combustion engine.

Total area	Receiver of energy
Harvest by	Distribution
Location	Energy is used by
2800 m²	Plants
biological	Food
Farm land	Human (world average)
250 m²	Plants
biological	Food
Farm land	Human (Biosphere II)
1200 m²	Plants
biological	Biofuel
Farm land	Diesel-engine
600 m²	Photovoltaic
150 m²	Hydrogen
Europe	Internal-Combustion E.
300 m²	Photovoltaic
75 m²	Hydrogen
Sahara	Internal-Combustion E.
300 m²	Photovoltaic
75 m²	Hydrogen
Sahara	Fuel cell
150 m²	Photovoltaic
38 m²	Hydrogen
Europe	Fuel cell
75 m²	Photovoltaic
19m²	Charging lane + batteries
Europe	Electric engine

Page 189 from “Aufstieg zum Solarzeitalter” 1993

Population density in cities

“The trend is away from Single-family detached home”, “our countryside is already now spoiled by development”, “too much demand on space” were the first reservations that I heard.

But these arguments can be easily refuted. A with today’s cities comparable population density can be reached with inhabited solar power plants. Even a higher population density than in the extensive and car dependent American cities can be reached. Only the big heavily built up Asian cities cannot be reached, though this isn’t a goal to want to reach.

Waste of space

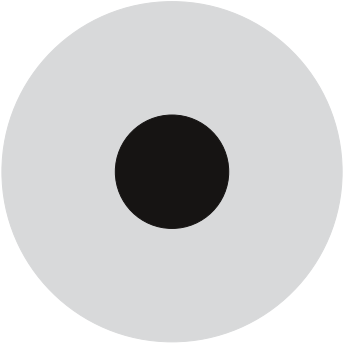
Actually we need a completely different planning for a town to fulfill this purpose. With today’s single layered structure is there nothing to be done.

There is no greater waste of space in a town than hot asphalt. Instead of being used by photovoltaic or plants as something useful the solar energy is wasted on the roads. This also brings a bad climate effect on the big cities. In cities, it is hotter than on the country side which takes us to more traffic for outings and more need of air conditioning. Air is an inferior insulator for the traffic’s noise. To dampen the noise through long distance is also a waste of space.

Gemini with city center

A construction with 8 area parts GEMINI and 1 area part historical building’s zone in the center.

Two thirds (50 per hectare) of the citizens and work places are in the outer ring, one third (200 per hectare) in the center.



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Inhabitants and workplaces per hectare

Phoenix	13
Perth	15
Washington	21
Sydney	25
GEMINI sole	50
Toronto	59
Hamburg	66
GEMINI with city center	67
Amsterdam	74
Stockholm	85
Munich	91
Vienna	111
Tokyo	171
Hong Kong	403

The area per capita and workplace is depicted on a scale of 1:1000. For the much higher living standard, the total energy supply including the energy for transport and industry the inhabited solar power plants can keep up very well with the achieved population density.

Page 191 from “Aufstieg zum Solarzeitalter” 1993

Multilayered construction

A similar development can be already found in electronics. In simple gadgets, it is sufficient to use a printed circuit board that has conducting traces only on one side. You call them single-layer-circuit boards. But more complicated circuits are impossible with such a single-layer-circuit. One needs multi-layer-circuits for that. Today's electronics without multi-layer-circuits is unthinkable.

In future this multi - layer - principle must also be used in constructing cities. A pocket radio with the size of a DIN-A3 sheet of paper is just as impractical as an extensive city in America where one needs a car, and there is not much of a choice to overcome the long distances.

Cars could move in tunnels covered with glass tops. On top pedestrians and bikes. Cars? No! None of today's cars, only electric cars, otherwise the air intake and exhaust system of the semi-underground roads cannot be solved with reasonable effort.

In the course of the cultural progress, a lot of nuisances have been hidden under the surface of earth. First, there were the sewage drains. At present, there are no more big cities that have sewage running through the streets. Water, sewage, cables for electricity and for transport of information are all under the earth. For most citizens who suffer from the noise is the car on top of the list for things that have to disappear under the earth - Dead or alive.

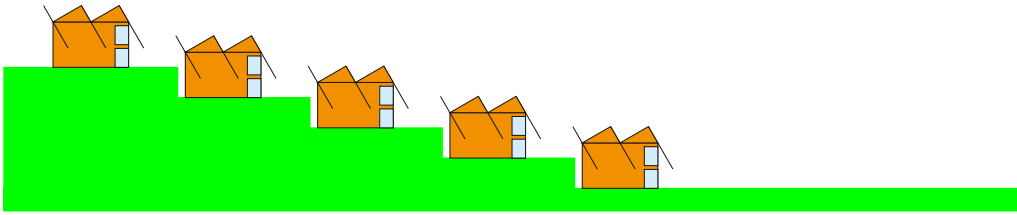
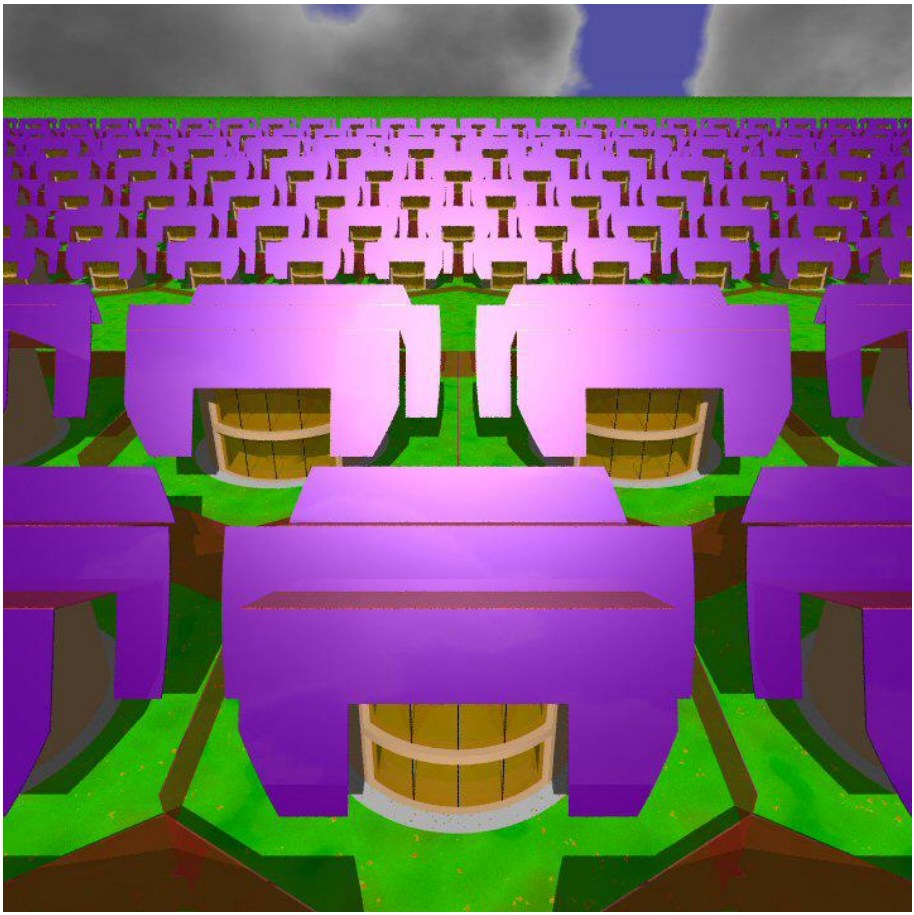


Illustration of the left and right side: residential estate on split levels with the smallest possible ground: hexagons each 347 sqm.

Page 192 from "Aufstieg zum Solarzeitalter" 1993



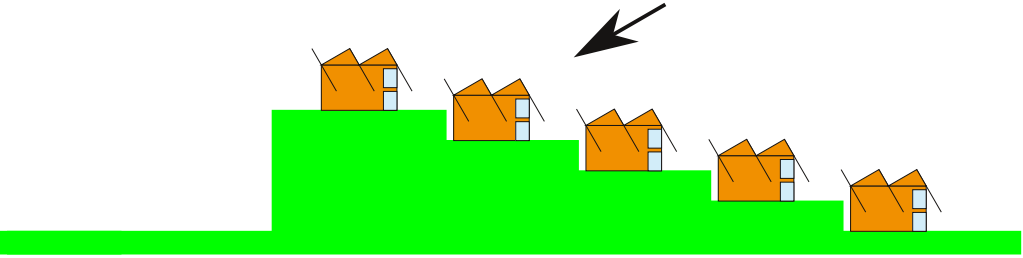
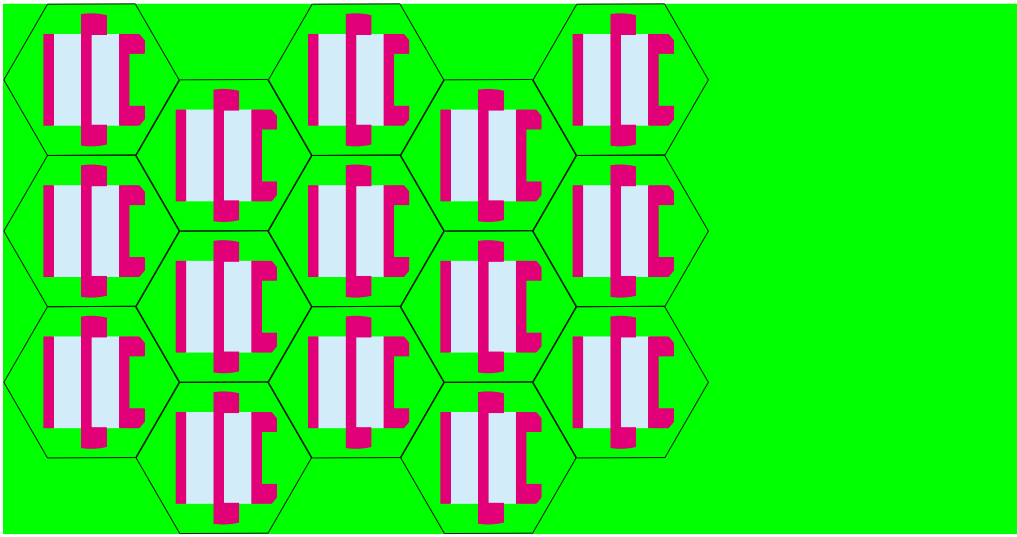
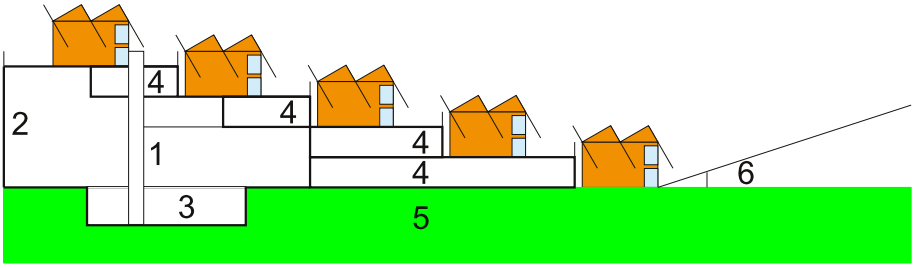


Illustration above: a dense residential area in split layers on flat ground at midday and at the moment of spring and autumn solstice. The position of the camera is marked with an arrow on the illustration below.

Page 193 from “Aufstieg zum Solarzeitalter” 1993





1.) Elevator: every 40 m in direction East-West

2.) 16 m high transparent sliding doors to close of the North side completely. They are opened depending on the weather.

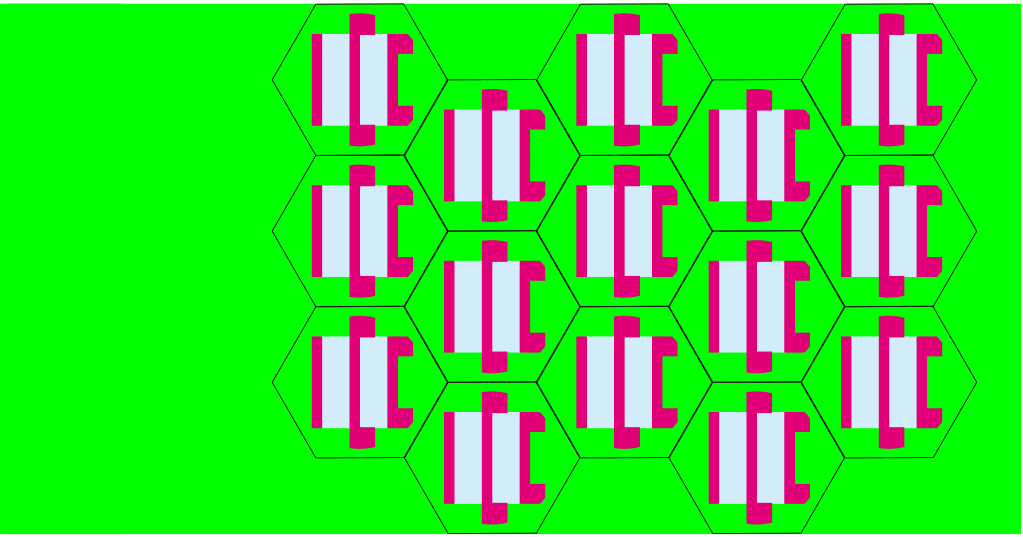
3.) Road goes in direction East-West with sufficient parking.

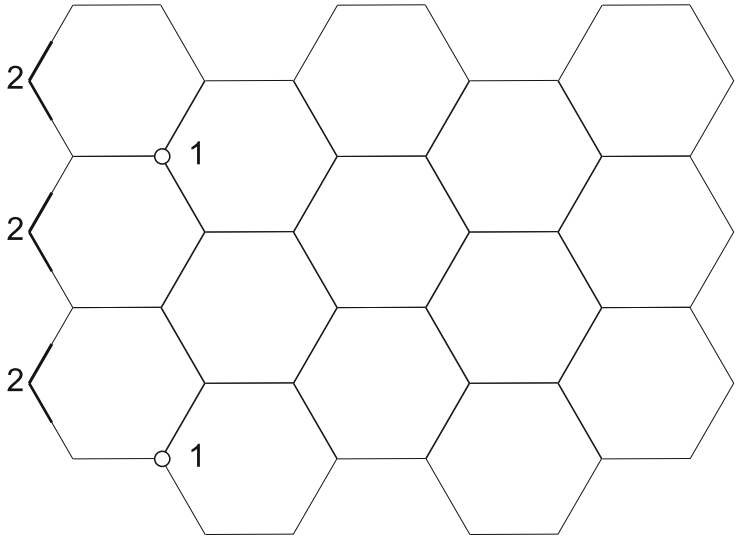
4.) Room for guestrooms, offices, sport, free time, storehouse and shops that gets light from the North and from the light domes of the grounds above.

5.) Underground: Here the surplus heat from the houses is stored.

6.) Measurement for plants: bushes and trees shall only reach the height of the measurement shown. Straight in the North of the split level just over 20 m high trees are possible.

Page 194 from “Aufstieg zum Solarzeitalter” 1993





Above: top view of a residential area on a split level
left middle: sectional drawing for details
right bottom: top view for details

Page 195 from “Aufstieg zum Solarzeitalter” 1993

180,000 against one nuclear power plant

Sorry, this isn't an organizer's of a demonstration against a nuclear power plant dream. This is the quantity of GEMINI type inhabited solar power plants, which replace the annual electricity production of an average German nuclear power plant.

But this is only the annual production. A nuclear power plant enables you to take electricity whenever you want. Electricity with solar can only be given to you when the sun shines. That means that the 180,000 solar houses must be upgraded with devices to store electricity.

I don't think that this comparison has been made before, thought through and calculated based on conventional architecture the outcome would be too frustrating.

1988 22 nuclear power plants based in Germany produced 150 billion kWh. The average per nuclear power plant is then 6,818 million kWh. Today's houses are supplied with that. An electric heating would be an unfair calculation towards the nuclear power plant. That's the reason why we assume 6,000 kWh for a heat pump per household.

Seeing that the fully equipped 150 sqm per house will only be effective in 10 to 20 years, we calculate with the photovoltaic's 20% degree of efficiency and an annually produced 30,000 kWh. Towards these 30,000 kWh, we also count the 6,000 kWh savings for the needless heating and further 2,000 kWh savings for the special domestic appliances per house.

For the need of space, we adopted 35 m in the direction of North-South and 20 m in the direction of East-West per living unit.

That is the space that is necessary to replace the annual production of an average nuclear power plant with an inhabited solar power plant. About half a million people would live in it. To compare the size of the area the surroundings of Zwentendorf were taken. There we find the worldwide only 1:1 model of a nuclear power plant. Map by the Lower Austrian government.

Page 196 from "Aufstieg zum Solarzeitalter" 1993

Review 2011: 220,000 against a nuclear power plant

The new "Land for Energy" concept on page 314 is designed for much higher density. It's the same amount of photovoltaic per house, but not turnable. The ground per unit had shrunk from 20m * 35m to 15m * 20m.

Instead of 126 km² for 180,000 GEMINI inhabited solar power plants, only 66 km².

When you look back to page 75 "Inhabitants and work places per hectare", the new "Land for Energy" has a density between Munich and Vienna.

Page 197 from "Aufstieg zum Solarzeitalter" 1993

Energy model 2040

Germany is taken as the biggest challenge for this model. Germany is a very densely populated industrial state that only begins at the 47th degree of latitude.

According to date views, solar energy needs a lot of space, lots of sun and an economical population. In Germany, we find the contrary: little space, little sun and a population that is used to a high living standard.

1.) Solar energy: 900 billion kWh per year

30 million fully equipped inhabited solar power plants of GEMINI standards. From that there are 20 million units for main residents with 60 million inhabitants. The left-over units are solar power plants for second homes, factories and public buildings.

2.) Water power: 40 billion kWh per year

This type of energy luckily doesn't play a deciding role because it is difficult to make a prognosis. Different climate models count on an increase or decrease on rainfall. So it is assumed that there will be 25 billion kWh from domestic production, and 15 billion kWh will come from Austria and Switzerland.

If Austria and Switzerland have a similar intensive use of solar energy, there a considerable amount of water power will be left to be exported to the neighbors.

3.) Wind power: 40 billion kWh per year

The only temporal not controllable energy source which gives in winter more energy than it produces in summer. On windy islands, solar power and wind power can be synchronized to a seasonal even energy supply. In a country where there are very little windy parts the wind power looses out.

Page 198 from "Aufstieg zum Solarzeitalter" 1993

1,2,3.) Temporal not controllable sources 980 billion kWh per year

Neither the sun nor the wind let themselves be switched on or off. At the water power only pumped-storage hydroelectricity can be switched on and off. Therefore, these 3 types of energy are summed upon to one group.

Their application demands big investments in storage power plants and a European integrated energy transport network to control their production and their usage.

4.) Caloric power plants and fuel cells 308 billion kWh per year

In the period of transition one can still work with power plants that are fed with reserve energy. This would only be 103 million tons SKE.

Later biomass and hydrogen are produced by solar energy. To mention is that the biomass will not be cultivated for this. Waste like wood chips will be used.

Germany will only produce a small amount of the hydrogen. Therefore, the summer peak of solar energy will be used. 88 billion kWh excess will be converted into hydrogen. Because of the loss that happens during production, there will only be 22 billion kWh for electricity. The missing amount will be imported from the deserts.

1..4.) Production of electricity

1200 billion kWh will be used directly or be stored in storage power plants. With the remaining 88 billion kWh from the summer peak hydrogen will be produced. But this is a seasonal storage with a low degree of effectiveness. The excess from the summer peak of this method is only enough for just above 7% of the winter depression.

Page 199 from “Aufstieg zum Solarzeitalter” 1993

5.) Waste heat: 308 billion kWh per year

Depending on the mix between the caloric production of electricity and the fuel cells, there is more or less waste heat. As the order of magnitude we decided on 308 billion kWh.

The production of waste heat and the need of historical buildings are exactly synchronized according to season. Historic buildings that are worth keeping like historical town centers are built very close together, and so it is easy to heat each building with district heating.

Assessment

With electricity produced by caloric power plants you take the measured amount of energy of the burned energy source as the number for the balance of the primary energy balance. At electricity from hydropower, nuclear power and solar power 0.33 kg SKE primary energy is calculated per kWh electricity. 1,200 billion kWh of electricity correspond to 400 million tons of SKE. The waste heat is not included in the balance of the primary energy.

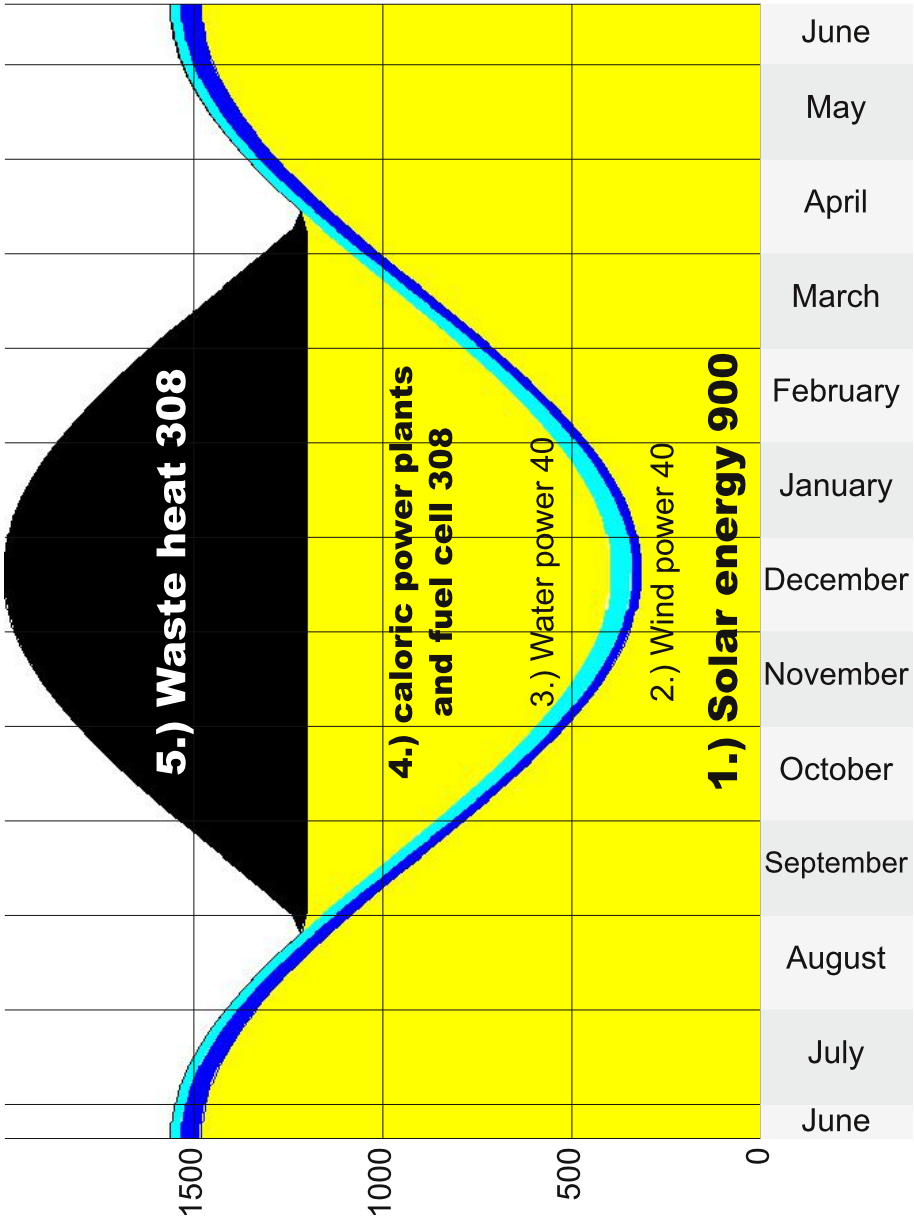
Also the heat that is won via the window areas is not included in the balance. Although in a GEMINI house this is substantial for the heating system.

This is not really noticeable because the need for thermal energy is extremely low. There are not more than 10 to 20 million tons of SKE lost.

With all this saving on energy, there is more to be reached with these 400 million tons SKE of primary energy than with the 511 million tons SKE in 1989.

Over twice as much electricity, a little waste heat and nothing else.
This is an energy model for a higher living standard in Germany.

Page 200 from “Aufstieg zum Solarzeitalter” 1993



Electric power production in billion kWh

Page 201 from “Aufstieg zum Solarzeitalter” 1993

Review 2012: electric power production

Two decades later, a lot of “out of reality energy prognoses” are around. The PEGE prognosis from 1992 is still the most likely. Following key points: 1200 TWh electric power consumption in Germany and 900 TWh by photovoltaic per year remain unchanged.

1.) Solar energy 900 TWh

Some of the photovoltaic will have combined electric power and thermal power generation. This is a new option to store the heat from the summer with the combined modules in the underground and use it in the winter with a heat pump system. This is specially interesting for dense populated cities with old buildings.

2.) Hydropower 40 TWh remains the same.

3.) Wind energy 40 TWh

Wind energy has been much underestimated. Wind energy reached the first-time 40 TWh yield in Germany 2008. The new estimation is 200 TWh. Since there is more wind energy in winter than in summer, this makes the winter gap much smaller.

4.) Thermal power plants

The fuel cell is removed from the energy prognosis. CCPP Combined Cycle Power Plants combine a gas turbine, and a steam turbine powered by the heat of the gas turbine. The latest CCPPs convert little more than 60% of the fuels energy into electric power. The very high electric efficiency reduces a great amount of waste heat.

Hydrogen is under question, because the production of methane by CO2 and H2O is a new possibility. The same storage for gas can hold 3.43 times more energy with methane than with hydrogen. On the other side the efficiency of production is lower.

5.) Waste heat

The severe change of wind energy in the prognosis reduces the electric production in thermal power plants. The usage of CCPP reduces the waste heat per kWh electric power production.

Review 2012: electric power usage

March 2012, I prepare my lecture series for the environment fair in Landshut. I have to prepare 3 lectures. “Civilization jump”, “Energy change, too little, too late” and “More electric power, less energy”.

All the lies about the energy change claim less electric power usage. Only I write the electric power usage will double from 600 TWh to 1200 TWh. To proof this, I download the “AGEB energy balance for 2009 and 2010”. This is a study paid by the German government.

I list all use of thermal power in a table and estimate for each usage a replacement factor by electric power. For example, I estimate 7 kWh heat can be replaced by 1 kWh electric power for room heat. This can be achieved by better thermal insulation for houses and a heat pump.

All in TWh	Room heat	Warm water	Process heat	Mechanical
Industry	41.2	4.2	329.4	2.7
Trade & service	147.4	11.5	19.1	29.5
Household	428.4	70.3	0.7	0.0
Traffic	2.5	0.0	0.0	681.1
Total thermal TWh	619.4	86.0	349.2	713.3
Replacement factor	7.0	2.5	1.2	3.0
Electric power	88.5	34.4	291.0	237.8

Replacing 1767.9 TWh thermal power usage with 651.7 TWh electric power. Let’s optimize the current electric power usage by 10%.

550 TWh plus 650 TWh are 1200 TWh.

Show anybody claiming less electric power usage in the future this table and ask him how to handle this 1767,9 TWh thermal power usage in the future.

It’s important to reveal this collective lie. Regardless if they are pro or contra the necessary change to renewable-energy, both sides agree to hide the real magnitude.

Demand for electricity

In this model, the demand for electricity is distributed evenly throughout the year. Electricity isn't used directly for the thermal heating. Therefore, there is no winter peak in winter. More demand on lighting in the rooms is an unimportant factor. Finally, in the summer, all the electric cars roll on the roads equipped with charging lanes leading to tourist destinations. The production of electricity was a little more than doubled towards today's standards due to the change to this energy source.

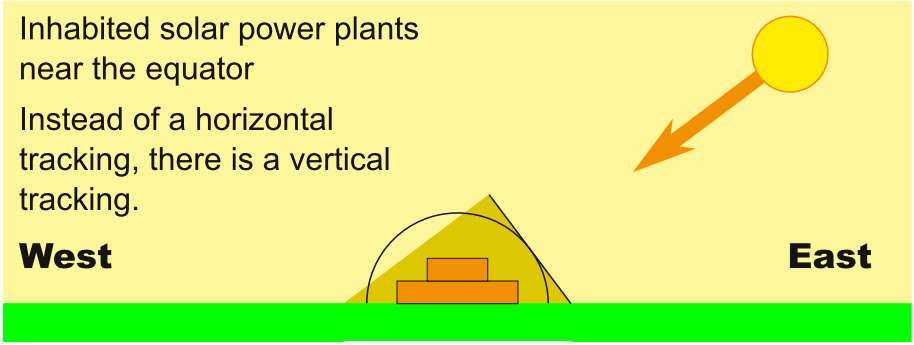
Hydrogen

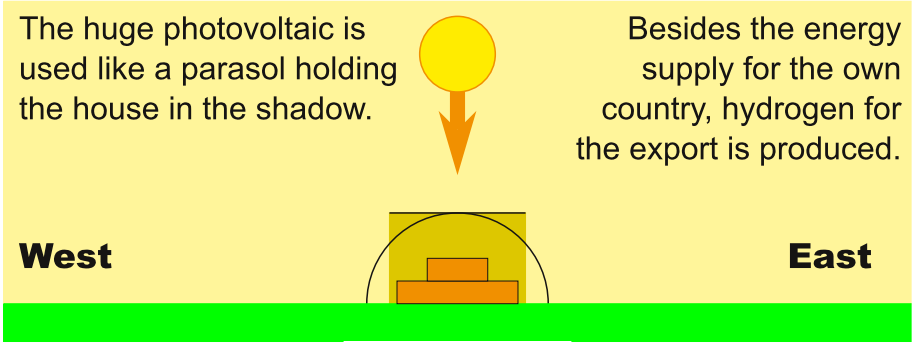
The biggest part of hydrogen that is produced by solar energy is imported from the deserts. It is absolutely possible to produce hydrogen by solar energy in Germany. 60% more solar energy would be sufficient to produce enough hydrogen during the summer peak for the winter depression.

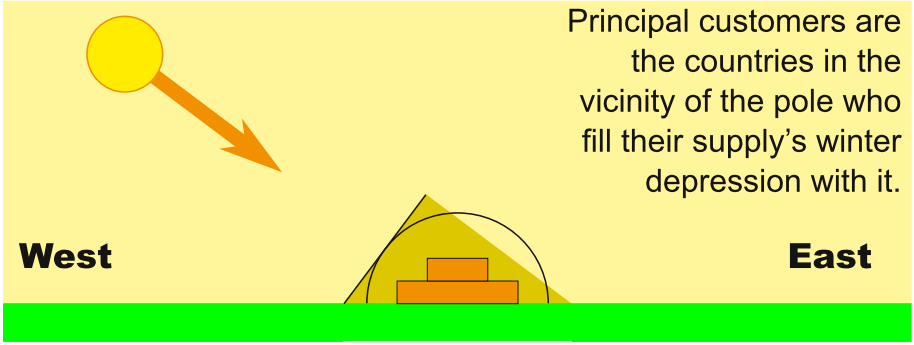
It's just a question of profitability. As long as the power is used directly or stored in systems with high efficiency, it is most conveniently produced directly in Germany. But for the winter depression, it is expected that it is only possible to store the demanded amount of energy with hydrogen. Though for hydrogen, it is much more profitable to produce it in countries with a lot more sunshine.

Cars

50 million electric cars with approximately 24 kWh/100km and 15,000 km per year will need 180 billion kWh. The high estimation for the average consumption will surprise some people. In the future, the average size of the cars will be bigger than today.







Close to the equator inhabited solar power plants look completely different. Here hydrogen is produced for the winter depression of countries near the pole.

Page 203 from "Aufstieg zum Solarzeitalter" 1993

Biomass

900 billion kWh are won with the inhabited solar power plants in this model. Compared to that in caloric power plants, there is a production of only 308 billion kWh. One would need 103,000 skm for the production of 10 tons SKE per hectare of biomass. This of course is complete nonsense! - Using more than a quarter of the land for mono-cropping and this just to have enough energy for the winter depression.

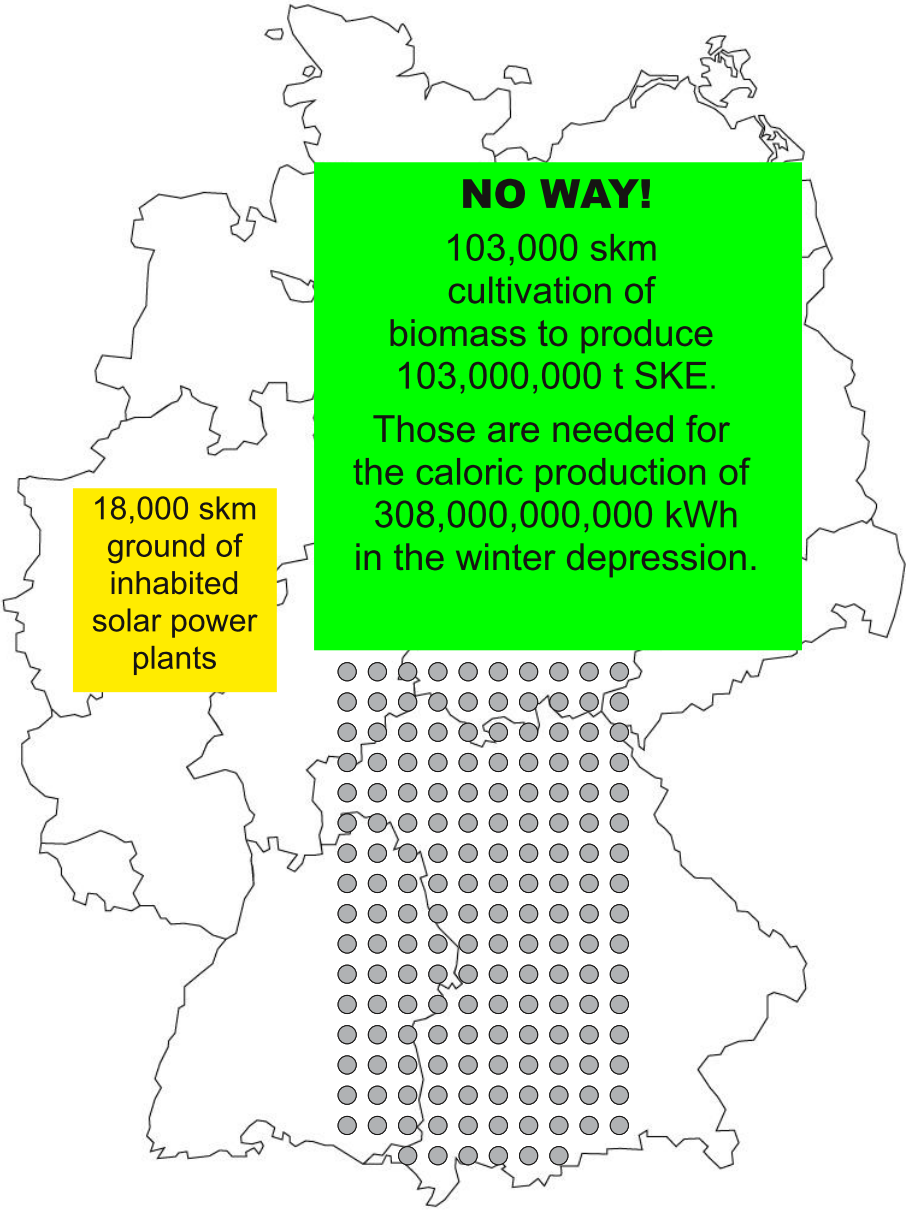
Instead, you need only 18,000 skm for 30 million inhabited solar power plants that not only produce more energy but also a living space with garden for 75% of the population. Plants have a very bad degree of effectiveness if concerning the production of energy by solar energy. Plants can be used meaningfully for the production of raw material. For the production of energy, their degree of effectiveness is absolutely unsuitable. The effort of biomass is just practical where it is produced from waste, for example, wood chips.

Growing crop to win energy is clearly a no go concerning the PEGE guide line “If this technology is used, will there be enough space for our nature?”

Plants are good raw material suppliers but to produce energy their degree of effectiveness is not high enough. Solar power plants produce far more energy on a smaller area, and in addition, they provide living space for the population.

The grey points are 166 nuclear power plants each with a protection zone of a diameter of 12 kms. 180,000 inhabited solar power plants of the GEMINI category replace one nuclear power plant. 30 million replace therefore 166 nuclear power plants.

Page 204 from “Aufstieg zum Solarzeitalter” 1993



Page 205 from “Aufstieg zum Solarzeitalter” 1993

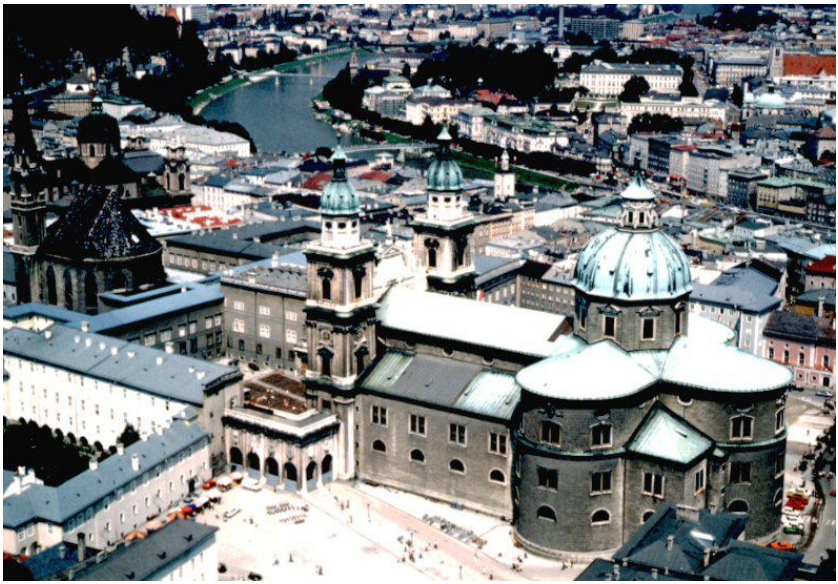
Old buildings

Old buildings are not made to be heated with solar energy. They can be improved but not more.

1.54 billion sqm of old buildings can be heated with the 308 billion kWh waste heat. For this calculation, a consumption of 200 kWh per sqm was assumed for the old buildings.

Calculating 75 sqm living and working space per citizen the old buildings that are able to be heated have space for 20 million Germans. The rest of the population lives in inhabited solar power plants.

Against arguments like “Living in a green environment”, “Energy income instead of expenses”, “The highest living comfort”- that advertise for solar power plants – and increasing prices for energy the old buildings don’t stand a chance for most of the population. Therefore, there have to be safety zones for valuable and historical buildings. As a part of the protection of old buildings maybe there will be subsidization for district heating.



Page 206 from “Aufstieg zum Solarzeitalter” 1993

above: *A district in Dresden which one is not important seeing that all look the same. The inhabitants of these old buildings would rather move today than tomorrow. As soon as it is possible to find somewhere that is cheaper to live in, these housing schemes will be deserted ghost towns. To obtain more building land such ghost towns will be torn down.*

left: *Salzburg – one of the most beautiful safety zones of historical buildings. For Austria, there is a similar energy model. Waste heat that comes from the electricity production is used for the production of thermal heating that is essential for the upkeep of old and historic buildings. To keep the town inhabited the district heating will be subsidized from the association for protection of historical buildings.*

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The storage of energy

The different harvest of solar energy in the daytime and at night and the changes of weather during the week have to be balanced.

Storage power plants with hydropower are today's only technique to store big amounts of electricity. They pump water on the top with excess energy. When there is demand for electricity, the water is let down again through these turbines.

In 1990, this form to store electricity reached not more than 3 % of the whole production of electricity even in Austria that is rich on water. That means that there are less than 3% of the entire electricity production used in the form of water pumped storage power plant to be consumed at a later time.

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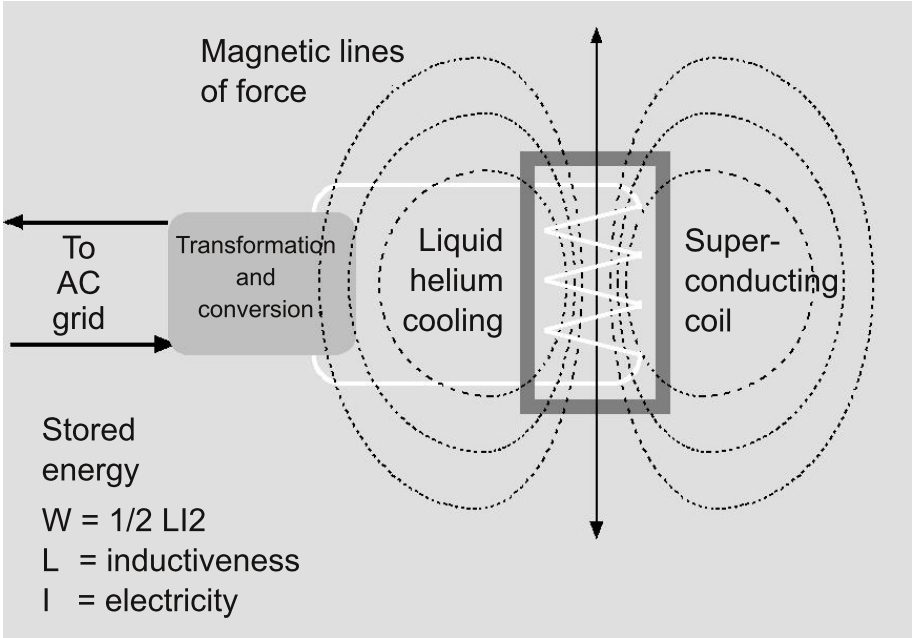

above: General design of a superconducting magnetic storage for energy. (SMES)

left: Storage power plant Glockner-Kaprun. In the summer, it is typically for today to pump water to the top at night to store excess energy from the run-of-the-river hydroelectricity.

In the solar era, this will change. The water will be pumped to the top during the day and this with the excess solar energy to store this energy for the night.

Review August 2008: Storage methods

See page 197: Day / night balancing by lithium batteries and summer / winter balancing by electric power to methane, existing underground gas storage and existing CCPP - Combined Cycle Power Plants.

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Social consequences

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A complete change of the energy supply will bring big social changes. The potential has the same dimension as the advance in the social system of the past century. Today it is time to set the course.

Politicians

Winston Churchill, Ludwig Erhard and Adenauer were politicians pressed by time to make big decisions. They had to tackle problems that were fatal and with little time to decide.

For comparison today our politicians have relatively small problems. Unluckily the solutions of these problems can be postponed until the elections are held. At least, these problems and their consequences seem small if one only thinks in short periods of time, which only stretch to the next election. An investigative commission is soon found, and they often need an entire legislative period to write a report.

Just as PEGE is looking for entrepreneurs with personalities like Henry Ford for the large-scale production of inhabited solar power plants, politicians with personality are needed for the implementing.

Should a politician become, due to this assignment, a historically important person it would free PEGE from political work.

But should the politicians think it is enough to praise PEGE occasionally with a pat on the back we will have to make an effort and found our own political party.

Describing the scenario

Fossil fuels are taxed very highly due to the cost for environmental damages. Photovoltaic is cheap and has a degree of 20% effectiveness. The average price for electricity depends on the time of the day and the seasons a little more expensive than today's prices.

Small-scale farmers and big land owners

In the last millennia there has been the same social problem. At first, the land is divided halfway. Small-scale farmers impoverish and sell their land to the rich. After a few years, an agrarian reform is necessary because the land is in the hands of a handful of big land owners.

Photovoltaic the energy farmer's plant

We can see the photovoltaic as a high-yield plant. Citizens who have more photovoltaic than necessary for their own demand can be called farmers. There are farmers for whom farming is the main occupation and farmers farm as a side line. Now there is a new subdivision, the energy farmer.

It is for sure that the solar energy is the future because there is no other possibility. There is only one question and that is how the harvesting areas will be distributed. Many small-scale farmers or a few big land owners. Will it be a wide distribution of the production areas within the population or nearly everything in the hands of a few corporate groups? Just because the solar energy is a new technology, it doesn't mean that a new cycle of an old problem couldn't start again: The fair distribution of land used for agricultural purposes.

A stable distribution of property

GEMINI doesn't just stand for winning a few maybe decisive years for the widely spread installation of solar energy. It also stands for the socially best solution for the utilization of solar energy.

A few sqm photovoltaic on the roof is like an owner of a small garden who can even not harvest enough vegetables for his own use. This is not enough to be a farmer.

Yet the inhabitants of solar power plants designed by GEMINI are small-scale farmers. Although too small to be living solely from it, it is big enough to have a steady income as a side line. The direct combination of living space and harvesting area is the constructive base to achieve a widely spread distribution of the harvesting areas amongst the population and also to keep it this way.

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About slaves and half slaves

In Brazil, slavery was legally abolished in the last century. There were no more slaves, and the former owners had to think quickly for an idea to change the system and have the former slaves become half slaves.

Up to this date you find these half slaves in Brazil. Theoretically free they have hardly any chance to flee the live of hard work and poverty as farm hands. These people have no choice; they cannot choose to go on holiday for a few months just for the fun of it or to study for a better career. They are half slaves.

Half slaves: Forced to work

How is it with the possibility of choice here in the rich industrial countries? Can man decide freely whether to work or not? Can he/she decide to go away for two years? Yes, one can let go and live from the social network the downside of it nobody will like one very much. Within the slaves, it is not wanted that one tries to wiggle out of his/her duties on the cost of others.

A half slave who does exactly that is named a welfare bum.

Free citizens, free decisions

It is very different amongst free citizens. They have the freedom for decision. Somebody who doesn't work and is rich enough is called a playboy. The difference is that a playboy has enough on the side to pay for his inevitable living expenses.

A GEMINI house enables the social advancement from being a half slave to a free citizen. The revenue from selling electricity covers the inevitable living expenses. So there it is possible to decide out of free will to work or not to work.

Even people who won millions in the lottery work

Who would still work then? More than enough! Most of the lottery millionaires work, although they are millionaires. Completely without

economical pressure these people decide to continue playing the game named “work”. Work is too nice a game that somebody should be forced to play it due to economic problems.

Selling energy as basic salary

The revenue of an inhabited solar power plant that provides the basic salary is the socialists’ dream. With today’s economic conditions, one would have to take away huge amounts from the rich of, to be able to pay the poor their basic salary. This would leave the rich without desire to be rich. Today such a social utopia would only end with an economic crash.

But today’s utopia could become tomorrow’s reality. Our present social system also would not have been able to cope with the economy from the last century.

The pension scheme

Today’s social system is moving towards a crash. Our increased life expectancy burdens us with the problem that there are less working citizens paying for the pension of a retired person.

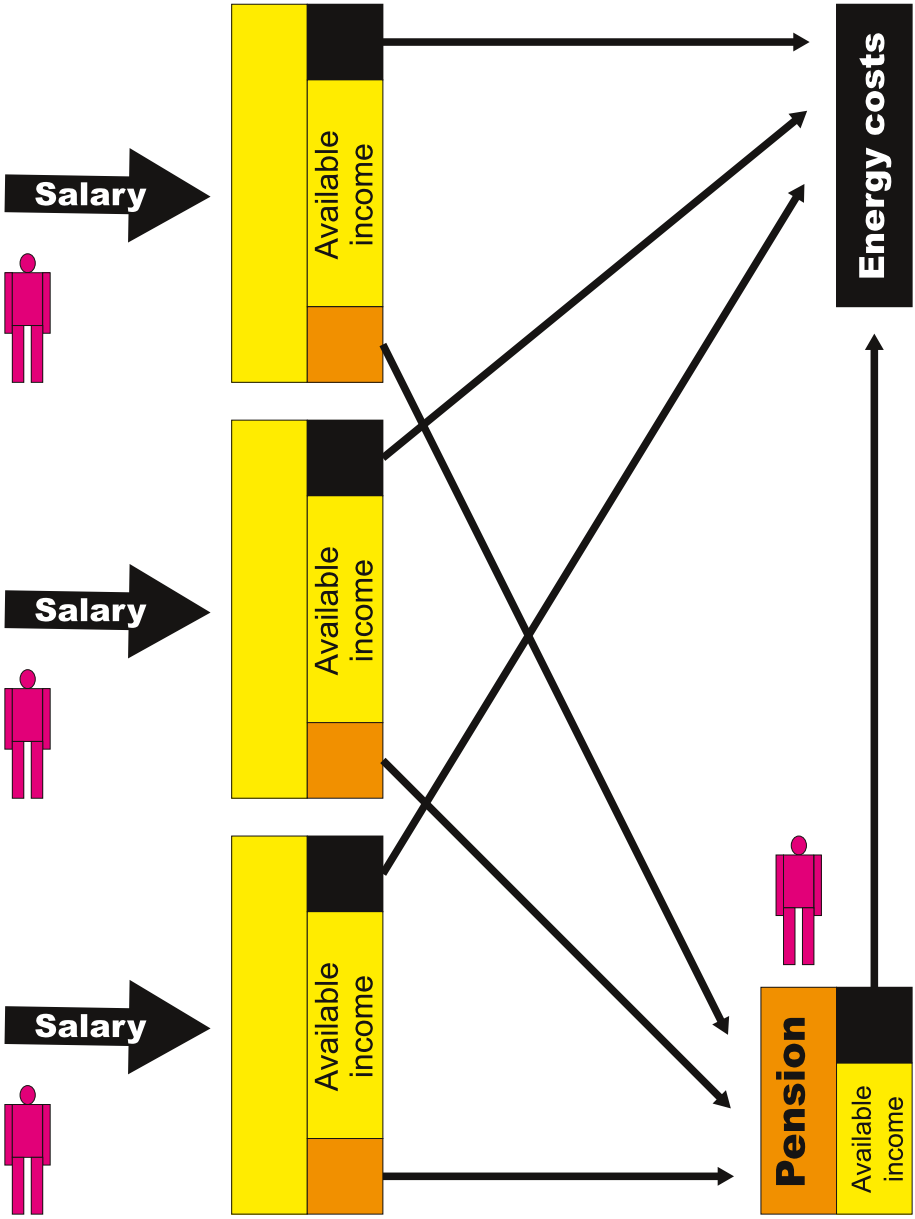
Intergenerational contract

The principle of the old-age pension scheme is the intergenerational contract. The working population pays the pension for the living retired population. For that the now working population, when retired, will get the pension from the then working population.

How well such an intergenerational contract works depends on the average life expectancy and the average retirement age. On this it depends on how many contributors must pay for one retired person. Another factor is the costs necessary for living. At least, those have to be covered by the pension.

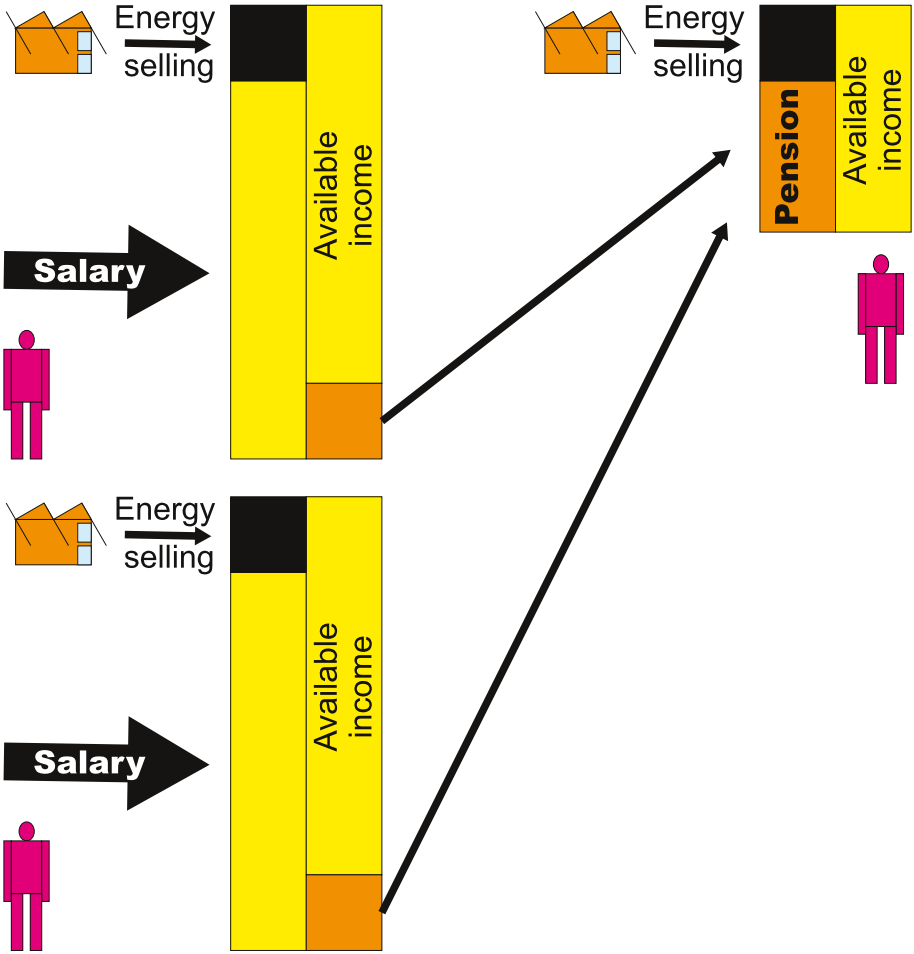
The change of signs with the energy costs

Today a part of our income is lost on the prices for energy. But what would happen if the minus before the numbers changes into a plus?



Principal organization of the pension: A 3:1 ratio already seems difficult.

Page 215 from “Aufstieg zum Solarzeitalter” 1993



Change of plus/minus sign concerning the energy costs: Instead of expenses, there is income. Even with a ratio of 1:2 there is more income for everyone left over.

Inhabited solar power plants enable the change from the minus sign to the plus sign. Like this social politics becomes much easier than today. So easy, that it is even possible without national debt. Compare the government's yearly budget deficit with the energy imports of the country. You will be surprised by their similarity.

Page 216 from "Aufstieg zum Solarzeitalter" 1993

Keeping peace

"Imagine there is a war and nobody participates." Behind this nice idea is the thought that a population has to be motivated for war. The better life is for the population the less motivated is it to risk its property and possessions and its own life for a war.

Unluckily there are also a lot of illogical reasons to fight a war but if the logical ones are missing a lot is won.

More space

There are two methods to have more solar energy. A larger area or a higher efficiency. Solar energy is not the newest kind of energy but the richest in tradition and the oldest form of winning energy.

Only the degree of effectiveness was very humble when used with the indirect use of biomass. To top it all this low degree of effectiveness worsened through slight climate-changes. What can you do if your own country looses some degree of effectiveness, just by having a change of one degree Celsius, and then there is famine? The easiest way would be to obtain a country with a better degree of effectiveness.

> *"Is it coincidence that the Teutonic migration was at the same time as the cooling of Middle- and Northern Europe, and so it fell in a degradation of the climate?*
>
> *There are so many of these parallels between climate and the history of mankind."*

A quotation in the "Bild der Wissenschaft", April 1992, from the article "Die Schicksalsgemeinschaft" on page 26. This article is an excerpt from the book "Klima im Wandel" (Climate in the change). Author of this book is the renowned climatologist Christian-Dietrich Schönwiese form Frankfurt. Christian-Dietrich Schönwiese, professor for meteorological environmental research draws a line (or connection) between the beginnings of earthly climate to the modern standard of the climate research, and so he goes far beyond the historical contemplation. (Deutsche Verlags-Anstalt Stuttgart, price: 34.--DM)

Countless wars are fought for this. Creating more space has always been the “solution”, instead of increasing the degree of effectiveness. This has already been happening in this century. “More space for the German population” was Hitler’s demand and a few thousand kilometers to the east the Japanese conquered more land in China and Korea.

Right now, we are full up and content with the stored energy reserves of coal, oil and gas that have been won in the past. But what will happen when these come to an end? Will there be demands again. “More room for ..... because before ..... hundred years ago, this area was ..... so we have the historical right to bring us back this area. Wherever ones ..... grave is, is also ..... !” With all the usual consequences?

The first victims

If somewhere a country needs more space for its population, then of course the heavily armed neighbor isn’t the first to attack. The first victim is always nature. War to conquer more space is not just against the people of the neighbored country who are quickly declared as subhuman but also against the fauna and flora. This war practically is happening worldwide. The most noticeable war of this type is the destruction of the rainforests.

Better degree of effectiveness

The other way to come to more solar energy is to increase the degree of effectiveness. That is to utilize available space more effectively. Inhabited solar power plants that have the dual use for living and producing energy are right now the most effective way to utilize space, and they have the highest possible degree of effectiveness.

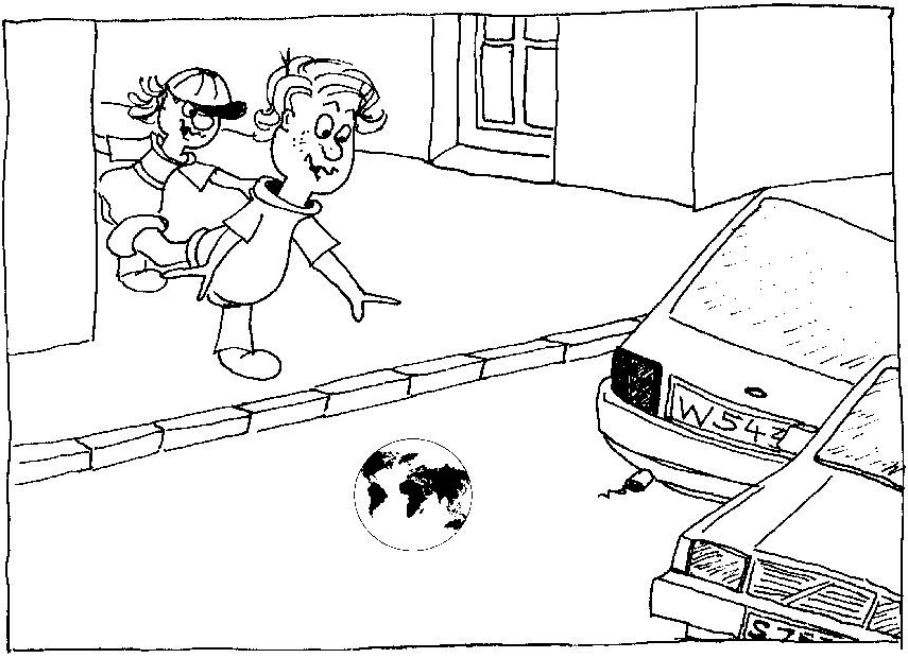
Gardeners and landscape designers maybe are able to produce some Ideas for a third use.

Development aid

What is the goal of development aid? A global disaster, because the poor countries will consume as much energy as the rich industrial nations in some time in the future?

This question has to be asked; at the moment, there is nothing to be offered that guarantees a long-term survival. How to use up the reserve energy within a few decades is all that we can come up with and that just to have a comfortable life. Without planning we have gone on an adventure and are like playing children unnoticeably putting themselves into life-threatening danger. Really, we are a great example.

Development aid can only be honest and effective when we find a technique that gives humanity the possibility to survive permanently without losing its living standards.



Concentrated on their game children end up on a heavily frequented street. Does our civilization have better plans?

Page 219 from “Aufstieg zum Solarzeitalter” 1993

Increase in population

Only in the rich countries the population remains more or less on the same level. The needs of these countries have convinced their people that procreation is about quality before quantity. With 10 children in a family, it is just impossible to get an outstanding education for each child .

In the transitional stadium from poor to rich there is a considerable growth in the number of inhabitants. Childhood mortality has decreased but the strategy of quality before quantity has not yet established itself within the population.

According to this observation, the best means against an explosion in population is worldwide richness. But exactly this is impossible due to today's energy technique. Only an environmental friendly technique enables the solution to this problem.

There is a connection between the increase in population and the gross national product (GNP). While some industrial countries try to fill the gaps of the decreasing growth in population with immigrants the poorest of the countries worsen their state with a population explosion.

Review 2012: Nearly only Chinese products

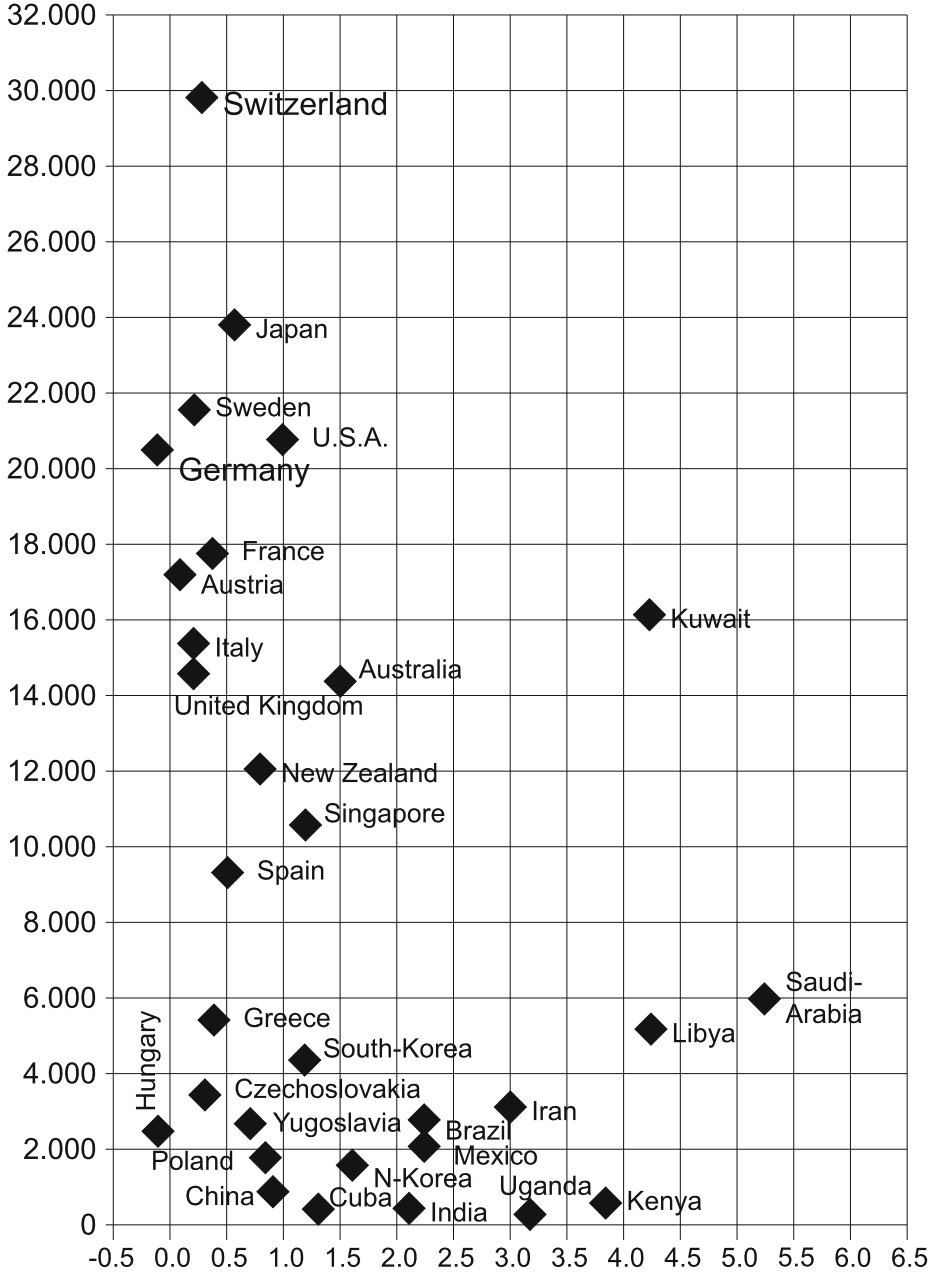
How to build up living standard in a sunny off-grid area? Build up living standard photovoltaic module by photovoltaic module! Store the electric power in batteries, best in lithium iron phosphate batteries. Light by LED, communication by a cell phone, a notebook.

The next steps would be a refrigerator, cooking, an electric scooter, later an electric car. Nearly all products to build up a good living standard without fossil energy are coming from China.

EU+USA nearly completely failed to bring a good living standard to poor countries.

Page 220 from "Aufstieg zum Solarzeitalter" 1993

GNP in US$ and population growth in percent per year



Page 221 from “Aufstieg zum Solarzeitalter” 1993

Art and culture

To have a new idea is one thing, the implementation of the idea usually is a far more complex matter.

For a person that just has discovered the artistic part of its personality the first question is if his/her talent is enough to make a living of it. He/She is at the crossroads. On one side, there is the secure employment and on the other he/she will find an unsure future that can be standing for poverty and failure or acknowledgement and fame.

> *"There are more people that capitulate than those that fail"*
> *Henry Ford, American industrialist (1863 – 1947)*

With a steady side income for delivered energy such a decision is going to be much easier to take than today. Missing the live threatening fear from famine, cold and unbearable poverty everything gets easier and more playful.

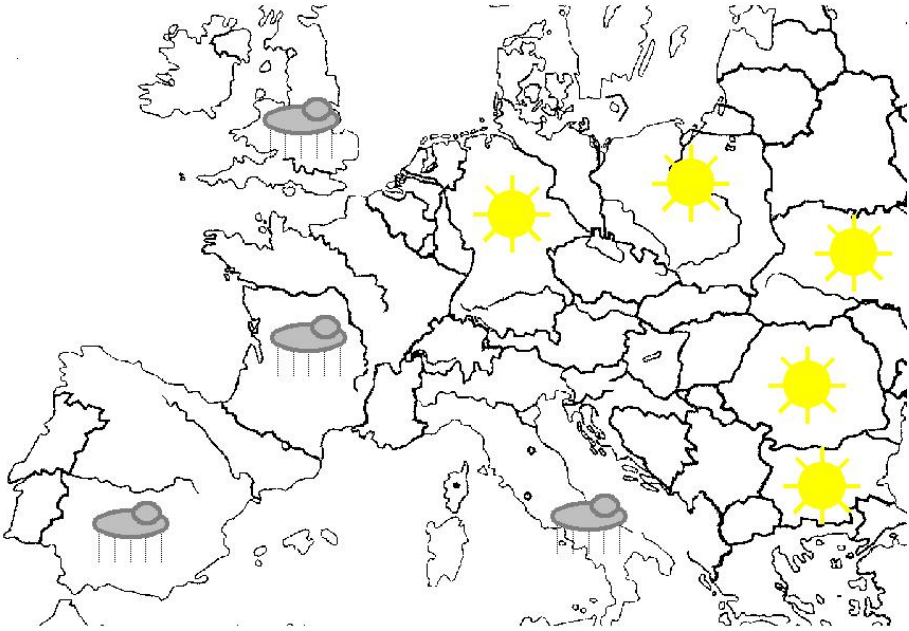
Hercules stands at his crossroads. At the beginning, every artist has to make this decision. The intellect is willing to try, but the body wants to be safe and cared for.

Page 222 from "Aufstieg zum Solarzeitalter" 1993

The electricity industry

Naive imagination about solar energy is based on the idea that the electricity industry becomes superfluous because of the decentralized won solar energy.

The opposite is the case. To establish a balance between the sunny and cloudy regions, we need a European interconnection for the highest possible transmission capacity. There is the installation and upkeep of the charging lanes on the motorways, and big accumulation systems to adjust between day and night and weather changes. The entire infra structure for the production, storing and recovery of hydrogen to fill the winter depression, including the network for the district heating to keep the protected old buildings heated.



A part of Europe is cloudy, in the other part the sun shines. A European interconnection establishes a balance. This diminishes the need for storage systems.

Page 223 from “Aufstieg zum Solarzeitalter” 1993

Secondary residences

At the moment, it is being discussed in Austria to implement restrictive measures concerning the secondary residences. But instead of being an authoritarian state and forbidding it, there are much better possibilities.

In the chapter of GEMINI specification, the prognoses for the building guidelines for the next millennium were made. Designation of areas “inhabited solar power plants” is the fiercest guide line. This guide line can’ just be ordered like that in its full extend. The prices for a photovoltaic are too high to order equipment for 150 sqm for a single-family house. Here, there will be temporary arrangements. In the first period of time, a 30 sqm traced photovoltaic and the coverage with solar energy for the thermal heating will be sufficient to receive a building license on a piece of ground for an inhabited solar power plant.

Temporary arrangements

But already in the planning permission is determined exactly under what circumstances the full configuration must be performed. With principal residence, the full equipment will be ordered only if the ratio between the price for electricity and the photovoltaic is lucrative. The purchase will also be aided with affordable loans.

Different for second homes. They are luxury. Here it is possible to accelerate the solar energy. Expansions of configurations can be arranged according to building regulations at an earlier time here. 3,000 already fully stocked according to building code GEMINI second homes replace one of the planned hydropower plants on the river Salzach. This sales promotion for the photovoltaic measure is part of the SEI solar energy initiative to achieve a rapid expansion of production.

Widespread circulation

As soon as it is possible to earn money with electricity out of solar energy it will make the purchase of secondary homes easier. Until the time that solar energy produces some surplus in summer, this is a desired trend.

Page 224 from “Aufstieg zum Solarzeitalter” 1993

Mountain farmers

Once upon a time there was a millionaire who desperately wanted a weekend house in the mountains, a poor mountain farmer who was dependent on the state's benefit and a minister of agriculture who didn't know how to find the money for the benefits. The millionaire didn't get a building license; the farmer stayed terribly poor and the party of the minister of agriculture lost the next elections.

Everyone wins

But why invent games where everyone just loses? Much nicer are games where everyone can win.

So let us start at the beginning. The millionaire goes to the responsible authority to put forward his desire for the weekend house, and he receives the building license. Of course not for a house but for an inhabited solar power plant. This isn't all. Because of the exceptional situation/position the rules are more severe than for a normal weekend house. Immediate maximum equipment! The millionaire is used to paying for luxury. Shortly he paid a quarter of a million DM for his new car. So when he has to pay for 150 sqm of photovoltaic to get a building license it is at least a clean thing. Who knows how the situation would have ended with paying bribes? Everything could have been discovered, and he would have lost everything.

Maintenance contracts for solar power plant as sec. residence

There is still the maintenance contract. A solar power plant with an annual production of 40,000 kWh in a good position cannot be completely unattended. The roof wiper could fail or a snowdrift could block the turner. Therefore, a maintenance contract has to be made. This is an income for the poor farmer in the neighborhood. This service and the caring for a few hectares land are financed by the revenue that is made with electricity.

The millionaire was happy, because he was allowed to build and could tell everyone what a great environmentalist he is.

Page 225 from "Aufstieg zum Solarzeitalter" 1993

The farmer was happy about his new income. The minister of agriculture was happy because his budget had been balanced.

Economy

Henry Ford worried if his workers earned enough to buy a car from him. So the Ford-T and the large-volume production started. The idea behind this was to enable not just the rich to purchase products of high quality but also the entire population.

Today we have to worry about it, if our products are environmentally safe enough that we can sell them to all mankind. The idea behind this is to enable high-quality products not only for the rich industrial countries but also for the entire world population.

The difference in the living-standard between developing countries and industrial states cannot be a permanent condition. The solution isn't an equally shared poverty but an equally shared richness. This is impossible with our technique that is based on the reserve energy. Only solar energy is environmentally friendly enough for humanity to reach a high living-standard.

Right now, we are hearing a lot about the benefits of the EEA (European economic area). There are over 370 million consumers. But this is tiny compared to a unitary economic area in hundred years.

To achieve these goals which humanity will set, it will need the entire economic potential of this planet. After all to send two men on to the moon the economic potential of 200 million Americans was needed.

Traveling while sleeping. Today the driver is the only one who cannot sleep. But with the charging lanes this will become possible.

Page 226 from "Aufstieg zum Solarzeitalter" 1993

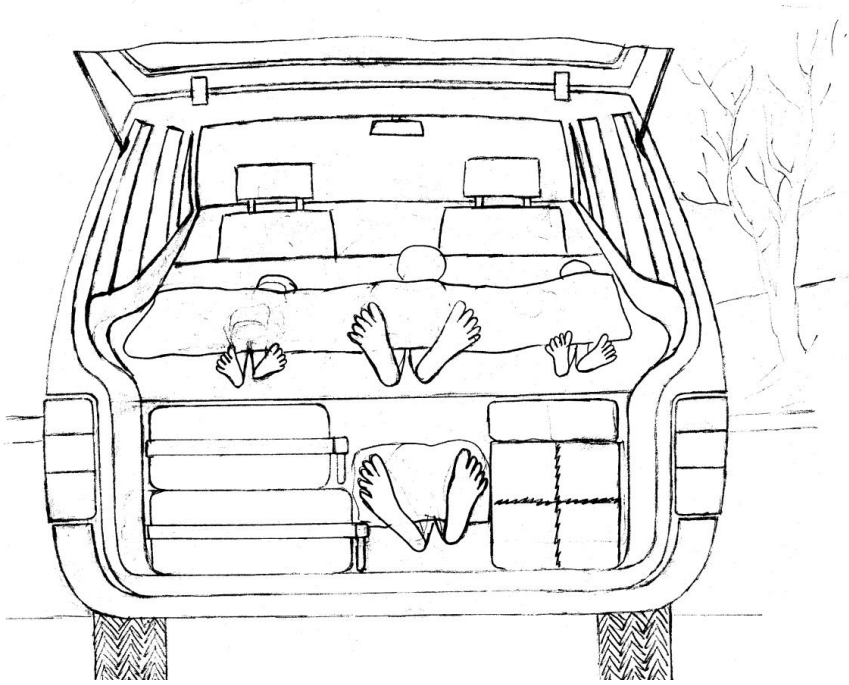
Tourism

Tourism will increase. Electric cars on a charging lane are far superior to conventional cars. Especially if motorways are equipped with multiple charging lanes that let the cars drive with different speed. Traffic jams, crowded petrol stations and overtired drivers belong to the past.

Having multi charging lanes it will be possible to drive 3000 kms a day on the fastest lane. The passengers are going to eat, sleep, watch television, work and play during the journey. The cars are the successors of today's mini vans. With these all this is already possible today just that one person always has to drive.

Air traffic

Higher fuel prices and the performance of the land-based vehicles cost market shares on short distances.



Page 227 from "Aufstieg zum Solarzeitalter" 1993

Civilization

Imagine a person would make following statements:

> *"There is no future for me", "I am dependent on drugs", "I know that I will die but until then this drug makes life comfortable", "I won't survive the withdrawal", "To be honest I would kill anyone to secure my supply for that drug"*

Depending on your attitude you would see this person as a miserable abuser or a pitiable addicted. But we are not speaking about one person we are talking about a civilization. Even worse! We are talking about our civilization and our drug is oil.

Cosmic flash in the pan

A real civilization is able to think in time scales that are now common only in the geology and the study of evolution.

A real civilization doesn't see itself as a flash in the pan. A civilization that thinks it is a flash in the pan has given itself up and has already planned its own destruction.

"No Future"

As from the day a child learns to speak its mother tongue, it hears bad news about the future. The child sees and listens to numerous mass media reports which consequences our inappropriate behavior will have and observes the ignorance and inactiveness of the adults.

Because of the absence of a future that is worth living in, it becomes "No Future" and our civilization has nothing to oppose it.

Here are the impressions that our children get from our reactions: Nuclear reactors? The costs for dismantling and demolishing are yours! CO2 a problem? You will save on the costs for a skiing holiday and the winter tires! Ozone hole? For that you will get better

sunglasses and sun protection! And while father's car produces one labored kWh of mechanical energy for 3.—DM after a cold boot, the already now cheaper solar energy is shot down as inefficient. And while a chain smoker spends up to 150,000.-- DM for his suicide in instalments, nobody can financially imagine the escape from the suicidal energy technique.

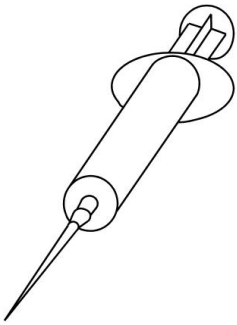
Who is surprised that the youth hangs around with "No Future" buttons and are not prepared to be part of our civilization? Is there a future that is worth to fight for? "No Future" – this is no disorder of a few youths but a mirror image of our civilization.

Consequential charges

How much does a generation cost that has lost its faith in the future? As long as there are no massive signals, which clearly show the march towards a solar-energy era, we deprive our youth from all hope of a future that is worth living in.

What does it cost us if a part of the aimless youth happens to end up in the left-wing - or right-wing extremist scene, chances for one or the other are the same? It is like flipping a coin that lands on head or tails! I know what I am talking about! Endless discussions with hitch hikers have disclosed the whole extend of the aimlessness and the randomness to end up with one or the other extremist group. It's a pitiful evidence of incapacity of our civilization that we cannot offer a better game to our youth so that they see extremism as the only worthwhile game to play.

What does it cost, if environmentalists in despair try to stop everything? Because our civilization has no visible plan of how to survive they just try to stop everything.



As long as there are enough drugs the addicted feels powerful and strong. He lives in an illusory world and thinks that his problems are solved and doesn't notice the decay of his body. As soon as the drug is used up, the very painful withdrawal symptoms begin. The hangover starts and the addicted notices that he hasn't achieved anything apart from losing all his money to drugs.

Criminals against their will

Imagine you are a commuter. Every day, you have to drive more than half an hour to work. On television, they are just showing "Last exit Rio". This is a documentary in which motorists are cursed, and the inhabitants of the industrial states are accused of exploiting the third-world countries.

What should you do? You cannot just go and quit your job. You and your family would starve and freeze to death within the house that is not insulated. You know that you will drive to work the next day. You don't have a choice.

You are in the same hopeless situation as a street kid in the third world who has to steal to survive, although it has heard that one shouldn't steal. Where is the difference? One steals the future generation's living space and the other a tourist's camera. Both know that their actions aren't good, but both live in a civilization that doesn't give them another choice.

The inherent necessity that causes actions against one's own convictions brings the decay of our civilization. Right and wrong is modified in a never known dimension. What does the decay cost? Mainly, how much higher are these costs than the transition to long lasting energy sources?

Page 229 and 230 from "Aufstieg zum Solarzeitalter" 1993

Yes Future

PEGE, this book, charging lanes and solar power plants:

Here is a concept for the future. Not just any future but one that is more beautiful as the present. With this you can change a desperate “No Future” into an optimistic “Yes Future”.

In the here introduced future there is a big certainty that our civilization can exist for ever. In this future, a film about today’s “No Future” won’t find more understanding than a film about a bunch of flagellants in the Middle Ages.

Review 2012: To hide the escape

Environmentalists enjoy it to point with the finger on the bad, bad commuter. Everything is wrong with him. His house, his car, his job. The commuter is the real bogeyman for the environmentalist.

What would happen if this bogeyman bought an electric scooter for commuting? What would happen if this bogeyman used 10 months a year his electric scooter instead of his car? What would happen if this bogeyman installed a solar roof producing more than 20 times the electric power, his electric scooter consumes?

This would be the environmentalist´s worst nightmare. The loss of the enemy image. I promote electric scooters since 2005. I am testing electric scooters personally since September 2006.

But I never heard that an environmentalists organization promoted electric scooters. I had often long discussions with these sort of people. I convinced all of them. But this lasted always only until these people returned to their group and renewed their brainwashing.

Page 230 from “Aufstieg zum Solarzeitalter” 1993

Nature conservation of another kind

Nature conservation usually has the meaning that nature has to be protected from man. Nowadays, this is often the case. But there are also situations in which nature has to be protected from nature. For example, when forces of nature threaten our world, so that the bomb on Hiroshima seems like a firecracker. A huge meteorite with a diameter of a few kilometers is such a case.

Technique or destruction

A characteristic for a functional civilization is also a system to divert meteorites. Only a technical advanced civilization can face such dangers.

Someone who plays Russian roulette every year will have shot himself with an 84% chance within 10 years. In our solar system, this Russian roulette happens every 26 million years, although occasionally it can happen in between.

What has this got to do with our problems now? Not much, this should demonstrate the problems and the time frame of a functional civilization and how far our thinking is away from that.

According to the newest research results 70% of the terrestrial animals – among them all the dinosaurs – became extinct 66 million years ago, and this was caused by a meteor strike:

diameter of the meteorite: 10 km
speed: 40km/sec
energy of the strike: 10 to the power of 15 t TNT
(1,000,000,000,000,000)

That is like 50 billion bombs that hit Hiroshima or 20,000 times of all the nuclear weapons of the world. The explosive force of the Hiroshima bomb through 50 billion leaves us 0.4 grams TNT. Therefore, the comparison that the Hiroshima bomb is a firecracker compared to a meteor strike.

Page 231 from “Aufstieg zum Solarzeitalter” 1993

Review 2012: 19 years too late

1973 should have been the year to start studying different supply chains for our civilization. My first book “Advance to solar age” is such a study. Let’s do everything with solar energy instead of fossil energy. Let’s replace all applications of fossil energy by renewable-energy, mainly electric power from photovoltaic.

“Advance to solar age” should have been published in 1974 and not in 1993. “Advance to solar age” should have been written by a famous scientist as an answer to the Club of Rome’s study “The Limits to Growth” and not by me because in 1974, I was 16 years old, and in 1993, I was no famous scientist.

An answer to “The Limits to Growth”? Yes! Because we can recycle everything. But where are the increasing recycling rates mentioned in “The Limits to Growth”? Recycling requires energy, and as long as we are dependent on fossil energy it is energy that is the only thing that cannot be recycled.

“Advance to solar age” shows mainly how to replace an equivalent of 6 tons coal per year and inhabitant in Germany by photovoltaic. With 15,000 kWh electric power per year and inhabitant the whole industrial production and intensive recycling is also possible.

This includes also the recycling of the photovoltaic and the batteries to store electric power for the day/night balancing.

We can and maybe we have to recycle all the fossil energy. We can filter the CO2 out of the air and split it into oxygen and carbon. All the burned fossil energy influencing our climate can be recycled to carbon.

Maybe carbon will become a standard construction material in many applications. There is so much of it in the air until we are back to the 1800 CO2 level as mankind started the civilization jump.

Imagine all the carbon from coal, oil, natural gas burned in the last two centuries recycled to valuable construction material for our civilization.

Constitution of the PEGE

Page 232 from “Aufstieg zum Solarzeitalter” 1993

Constitution of the PEGE

This is the first publication of PEGE for the mass. In the months of January to February 1992 more and more interested parties appeared and wanted to be supplied with information. Soon it was clear that my own ink-jet printer wasn't capable to print enough material for this information. In those days, my printer used 0.3 liters ink on 1,500 pages per week to comply with the desire for information. The amount of material and the number of interested parties was steadily growing.

The solution: to write a book with all the hitherto existing data to bring the Information to the mass. Not a small undertaking because there had to be photos and basic knowledge included in the data.

The necessity to publish this book was then confirmed at a panel discussion in line with the "Action Energy" run by the ORF (Austrian broadcasting service) on the 25th of March 1992: After my contribution to the discussion which lasted 10 minutes the audience reacted so surprised and speechless as if it was E.T., who had marched to the microphone and had invited everyone on his spaceship for a roundtrip around the earth.

The amount of the new concepts was clearly already too much to be brought to the public in a short presentation or for an informative magazine of a few pages.

Well, the book is finished, and you are reading it and now you know the concept. Now is the time to speak about support, cooperation and realization of the plans, but first there an important question has to be settled:

How many people have room in your world vision?

It is absolutely possible that there are some points in this book that represent completely different opinions than the ones that are put forward by various environmental groups.

Yet here we are not talking about small turf battles, but about a global concept. Therefore, the differing points of view should be examined again but now with the knowledge of the new data.

Should there still be differences, the decisive question for PEGE will always be:

"How many people have room in your world vision?"

Cooperation with groups that are of the fixed opinion that there will be a far lower number of people who can survive than today's population is impossible.

There are such prophets of nemesis that see salvation in a largely depopulated planet. For those people that are of such an opinion, there is no space for today's world population as there was no space for the Jews in Hitler's world vision. The population asked themselves far too late what Hitler's pans were for the Jews. Here I want to raise another question: "For how many people are some environmentalists planning a future and what will happen to the rest?"

Maybe you will ask yourself why this provocative question? In many discussions, this question has shown itself as downright necessary.

Prophets of destruction (nemesis)

I was stunned as I met this prophet of destruction for the first-time. Here, there was an architect who criticized the inner steel construction of the GEMINI house. I wanted to point out the necessity of the energy production with inhabited solar power plants for humanity. "That is completely unimportant in the year 2050, there are only 500 million undemanding environmental friendly people left." was his horrible answer. There was really someone who managed within one minute to criticize the inner steel construction regarding the living comfort and at the same time to condemn 5 billion people to death.

A public official of the state government got really angry as I introduced my plans.

Page 234 from "Aufstieg zum Solarzeitalter" 1993

First, he tried to disguise his true intentions by criticizing the technical details. But eventually all his hate showed:

He said that the human being has not deserved to survive because it invented the nuclear bomb and that's why he would prefer to be an ape instead of a human.

These are the insane answers that one gets when one asks the right question to some "environmentalists". Who knows how history would have developed, if somebody had asked Hitler in 1930: "Hi Adolf, you don't like the Jews. What are your plans for them, do you want to gas them?"

This severe comparison is in no way exaggerated, moreover harmless. In case that from the year 2000 until the year 2050 the world population should be reduced to 500 million caused by various catastrophes, then 9 times more people would have to die an early death each year than during the Second World War. Of course, these "environmentalists" don't want to kill the superfluous personally but already the idea that the solution of all problems lies within a reduced world population is extremely dangerous. Who thinks that the problem is irresolvable and just a small part of the population can survive plans in a different way, if instead the basic of every plan is the survival of the entire population.

Later, this different planning can become reality, a reality in which many people die because the plan is for only for a small part's survival.

Warning is allowed and necessary

If we keep on like this, we will really end up in big difficulties. To warn from that, is an absolute necessity. Instead, it is condemnable to introduce concepts for survival in which the plan is that most won't survive. Such concepts have to be declared as what they are:

An idyll where all the good environmental friendly people can live free from the burden that is of the sumptuous wicked people.

Idyll and Reality

In hardly more than a century humanity has experienced two such idylls:

Karl Marx: "How well could the workers live without the capitalistic exploiters ..."

Adolf Hitler: "How well could the Germans live without the Jews ..."

Ideas can be deadly. Therefore, analyze every action and every future vision carefully.

Environmental conservation must also mean responsibility for the entire human race. In the word environmental conservation the idea of "no people" is embedded too deeply, that is why the PEGE has consciously chosen to be an association for civilization- and environmental planning.

The earth offers enough space for everybody! It is just a question of intelligence to divide it properly.

Review December 1993: Misanthropists

I had my first experiences with misanthropists while I was writing my first book. Environment movie days in Vienna December 1st 1993. The moderator of the discussions, an extreme misanthropist says:

"Healthy planets have no humans."

The first encounter with these extreme misanthropists was at the UTEC environment fair in Vienna October 1993. He hated the GEMINI inhabited solar power plant, as soon as he has seen the picture of the GEMINI structure village on page 77. Now it got clear why. He had immediately realized that this is to endure the existence of mankind. So there should be a 3rd statement:

Misanthropist: "How beautiful could be Earth without humans."

Page 236 from "Aufstieg zum Solarzeitalter" 1993

Review April 2012: Outbreak of hate

For years I have the impression, that a discussion group about electric vehicles at Yahoo is infiltrated by fundamentalists. What would a normal citizen expect from such a discussion group?

Let's exchange oil dependent vehicles by electric-powered vehicles; let's replace oil by electric power from sun and wind.

The real discussions in such a group are shocking for normal citizens. For example, isn't it a great news, that there is a family friendly electric car with 300 km range?

Not for a fundamentalist! He wrote to me in April 2010 an email full of hate: "Who is important enough, that he has to drive more than 150 km a day? YOU??" or "Any vehicle faster than 50 km/h is a killing machine."

In April 18th 2012, it started harmless. A clerk from the lower Austrian provincial government wanted to be removed from the mailing list of the discussion forum.

However, this triggered a hate outbreak of an environment activist: He accused the lower Austrian country government to be a terrorist organization responsible for 500 killed by car accidents in Austria and 5600 killed by small particulates.

Now a normal citizen would expect that many members of this discussion group would protest against this mad hate outbreak. No! Only I protested, only I asked the others why they do not protest against this mad hate outbreak.

Introducing the GEMINI project

October 2nd 1993, I started the introduction tour of my project at the autumn fair in Graz. The UTEC environment fair in Vienna followed in October 19th, the construction fair in Leipzig October 26th and the EUREKA world innovation fair in Brussels November 5th.

I was honored for my project at the EUREKA world innovation fair November 10th 1993 in Brussels, with the Merite de l'Invention. This gave me big hope, that I will receive soon furtherance for my project to realize it.

Big hopes, big jokes

January 1994, I receive two invitations to Austrian ministers special for EUREKA awarded Austrians. January 20th, I follow the invitation of vice-chancellor and minister for science and research Erhard Busek. He is not at the event. Instead of a meeting with Erhard Busek, Raoul Kneucker explains us for one hour the advantages of joining EU. One more hour, and I would have changed sides.

On January 24th 1994, I follow an invitation to the Austrian ministry for environment and family. I am one of the 12 Austrians with an EUREKA award. We all expect some financial assistance for our projects from this meeting.

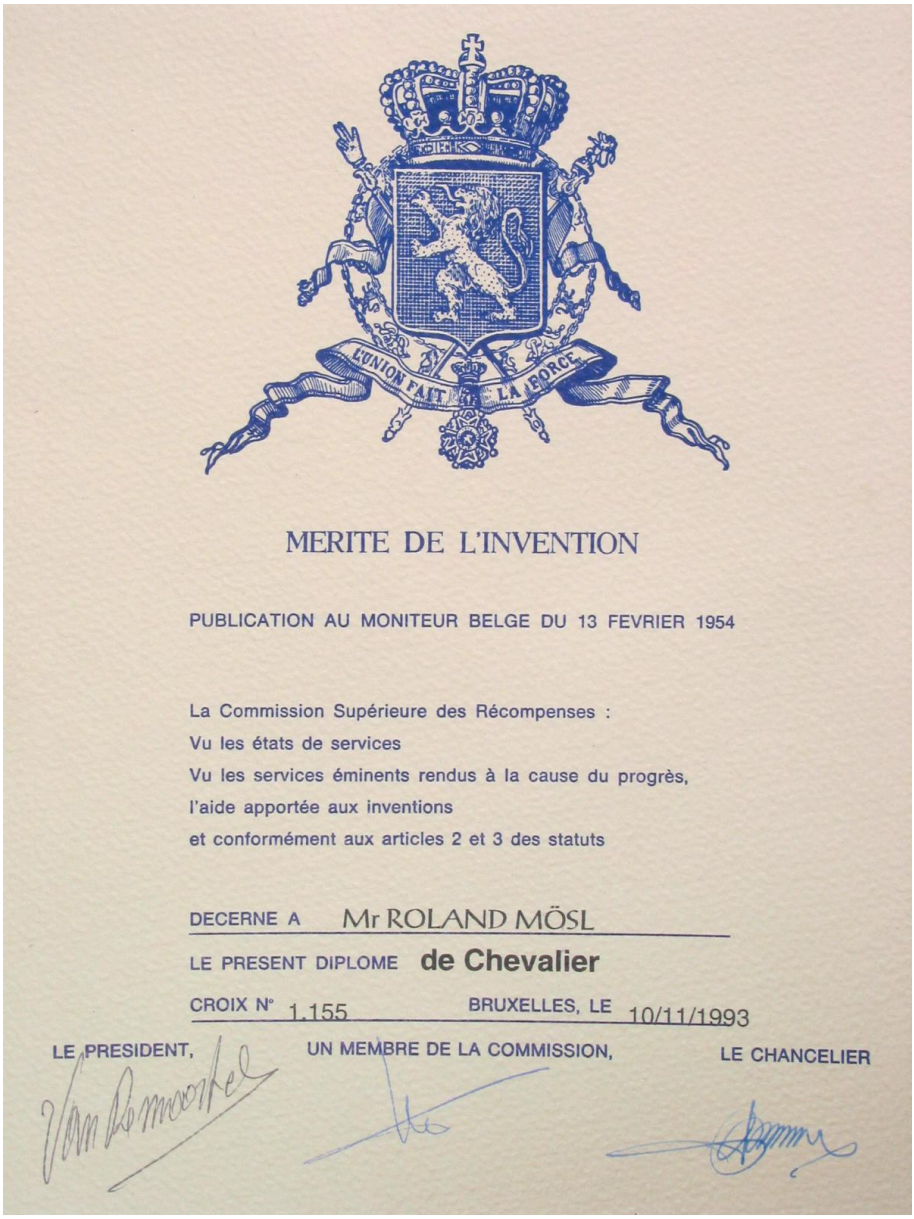
Ministers Rauch Kallat from the Austrian People Party (ÖVP) appears and starts talking about her travel experiences in India. How many times the airplane was late. How many times was fog in India. And most important: the number of body guards of an Indian politician.

After a one-hour monologue from Ministers Rauch Kallat, another EUREKA winner asks:

"What's about money to realize all our award-winning inventions?"

At this moment, Ministers Rauch Kallat put her hand into her handbag, three seconds later rings her cellphone.

She runs away and was never seen again ... at the meeting.



L'UNION FAIT LA FORCE

MERITE DE L'INVENTION

PUBLICATION AU MONITEUR BELGE DU 13 FEVRIER 1954

La Commission Supérieure des Récompenses :
Vu les états de services
Vu les services éminents rendus à la cause du progrès,
l'aide apportée aux inventions
et conformément aux articles 2 et 3 des statuts

DECERNE A Mr ROLAND MÖSL

LE PRESENT DIPLOME **de Chevalier**

CROIX N° 1.155 BRUXELLES, LE 10/11/1993

LE PRESIDENT, UN MEMBRE DE LA COMMISSION, LE CHANCELIER

EUREKA world innovation fair 1993: Roland Mösl was awarded for his project GEMINI inhabited solar power plant with the Merite de l'Invention.

A split society

There are this award giving bodies. They look out for improvement of our society. How can these inventions, these new concepts, these new ideas, improve our society? But this award giving bodies can give only honor, no money.

On the other side is the government. They look out for dangers for the status quo. They have the money, but this should only be spent for projects not changing the status quo.

I do everything to realize the “GEMINI inhabited solar power plant” project. There had been some politicians promising me to fight for my project, but they had no influence. There had been some investors, but it turned out that they had been only braggers.

I am invited to receive the European Order of Merit in the New European Parliament, but I have no money for the journey. The rescue, a phone call to the “Solid center for solar energy” in Nürnberg.

June 22nd in the afternoon, I start to Nürnberg and bring them the 10 ordered books. With the money, I can refuel my car. Next day, I visit Dr. Hermann Scheer, the founder of Eurosolar in Bonn.

June 24th, after two times sleeping in the car, I take a shower at a highway station 50 kms before Brussels. Two hours later, I am at the ceremony in the new European parliament. My Renault Espace minivan on the parking lot. The tank filled with 45 liter Diesel, and I have no money left to refuel again. The car is listed with 5.4 liter/100 km at 90 km/h. 910 kms is the way back to Salzburg. Ten hours driving in the close wind shadow of big trucks.

So much honor, so few money. My life mirrors this deep split through our society.

Association Communautaire de l'Ordre Européen du Mérite A.C.O.E.M. (a.s.b.l.)
Gemeenschappelijke Vereniging van de Europese Orde van Verdiensten G.V.E.O.V. (v.z.w.)
Gemeinschaftsvereinigung des Europäischen Verdienstordens G.E.V. (V.o.E.)
Community Association of European Order of Merit (non-profit organisation)

Pour une Europe humaine, libre, solidaire, fraternelle, sociale et démocratique. Pour l'Amitié au-delà des frontières, dans le respect de nos différences.
Voor een menselijk, vrij, solidair broederlijk, sociaal en democratisch Europa. Voor vriendschap over de grenzen heen, met eerbied voor onze verschiedenheid.
Für ein menschliches, freies, solidarisches und demokratisches Europa. Für Brüderlichkeit über die Landesgrenzen hinaus, bei gegenseitiger Achtung für unsere Unterschiede.
To promote human dignity, freedom, solidarity and democracy in the building of a united Europe. To encourage friendship which transcends national frontiers and individual differences.

Diplôme d'Honneur - *Erediploma - Auszeichnung - Honorary Degree*

Décerné à
Toegekend aan
Verliehen an
Awarded to Roland Mösl

Bruxelles, le
Brussel, de
Brüssel, den
Brussels, the 24 juin 1994

Le Secrétaire général
De Secretaris-generaal
Der Generalsekretär
The Secretary-general

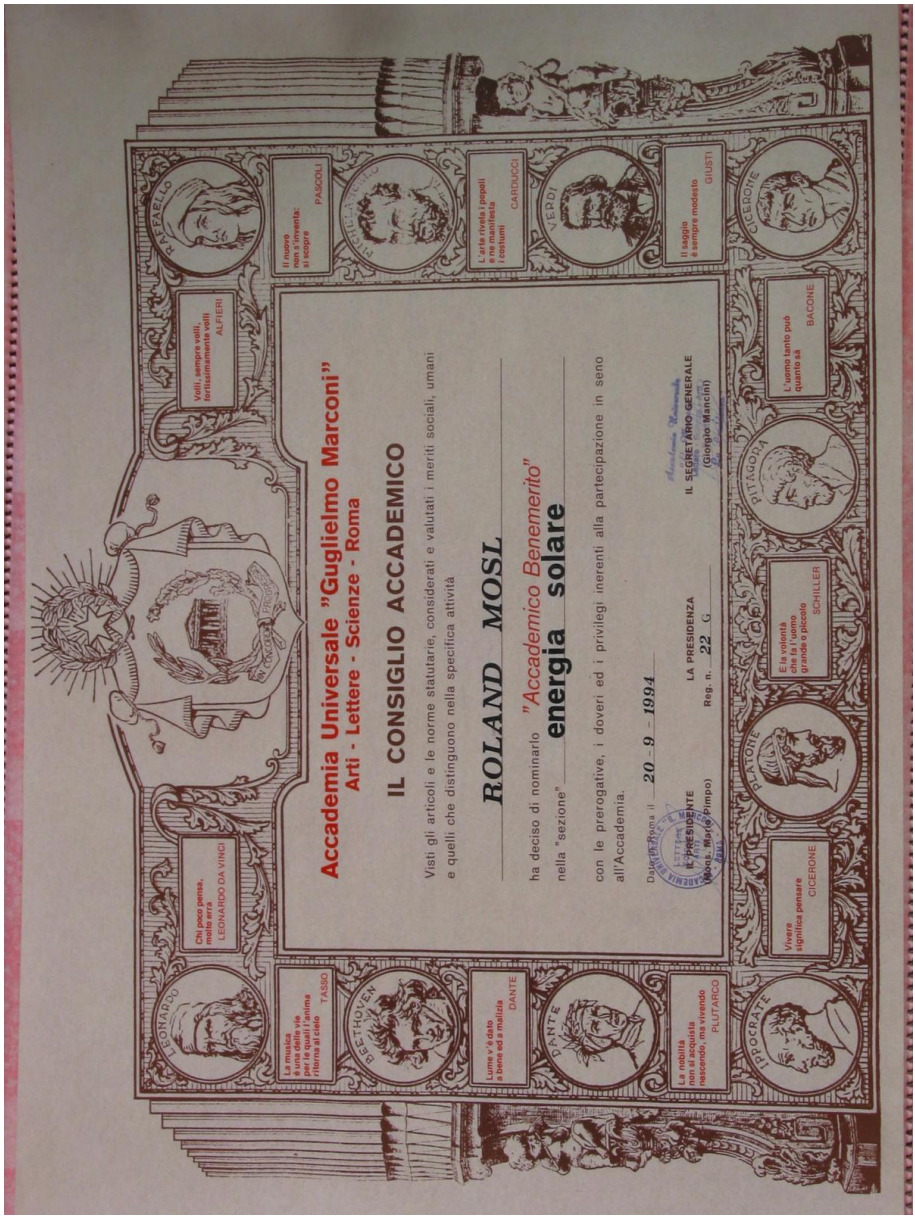
AC EM

Le Président
De Voorzitter
Der Präsident
The President

Paul Cliquet

Diplôme - *Diploma - Diplom - Certificate* Nr. 94-012

June 24th 1994, Roland Mösl was awarded in the new European parliament in Brussels for project GEMINI inhabited solar power plant with the European Order of Merit.



Accademia Universale "Guglielmo Marconi"
Arti - Lettere - Scienze - Roma

IL CONSIGLIO ACCADEMICO

Visti gli articoli e le norme statutarie, considerati e valutati i meriti sociali, umani e quelli che distinguono nella specifica attività

ROLAND MOSL

ha deciso di nominarlo "Accademico Benemerito"

nella "sezione" energia solare

con le prerogative, i doveri ed i privilegi inerenti alla partecipazione in seno all'Accademia.

Data in Roma il 20 - 9 - 1994

IL PRESIDENTE (Prof. Mario Pimpo)

LA PRESIDENZA

Reg. n. 22 G.

IL SEGRETARIO GENERALE (Giorgio Mancini)

Voli, sempre voli, fortissimamente voli ALFIERI

Il nuovo non s'inventa: si scopre PASCOLI

L'arte rivela i popoli e ne manifesta i costumi CARDUCCI

Il saggio è sempre modesto GIUSTI

Chi poco pensa, molto erra LEONARDO DA VINCI

La musica è una delle vie per le quali l'anima riflette sul cielo TASSO

Luce v'è dato a dove ed è nostalgia DANTE

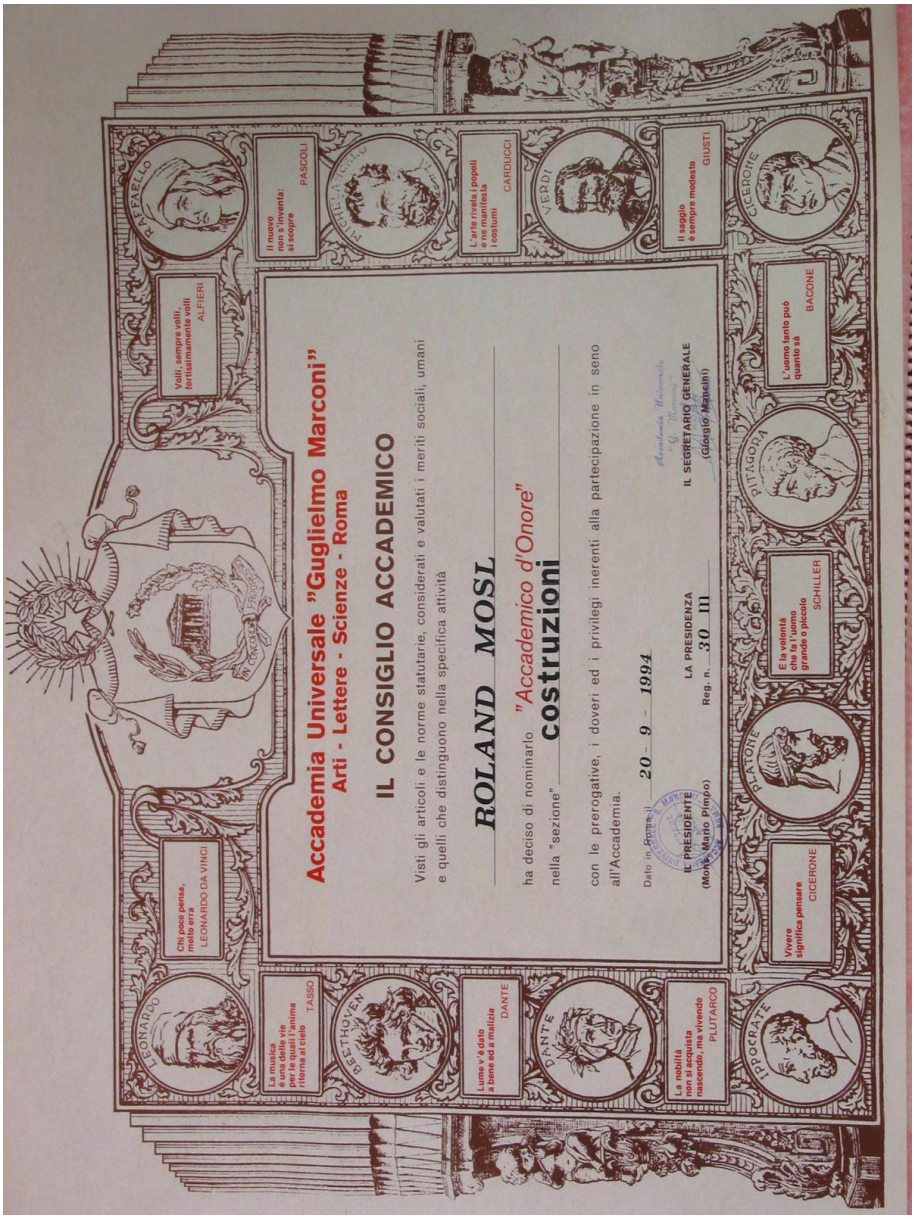
La nobiltà non si acquista nascendo, ma vivendo PLUTARCO

Vivere significa pensare CICERONE

E la volontà di un uomo può grande o piccolo SCHILLER

L'uomo tanto può quanto sa BACONE

September 20th 1994, Roland Mösl was awarded by the Accademia Universale Guglielmo Marconi in Rome for his merits towards a solar future with high honor.



September 20th 1994 Roland Mösl was awarded by the Accademia Universale Guglielmo Marconi in Rome for his merits about new architecture concepts like inhabited solar power plants.

Notebook powered by photovoltaic

Summer 1995 was the first-time that I was with a photovoltaic and my notebook at the beach. This is a sort of personal experience changing thinking.

This first-time happened at the Black Sea in Romania. A five Watt amorphous silicone photovoltaic module, a 2.5 kg 12 V 6 Ah sealed lead battery, a car adapter and an Escom Paradigma notebook with Intel 486 DX2 66 CPU.

The photovoltaic improved greatly the run time. In between, I think, I swim or I eat. During these times, the notebook is in suspend to RAM mode and needs only 1 Watt. The buffer battery is recharged during these times.

September 5th 1999: While my daughter Maria and my wife enjoy the beach, I work most of the time with my notebook powered by this 20 W photovoltaic module.

I got a 20 Watt polycrystalline silicone photovoltaic in 1998 and my first notebook with lithium batteries. A notebook with an energy saving 200 MHz Tillamook MMX Pentium CPU and 6 hours run time.

Take the heavy photovoltaic and the 2.5 kg buffer battery to the beach, or will the six hours with the internal notebook batteries be enough? Most times I decided for the effort to walk a half-hour to the beach with 6 kg more equipment, because working with solar power is so much more relaxed.

Only with the notebook on the beach, there always is the doubt, that it will be enough energy left in the battery? Should I dim the display? Maybe it's better to do this CPU intensive task at home? That is the typically "We have to save energy" behavior.

With my solar-energy equipment on the beach, I have the certainness to have enough energy for full display brightness, for any CPU intensive task. Why should I save energy, when the sun delivers enough energy?

Years of personal experience means to have an accurate feeling about the status of the system. A 12 V lead acid battery can have between 13.9 V fully charged and 11.5 V when the car adapter switches off to protect the battery from harmful deep discharge. Every some hours, I check the voltage with a voltmeter, but before, I guess the voltage based on my experience with computer usage and weather conditions. My guess and the real voltage most times have been less different than 0.05 V.

Review 2012: The cloud challenge

There are also cloudy days, where the photovoltaic can contribute much less to the energy supply. There are three methods to deal with this problem:

1.) More Watts peak at clouds photovoltaic. This is a sort of technical data not listed, but it would be interesting to compare different photovoltaic modules at different cloudy sky conditions.

2.) A buffer battery with more Wh storage.

3.) A notebook with less energy usage.

My equipment from 1998 compared to the best available 2012 shows a dramatic performance change. Less than half the weight. The energy consumption of the notebook halved. But the best available foldable and lightweight photovoltaic produces at cloudy weather four times more electric power.

Together with the halved power usage, eightfold improved power supply at cloudy weather conditions.

	from 1998 to 2004	since 2010	available since 2012
Photovoltaic Watt peak	20 W	34 W	62 W
Photovoltaic weight	3.5 kg	2.0 kg	1.4 kg
Battery type	Sealed lead	NiMh	Lithium
Battery capacity	72 Wh	24 Wh	100 Wh
Battery weight	2.5 kg	0.4 kg	1.0 kg
Notebook type	Gericom	Asus UL30	Asus UL30
Notebook weight	3.0 kg	1.7 kg	1.7 kg
Total weight	9.0 kg	4.1 kg	4.1 kg
Full day support at	sunshine	mixed	very cloudy

The free desktops are too expensive

August 1996; I did not know what a search engine is. I started my first homepage on September 21st 1996 with 500 kB web space. In October 1996 I thought it's my natural right to have rank 1 to 4 at Altavista for the query "photovoltaic". When I found me only at rank 2 to 5, I thought all the day on counter measures and conquered back rank 1. Some years later, the term SEO - Search Engine Optimizer was keyed to this sort of activity.

So I established as an expert about solar energy in the Internet and received a request from a clerk at the UN in Geneva. An example school with computers should be built in an off-grid area in Eritrea. To use the computers best they should work 12 hours a day. I should design the solar-energy equipment to supply the school.

While my notebook used about 20 Watts, typically desktop computers with CRT used 160 Watts. So my first question was: "What computers will be used in the project?". His answer: "Used desktop computers from several companies will be donated in the project."

My calculations showed; I would need US$ 500 to supply a notebook with solar energy, but US$ 4000 for a desktop computer. My surprising answer was "The donated desktop computers are too expensive; it's cheaper to purchase new notebooks."

Ordered for a school project in quantity, a notebook should have been available for US$ 2000 in 1997, additional US$ 500 for photovoltaic, charge regulator, buffer battery and car adapter. Much cheaper than the US$ 4000 to supply a free desktop computer.

This is complete different from an area where electric power is sold for US$ 0.20 per kWh. Five-years usage with 3000 hours a year are only US$ 60 for the notebook and US$ 480 for the desktop computer. Who cares for the electric power bill?

Purchasing photovoltaic is like paying the electric bill for the next 25 years upfront.

Game theory

As I started with the project GEMINI inhabited power plant in autumn 1991, I thought that green parties and environment organizations would be my natural allies.

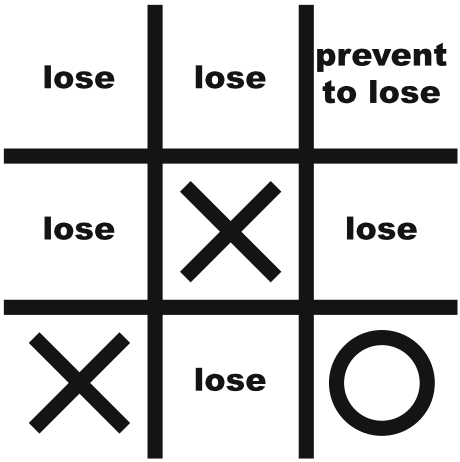
“I hate the GEMINI house, because when somebody charges his electric car with the electric power from the roof of his house, I have no arguments left to forbid car driving” was one of the harmless statements about the project.

I discovered that this people hate mankind, hate themselves. An extreme misanthropist expressed this with “Healthy planets have no humans”.

I wrote already in my first book, that mankind has the task to protect Earth from deadly meteorites. But how to proof this? But how to give all these people a positive view of mankind? Here my answer written February 1998:

The game of life: theory about the meaning of life

Let’s try to assume rules in the game of life, to find out what we should do as an individual and as the whole society and to find some meaning of life. An area of mathematics science is called game theory. There are rules, options to act, win- and lose situations.



The simplest analysis of a game is Tic-Tac-Toe. There are two players, 3*3 fields and every player knows everything about the advance of the game.

If player A has two signs in one row, you know exactly where player B will place his next sign. Game theory makes a list of possible moves from side B in this case, and for every possible move from side B, a list of

possible moves from side A and so on. All but one moves are creating a lose situation for player B, so it is logical that he will do the only move not creating a lose situation.

Much more complex is chess. It is beyond the power of today's computer to create a list of every move until the end of the game.

Only in a critical situation, it is possible to say that a certain move will create a lose situation in five moves, for example.

In the view of the game theory chess is also a simple game. All rules are known, and every player has full information about the advance of the game.

Imagine you don't know chess, and you watch an ongoing game. You watch from the 5th to the 40th move. You watch very carefully, and you try to reconstruct all the rules of the game.

Ends a chess game when one player has no figure left, or when both towers are out of the game, or when the king is captured? You can only assume some rules by watching an ongoing game.

Let's try to assume rules in the game of life

The most complex game is the game of life. We are in the same situation like the observer of the chess game who doesn't know the rules. We don't know the start of the game. We don't know the end of the game. We only know a small part of the game. We also don't know our own value in the play. Are we as important as a Tower, a Queen or even as important as the King?

Review November 2011: a very stupid failure

How to express a really stupid failure easy to understand? When somebody loses Tic Tac Toe by making a wrong move, everybody can understand that this is really stupid. So I designed a scene losing at Tic Tac Toe for the Calculation ERROR video, the transcript is on page 362. This scene is used also as the cover of this book.

There is a play field called universe.

There is an ongoing game to develop life.

The development is from simple to more and more complex life.

Our own value is surely above a pawn, but we don't know how much below a king.

The player or the players are unknown.

Some philosophies assume we are all players, but we have forgotten this.

Some religions believe in one big player.

For application of the game theory is this not necessary to know.

There are big dangers for life on the surface of a planet.

Earth was hit at Yucatan by a 10km meteorite 65 million years ago. 70% of all living forms died at the impact with the force of 10,000,000,000 Hiroshima atomic bombs.

The meteorite hit from Shoemaker-Levy 9 1993 on Jupiter had much more energy than all atomic weapons on planet Earth together.

A Super Nova explosion in less than 30 light years distance can make a lot of trouble.

The surface of a planet seems to be a secure place only for people with a very small time scope.

Enlarge your time scope like 1 second is 1000 years, and you will feel yourself on the surface of a planet like on the target at a shooting competition. The nearly for all life on Earth deadly Yucatan hit was only 18 hours ago.

The meaning of life revealed

Game theory reveals: development of intelligent life forms like humans is necessary to maintain all forms of life for a long time.

A something like the fire department

If you are the major of a city again and again burned down, then you will come to the conclusion: I need a fire department.

If you are a player in the game of life, and you see again and again the terrible destruction after a meteorite hit, then you will come to the conclusion:

I need something to protect a planet

This something is humanity. The first application of the game theory at the game of life has found at last one task for humanity:

Protect Earth for the next some billion years!

Let's be cooperative in the game of life

An observation at games in general: it's better to be cooperative with the ongoing game, with the rules and with the targets. For example, if the game is named soccer, the trainer will not like a passive player just standing around. And beware a player who wants to leave an ongoing game!

The current target for the next 40 years is: total change to renewable-energy. You cannot protect Earth for some billion years, if you waste all your resources in less than some hundred years. 40 years is much for a short living human body, but it's only a single frame in the movie of eternity.

The next target is: develop a starship technology that you can handle a 100 km meteorite with the same security like the world master in billiard handles an easy push.

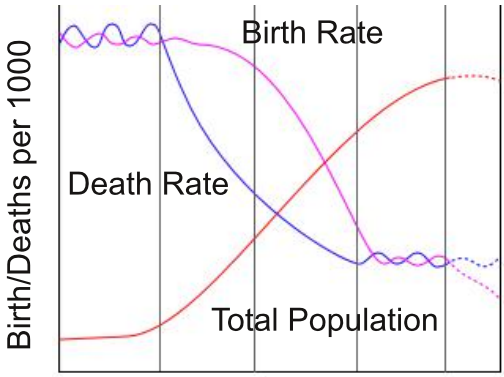
Tax reform pro human

As I researched buildings 1991, I developed very radical a new task for buildings: Production of an adequate share in the energy supply of the whole country. Now it's April 2004, and I research the tax system. I feel about the tax system the same way as about the usual 2000 liter fuel oil and 4000 kWh electric power single-family detached home 1991: it's scrap, destructive to the society.

It's not enough that a house delivers space to live, there has also to be the task to produce energy instead of only consuming energy.

It's not enough that a tax system delivers the money to fulfill all the government tasks, there has to be also the task to steer society in the right direction instead of insisting in the complete wrong direction.

Steering society in the right direction implies, that the society is heading in the wrong direction. The elite tells us how high the living standard is and still increasing. I check the birth statistics.



There is the demographic transition since the 19th century:

The necessary birth rate to have the same population decreased.

There have been four events in the 20th century where the birth rate dropped in Germany below what is necessary to hold the same population level. Such times can be associated with big disasters, the population under extreme stress.

The four events in the 20th century where the population in Germany had so much stress that birth rate dropped below what is necessary to hold population level were:

1.) World War I
2.) The great depression
3.) World War II
4.) Continuously since 1972

An economist would explain that the population is so happy in increasing the GNP that they do not like to waste time for children.

There are all these great theories about a fair tax system. The rich should contribute more. But there is this poor worker where his employer has to pay 45% taxes and dues and 55% remain for the worker. But there is this rich manager paying only 10% taxes and dues and takes 90% for himself, because there are so many tricks which a good tax consultant will know. His 120,000 EUR luxury car is bought at company expenses. He finds a reason for every vacation trip to be at company expenses.

The secret of the rich man is his ability to proof how much losses he made in many different businesses. So forget any tax system based on business expenses, calculation of wins and losses.

Based on this calculation of business expenses and income are income tax, VAT and dues to pay social security. So the tax reform pro human abolishes income tax, VAT and dues to pay social security.

All this has to be replaced to create a real fair tax system. BTW, this rich manager in the example above has no children. There are good tax-deductable company expenses, there are bad private expenses.

He has learned the lection of the tax system so good, that he doesn't like children. They are bad private expenses, so he has to avoid them. Is this a joke? No, I just explain the low birth rate of rich people.

Who knows a politician not promising to create more workplaces? Compare this with the obvious intention of the tax system: Economize workplaces! The tax system and the dues for social security give following impression: that human work is something to avoid at all cost. Export workplaces to other countries, find cheaper employees!

All the speeches of politicians and the real existing laws created by these politicians are the complete opposite. This opposite can only be destructive for a society. Income tax and dues for social security are responsible for this situation.

An honest society is where honest people have a better living than dishonest people. This requires a tax system which is very difficult to cheat. Was the motivation for your flight to Spain really this conference or a vacation on the beach? Who goes just in this house? The girl friend of the homeowner or an illicit working domestic help?

This is only investigated very carefully when a new US president nominates his team. The opposition usually finds in this case at one candidate an illicit working domestic help from Mexico. How many politicians hold speeches how terrible illicit work is and employ an illicit working domestic help?

A society creating a system which is giving advantage to dishonest people is digging his own grave. The basic idea to determine taxes based on wins and business expenses is wrong.

Our current tax system is easy to manipulate and difficult to control. An ideal tax system should be difficult to manipulate and easy to control.

Imagine all the creativity of tax consultants would be used to solve real-world problems instead of finding loop holes in the tax system. A tax system based on resource usage would change tax consultants to resource usage consultants. How to have the same result with less resource usage causing to pay less resource usage based tax for it?

Criteria	Current tax system	Optimal tax system
Manipulation	Easy	Difficult
Control	Difficult	Easy
Motivation to economize workplaces	High	Low
Motivation to economize the usage of resources	Low	High
Motivation to change to renewable-energy	Low	High
Tax consultants	Search loop holes in the tax system	Solve real-world problems
Employers in competition for employees	Work more! There are 20 unemployed waiting for your job!	Full employment creates a hard competition.
Provision for old age	Difficult, pension will maybe even not pay operational expenses.	Easy, the way to the own plus-energy house giving real security
Child or career problem	Severe problem, nannies are private expenses.	No problem to engage a nanny for having both

The worst possible tax system

What should an optimal tax system bring about? The table shows exactly the opposite from what the current tax system brings about. The opposite of an optimal system is the worst possible system.

So the label “Current tax system” in the table could be replaced with “Worst possible tax system.”

All the political discussions in the last decades, increase income tax, decrease income tax, increase VAT, increase dues for social security. Political parties based most election campaigns on these discussions. The usual battle between “The rich should pay more taxes” and “Stopped the lefties from steeling your money”.

So many discussions about taxes, but never the question about the quality of the whole tax system. What causes the tax system? Is the basic concept correct?

The basic concept of the current tax system is: “There are good business expenses, there are bad private expenses”. You pay for your private expenses VAT, income tax, dues for social security. All this can be avoided by making business expenses instead of private expenses.

The idea behind this basic concept is economic growth. People should be motivated to invest all their money into business expenses. I could write now some hundred pages more about this, but I think a short conclusion is enough: The basic idea behind the tax system is scrap; the tax system is scrap.

Steer the society in the right direction

The new basic idea is “Steer the society in the right direction”. The government has tasks. This tasks require money paid by taxes. Use the complete tax system to steer the society in the right direction.

The right direction is defined throughout the book “Advance to solar age”, documented from page 16 to 126 of this book.

The best possible tax system

How can be a tax system the opposite of the current tax system? How should all this great effect be achieved? Here the answers for all the claims:

Manipulation:

Nothing with business expenses, wins and loses. “We have sold all our patents to a company on Cayman island, and we have to pay so much license fees”. Great, tell all those fairy tales to your shareholders! “We have purchased another company at US$ 100 per share, and after the purchase, the share declined to US$ 10. We have so much loses; we are so poor, no wins for the next 30 years.” This does not matter, here is your tax calculation based on ground usage and the number of your employees who assigned their exempted amount for ground usage tax to your company.

When the company purchases electric power, it’s already taxed. When the company purchases fuel, it’s already taxed.

Control:

CO2 tax direct at the well or at the import of fossil energy. Ground usage tax is also easy to control. Regardless of win and lose fairy tales, only the resource usage is taxed.

The great reduction of what has to be controlled makes it possible to control the few things remaining much better.

Motivation to economize workplaces:

No taxes and dues for human work. Neither for the employer nor for the employee. There is also an exempted amount in ground usage tax. Each employee assigns his exempted amount for work usage to his employer. To economize workplaces will increase the ground usage tax.

Motivation to economize the usage of resources:

VAT, income tax and dues for social security are replaced by taxes on resources. This is the large majority of the current total tax revenues. This is a really big motivation.

Motivation to change to renewable-energy:

VAT, income tax and dues for social security are replaced by CO2 tax to discourage fossil energy usage and ground usage tax to discourage low efficient renewable-energy like biofuel. Only high efficient renewable-energy is wanted.

The ground usage will have different tax rates. Photovoltaic and wind energy should be cheaper than fossil energy, but not something like a license to print money. So also large greenfield PV-plants will contribute with ground usage tax payments.

Every person has an exempted amount in ground usage tax and tries to make the best out of it. This means a comfortable house with very low own energy usage and very high electric power production by photovoltaic.

The demand for vegetable oil should not be increased by burning it or using it in internal-combustion engines. So the ground usage tax for farmland producing vegetable oil has to be high enough, that diesel is cheaper than vegetable oil.

Tax consultants:

The new resource oriented tax system is a mirror of the worldwide problems. Taxes are used to steer the society away from problems like an expected oil shortage and climate-change towards a stable future.

The new designed tax system forces tax consultants to solve real-world problems, because the tax system is designed to solve real-world problems.

Employers in competition for employees:

There is this fairy tale, that there is not enough work. The truth is, that in the current tax system, only a limited amount of work can be paid. Much workplaces can't be afforded. Fire somebody now. You stop paying his wage, his income tax, his dues for social security. This is a great financial relief.

Fire somebody in the new tax system. You stop paying his wage, but you lose his exempted amount in ground usage tax; the employee has assigned to your company.

Provision for old age:

I know pensioners in Austria with 700 EUR pension a month living in a small 400 EUR rented apartment with 200 EUR operating expenses. This situation worsens from year to year. Government enforces dues for social security. So all this very poor pensioners had in all the decades, they have been working, not enough money to create a real provision for old age.

Property, very low or even negative operating expenses and the new "progression counterbalance" are a far superior provision for old age.

Imagine 167 EUR per month "progression counterbalance" and minus 133 EUR operating expenses of his small plus energy house would be together 300 EUR. 3 times more money to spend than the poor pensioner in his rented apartment with only 100 EUR a month remaining.

Progression counterbalance:

The theory of the income tax is poor people do not have to pay income tax; rich people have to pay much income tax. How to make something similar in the new system?

There is the exempted amount at the ground usage tax and there is the progression counterbalance.

There is in the new tax system nothing left to determine the income of a person. So how to know, is he a needy or not? There is a very simple solution for this problem. Give everybody a small amount of money just enough for an extreme low living standard.

In a rich country like Germany this could be 2000 EUR per year. This has nothing to do with unconditional basic income. All basic income fans want several times more money. Unconditional basic income fans think “There are by far not enough workplaces, so all the people finding no work should earn money like they would have a job”. I can’t find any logic in this.

The progression counterbalance should increase the purchasing power of poor people. To enable poor people to master the wanted changes in energy and mobility. No motivation for not working!

Child or career problem:

Read a hundred-year-old newspaper in an archive. So many offers for domestic workers. Has the technical progress replaced all the nannies by robots? No, the tax system has created a wall between humans. Humans are too expensive for humans. This created the child or career problem. Nannies are now too expensive.

Why? At the usual income and tax situation in the rich EU countries, a small company owner writes a bill with 500 EUR for his service, after paying his VAT, dues for social security and income tax, he remains with 175 EUR. Now he has to pay the employers part social security fee, employee part of social security fee and income tax for the nanny. At the end, the nanny gets out 100 EUR from the 500 EUR, the small company owner earned for his service. 400 EUR taxes and dues to pay.

Is work something so bad, that it has to be eliminated by the tax system? No! Is fossil energy something so bad, that it has to be eliminated by the tax system? Yes!

The new tax system removes the wall between humans. The wall against usage of human work is changed to a wall against usage of fossil energy.

Starting the wake-up calls

In autumn 1991, I started to search a rich industrialist who wants to become “Henry Ford of solar houses” with my GEMINI inhabited solar power plant.

Now it’s May 2004. I have to wake up the society. Such a complete wrong system cannot survive. Only the great technical progress combined with extreme cheap fossil energy covered the problems by the complete wrong system for some decades.

The problems will soon emerge. It’s better to correct the system before the failures will destroy our living standard or even our whole future. I start to write material for a new subdomain of PEGE.org determined for politics and economy.

Kyoto emissions trading failed

It was planned that the ETS - emission trading system - should encourage the shift to renewable-energy. But as the statement of the Minister Bartenstein May 14th 2004 in Austria shows: It failed. It is completely irrelevant whether I quote this or another politician from another country. The logic is the same everywhere.

The core message of Bartenstein is that one ton of CO2 saved with wind turbines costs around 100 EUR but in emissions trading only 13 EUR. That’s why he wants to cut the funding for green energy and prefers cheapest ransom payments for the requirements of the Kyoto Protocol.

Additionally introduced new taxes generate resistance. The total tax burden must fall or remain the same. Therefore, the CO2 tax has been reduced to a toothless coward.

Only when we abolish all work-related taxes, including VAT and social security contributions, the CO2 tax can be set revenue neutral so high that the dirigiste effect is achieved.

People are becoming unaffordable

The drain from the sink is leaking. Of my money, I would have to pay his VAT, social security and income tax. So it isn't considered to call a plumber. I'd have expected 200 EUR costs. Therefore, I drive 12 kms to the nearest "Do It yourself market". After about a 1/2 hour search I find a seller. I interview him about the drain. I buy a hemp gasket. Back home I have to determine that this was not the correct solution. The drain flows even with the hemp sealing.

After the first repair attempt failed on a dripping drain, I'm trying to get the part with the ball and sealing rings. The "Do It yourself market" (12 kms) has not, so on to Bergheim (20 kms).

There at Steiner I finally find the spare part. Two trips to the "Do It yourself market", one for Steiner to Bergheim. On a crazy statistic about the standard of living now 90 km car driving is recognized. Great standard of living, people can so much kms car driving afford.

Human is decoupled from human

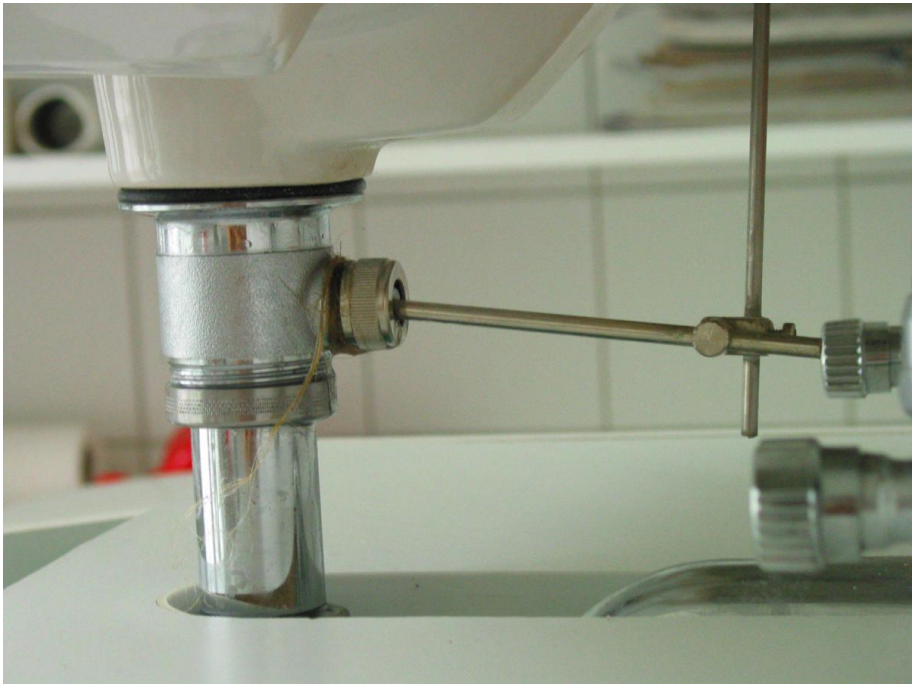
What really happened? I ask my clients an invoice. Of this I have to pay VAT, social security and income tax. If I hire a plumber for the repair, I have to pay him his bill from which the plumber must again pay VAT, social security and income tax.

This is a tax system that very effectively decoupled human from human. Human can no longer afford human. 90 kms driving around with the car and around 6 hours wasted time instead of calling a plumber.

The other tax system

No more taxes on human labor. I write to a customer an invoice and keep all the money. I instruct a plumber and pay him the bill, and he keeps all the money.

The whole tax revenue is paid by the electricity bill, at the gas station and by other resource taxes. Revenue-neutral shift to taxes on consumption of resources. In such a tax system I would have hired a plumber from a nearby village in a distance of 6 kms, and have hired would have saved me hours of trouble.



A plumber would cost about 200 EUR. To avoid these expenses, I drive about 90 km to different shops to purchase all what is required to solve the problem by myself.

The country needs nannies

My wife was overstrained with two small children. Not enough sleep to recover from baby sitting all day long. So my wife invited different relatives from Romania since 2001 as nannies. Living with us in our apartment, food and 200 EUR per month. I do not like to imagine what would have happened with our family if we would not have had this opportunity.

I am in Munich on July 13th 2004. There is a young begging woman sitting on the street. Why does she not have a work? I ask her: “Would you work for a small room, food and 300 EUR a month as a nanny?”

She shines on me. “YES!!!”. She goes every day to the employment bureau, no job for her. Why? In the German tax system is the term “marginal employment” for jobs with less than 400 EUR per month.

No duty for social insurance at marginal employment, but they would find reasons, that it’s not a marginal employment. They would calculate 400 EUR for a room in Munich as employee benefit. 200 EUR for the food as an employee benefit. This makes 900 EUR a month, far above the marginal employment limit.

When she should receive legal 300 EUR per month, she has to be reported as a 1200 EUR per month employee. 600 EUR in money, 600 EUR counted as employee benefits for room and food. About 250 EUR employee part social insurance, 50 EUR income tax. The couple employing her 250 EUR employer part social insurance. In total 550 EUR for the government, 300 EUR for the nanny.

The madness of the tax system nearly triples the cost to engage her. It’s a tax system to economize humans. It’s not only visible in the unemployment statistic. The child or career question: When you want to make career, and you cannot effort a nanny, you can’t have a child.

The madness of the tax system is also visible in the birth statistics. Only 1.4 children per woman. But what is the average birth statistic of well educated women who want to make a career?

Technology for a paradisiacal future available

August 25th 2004, I start the series “present situation”. Here the foreword of this series:

The technology for a high standard of living for all mankind exists. Merely, the application is delayed by an insane tax system until it is too late.

Human is expensive; energy is cheap

The central method to destroy all the achievements in terms of a continuing society is the tax system. All these calculations if more insulation or a solar equipment’s worth is based on a tax system which makes humans work very expensive and compared to this energy much cheaper.

Wrong profitability calculations

All these profitability calculations are based on a system that will destroy human. For example the house needs 5000 liters of heating oil per year to 20 cents. But the renovation to reduce consumption to 2000 liters per year costs 30,000 EUR. So is to renovate totally unprofitable. Excluding interest costs after 50 years at break even. With interest rates calculated never profitable.

Arbitrariness factor wrong tax system

Again and again, people had to put up with such death calculations for reasonable measures because the tax system is designed for the destruction of the human. Let’s turn the tax system completely. No more tax on human labor, only on resource consumption. One liter of heating oil for 2 EUR, the renovation costs 24,000 EUR. Why did this money waster not start yesterday with the renovation?

Why not a 60,000 EUR renovation to reduce, with heat pump, heat recovery from exhaust air and large-scale photovoltaic, energy costs even further?

15th anniversary of the fall of the Berlin wall

There was this wall in Berlin to stop people from the East to come to the West. Now it's November 9th 2004, 15 years after the fall of the wall.

There are invisible walls between humans. Walls causing that the birth rate becomes smaller and smaller. Walls that cause more and more unemployed. The walls by taxes and forced dues for social security.

From the wall refugee to the social-cheater

Less and less humans can effort to pay the taxes and dues for legal work. Wall refugees with the only wish to support their family with their own work, but are not able to effort the dues for forced social security and all the taxes. These wall refugees are defamed by the system as social-cheaters.

The wall in Berlin separated West and East. This wall separates into people able to pay social insurance and people not able to pay social insurance. This wall moves. Who thinks today to live on the good side, can soon have a bad surprise. Can today be anybody sure to have the same job in one year? Can be anybody sure not to become unemployed? Can be anybody sure, that his company will be existing in one year? You can go asleep on the better side of the wall and wake up on the bad side.

The bad side of the wall, the ghetto of all unable to sell their work with all the taxes. The bad side of the wall, the ghetto of welfare receivers. The humans whose existence has been destroyed by the regimen. A regimen built on the economic doctrine; that cheap fossil energy can create workplaces for highest taxed humans.

A regimen ignoring in his mania for economic growth, that low taxes on fossil energy destroys the environment and high taxes on human work destroys humans.

SED in the East - WEP in the West

Until the fall of the wall in Berlin, the SED (Socialist Unity Party Germany) ruled in the East. For the wall between the humans is the WEP (Economic growth unity party) in the West responsible.

Omnipresent are the slogans of the WEP: “Economic growth is everything.”, “We need more economic growth.” For the people looking with open eyes through the country, these slogans are as foolishly as the speeches from Erich Honecker. (last ruler in East Germany GDR - German Democratic Republic)

Leading members of the SED knew already in 1980, that the system will crash between 1990 and 2000. At this time, forces in the GDR were concerned, how to let the unavoidable happen as peaceful as possible. The economic data showed: already 1980 the East Bloc communism was at its end.

Cheapest energy for highest taxed humans

Only some decades after the end of the communism it was obvious for the well informed that there is much turbulence in another economic system. The doctrine to create the paradise by cheapest energy from fossil and nuclear sources for highest taxed humans, shows weakness similar like the socialist planned economy in the East Bloc. Both systems have in common: High taxes and dues for humans, cheap fossil energy for eternal economic growth.

The change: high taxed fossil energy, untaxed humans

Only a total tax reform brings the salvation and increasing living standard instead of economic growth with the declining living standard of a war economy.

But how? Where is the difference to have five parties believing in eternal economic growth or one party believing in the communist paradise on the ballot?

First encounter with an electric scooter

Would you expect to see a major traffic solution at a simple camping fair, a major solution to change from oil to electric mobility? Not as the big fair sensation, only somewhere on an average booth. No! This happened to me January 20th 2005. I found an electric scooter between motorhomes. Before I have seen only small electric scooters used on large campgrounds. I thought it's a new exotic export article from China.

I invited electric scooter companies to the Eurosolar Austria prize event to Purkersdorf near Vienna. On October 15th 2005 I had my first test drive with an IO-Scooter 1500 and E-Max during this Eurosolar event.

Stuttgart camping fair January 20th 2005: For the first-time I see an electric scooter in the EU 45 km/h limited class.

Electric cars in 2005

6,400 Peugeot 106 Electriques have been sold between 1995 and 2003. Now only available as a used car. The electric power demand in the night time is much lower than at daytime. The concept was, that nuclear power plants in France could deliver more electric power in the night time to charge electric cars. 80% of the electric power in France are produced by nuclear power plants. The PSA group with Peugeot and Citroen should produce these electric cars. The Peugeot 106 and Citroen Saxo.

But all the great plans were been a victim of inferior batteries. Even with the only 11 kW electric engine, short time 22 kW, the NiCd batteries require cooling. Range only 80 to 100 kms.

Wolkersdorf in Lower Austria: Ing. Herbert Eberhart from Eurosolar Austria with his Peugeot 106 Electrique.

Photovoltaic combined with solar heat

Special investigation March 2005 at the Wels energy saving fair: Is there any company combining electric power and heat production by sun in one module?

Yes there is, but not as an exhibitor on the fair. It's Johann Söllinger in Strass in Attergau. I visit him May 13th 2005. Photovoltaic likes it cool. With the same light has crystalline silicon photovoltaic 0.46% less power output per degree Celsius higher temperature.

So it brings more electric power yield to hold the temperature below 30 degree Celsius. The photovoltaic can be cooled by the underground. The underground becomes a little bit warmer. This improves the power factor of the heat pump.

Backside of a photovoltaic and heat combined module: Capillary pipes and a connector for the coolant

Urban planning of the future

As I wrote in 1992 “Aufstieg zum Solarzeitalter” (Advance to solar age) only one component was developed: photovoltaic. How to heat dense populated areas with old buildings during the winter? How to store the electric power for night time? How to change to electric mobility?

After all this key questions are answered, I write October 9th 2005 a series about urban planning.

1.) Combined electric power and heat production modules. Store excess heat in the underground below the city, use this in winter by a heat pump to warm the buildings.
2.) Lithium iron phosphate batteries. A secure battery system for day/night balancing and electric mobility
3.) Plug-in hybrid cars. Drive in the city electric only and long distances by the internal-combustion engine.

A hybrid car like the Toyota Prius is as oil dependent as any other ICE car. It uses only less gasoline. A small optimization of gasoline consumption.

But there are three Toyota Prius+. The “+” stands for a 9 kWh lithium iron phosphate battery from Valence VLNC for up to 50 km in electric only mode, a charger and a plug. This 9 kWh battery changes the Toyota Prius to a Plug-in hybrid car.

It’s explained on the project’s website, why this battery has been chosen for the project: security and more load/discharge cycles compared with lithium-ion batteries. So this technology can be also used for day/night balancing.

So the vision from the town without exhaust gases from page 32 is now technical feasible. Heating is solved; mobility is solved.

New visions for urban planning

What visions have the societies in USA and EU? Great new achievements ahead? It's a society which lost all visions and is reduced to "We need minimal 2% economic growth each year, or the system will crash".

The vision of an exhaust gas free town was introduced by me 1993. But now is even more possible. What's about cooling a whole town in summer and heating all the streets in winter?

A big town has a microclimate. It's some degree Celsius warmer than the surrounding country. Sunshine does not heat up meadows and forests in the same way like roofs and streets.

But what is when all the roofs have photovoltaic heat combination? But what is when all the streets have heat exchangers below the surface? When all the roofs and streets are cooled during the summer by the cooler underground. The temperature difference between town and surrounding country could be much smaller.

Surface of a sports ground with a heat exchanger shown at Intersolar fair in Freiburg 2006.

Ice and snow are common in the wintertime. Much salt is used to melt away this threat for traffic security from the streets. This could be avoided by heating the streets by the underground. The first 100 m below the town as a huge thermal storage, to cool roofs and streets in summer and to keep the streets in winter just above the freezing point.

Or change a town with desert climate, hot days, cold nights, to maritime climate, no big temperature difference between day and night. Just cool the roofs and streets at daytime and heat them in the night.

Leaf oil, natural gas, coal and wood

A long winter with much snow continues. Mass media report delivery problems at wood pellets. House owners are running out of pellets. March 14th 2006. It's a cloudy day; it snows in the morning. The nearby Untersberg mountain is not visible through the haze.

How would a house with 160 m² Uni-Solar triple amorphous cells compete with a house heated by wood pellets on this day? I measure my foldable photovoltaic.

160 m² would give 1.49 kW at 9:00 am and 3.05 kW at 12:00 am. It's so cloudy that the near mountain is not visible, but 28% of maximal output. A low-energy house with a good heat pump can produce on such a cloudy winter day enough electric power for heating, warm water and household. With a battery for day/night balancing a very high energy security.

Review 2013: Disaster preparedness

Since then there have been several disasters. The Tohoku earthquake and tsunami in Japan in 2011, the New York Hurricane Sandy, 2012. For weeks, no electricity and fuel for emergency vehicles only, complicate such disasters even further. Photovoltaic and battery buffer for each house, the houses and the electric vehicles of the residents work.

Inflation calculation by basket of goods

After the tax reform pro human, people would get more wage, no income tax and dues for social security deducted. Some articles cheaper, no VAT, but other articles more expensive, because resource taxes have to be paid.

The inflation rate is a very important number. Worker unions demand more wage based on the inflation rate. In some countries, it's even legal for landlords to demand more rent based on the inflation rate. So I research in June 2005 the methods to determine the inflation rate.

Every some years, the basket of goods is new calculated. The VW bug is replaced by the VW Golf I, the VW Golf I is replaced by the VW Golf II. Some decades later, the VW Golf IV is replaced by the VW Golf V. It's a lower middle class car in the basked of goods.

The brother of my wife purchased 2002 a Dacia 1310 in Romania for 5000 EUR. The same price as the Renault 12 had 1970 in Austria, but the Renault 12 from 1970 had a simple carburetor, the Dacia 1310 from 2002 a fuel injection.

What shows the inflation more correctly? VW Golf V instead of VW Golf I or Dacia 1310 instead of Renault 12. That's the first major failure in inflation calculation.

My first car, a VW bug 1500 was an extreme gas guzzler. 11 liter gasoline was 1979 5.72 EUR. Now I drive a minivan. 6 liter diesel are in 2005 5.80 EUR. I develop a model from this change. What happens when during 20 years, the average fuel consumption halves and the fuel price doubles? We would spend the same for fuel, but a flaw in the basket of goods model calculates an inflation. This false calculated inflation is changed in a real inflation when the landlord sends a letter: "The official inflation since the last price change reached 5%, so the rent for Your apartment increases from 800 to 840 EUR."

Since decades, more and more percent from the income has to be spent for the inhabitation.

Dissertation proposals

June 2005, I publish several proposals for dissertations to back up all my theories by scientific works.

The birth rate declines especially for higher earners. The theory: tax laws have made domestics unaffordable expensive. From child, career and domestic workers towards career and unemployed.

Education: Will less A layer children decrease the level? Just high earners have the lowest birth rate. This changes the average social composition of a class considerably. What are the implications?

Prevent peak-oil: scenarios for the development of oil consumption, oil prices and their impact on the global economy. What opportunities are there to prevent an oil price shock for economy?

Inflation calculation by basket of goods: Is always only a real inflation calculated, or leads a change in the consumption behavior towards more luxury and an increased standard of living to a falsely indicated inflation.

Traffic with plug-in hybrid cars: Drive as long as the battery lasts electrically and then with a combustion engine. What percentage of fuel can be saved? How can the potential savings to be optimized?

Review 2013: Unable to look at problems

During all the years about 8 students were interested in my dissertation proposals. But all gave up after first talks with their professors. Research is guided to avoid any problems. The society of the West Bloc has to be shown as the best possible. There can be no problems.

First electric scooter test

September 15th 2006, I start my first test with an electric scooter. I take an E-Max S at Roller Deinlein in Piding and drive home. It's an 45 km/h limited electric scooter with a 3.85 kW wheel hub engine. On the way home my first encounter with another electric vehicle. Heidi Reiter from the Green party in Salzburg is in Grödig with her CityEl.

She is just with her CityEl on the election campaign for the Austrian parliament October 1st 2006. She promotes electric mobility as a solution for the environment and our oil dependency. I do the same, but I think a 2,300 EUR electric scooter for 2 persons is easier to promote than a 10,000 EUR CityEl for 1 person.

A CityEl, a German electric vehicle based upon a design from 1988. Heidi Reiter, a Green politician and my E-Max S electric scooter in Grödig near Salzburg.

As the Peugeot 106 electrique on page 157 shows, electric cars are far away to replace the main car of a family. So the question is how to replace as much car km and oil usage as possible with an electric vehicle.

I continue my test to verify the 60 km range from the data sheet into the evening. The consumption of the first test day was 2.49 kWh for 56.4 km giving 4.42 kWh / 100.

September 16th, I am in the Robert Jungk library in a meeting of an NGO. Several communal politicians from Salzburg are invited to make a test drive with the electric scooter.

The event was announced very short, but at last 4 politicians make a 2 km long test drive to the next bridge down the river, on the other side of the river Salzach to the next bridge up the river and back to the Robert Jungk library.

Johann Padutsch from the Bürgerliste Salzburg (citizen party Salzburg) before his test drive with the electric scooter.

He is in the Salzburg city council responsible for traffic.

Mountain test to the asthma center

I was on vacation at the Adria in August 2005. My daughters played with a girl from Munich. My daughters were 4 and 6 years old at this time. Big surprise, their playmate was 14, but looked like 10. She was not able to live with her parents in Munich, too much air pollution for her asthma disease. Only on the vacation she was together with her parents. After the vacation, she returned to the asthma center Berchtesgaden on the Buchenhöhe.

What could be a better target for the first mountain test with the electric scooter? I dream of big towns without exhaust gases since 1992. When this dream will come through this girl could live in Munich with her parents.

First mountain test with the electric scooter E-Max S.

The asthma center Berchtesgaden at Buchenhöhe.

Sunday September 17th, my first mountain test up to Buchenhöhe. The wheel hub engine has 71 degree Celsius at the surface. In the evening, I start my second mountain test to the Zistelalm on Gaisberg.

It's great, how was it possible to live so long without an electric scooter? I was an enthusiastic bicycle driver before. I helped 1979 at the "Aktion Umwelt" (Action Environment) to prepare the first bicycle demonstration in Salzburg. Bicycle traffic is well established in Salzburg, and I was a part of it as long as I lived in Salzburg.

I moved to St. Leonhard near Salzburg in the year 2000. 2002, I found my bicycle rusty in the garage. I was degenerated to an only car driver. It was too long and uncomfortable to drive to Salzburg with the bicycle. But now I have a new possibility to use an environment-friendly means of transport.

On Monday September 18th, I have to bring back the electric scooter, but I hope, that I will get soon a long-time test vehicle.

First political proposal for electric scooters

The first bicycle demonstration in Salzburg 1979 have been followed by good political actions: Special bicycle ways, bicycle lanes beside the street, exceptions at one-way roads. Permission to use special lanes for public transport. Bicycle traffic reached a good share in Salzburg and many similar cities.

September 19th 2006, I publish my first political requests for electric scooters. I expect a success story like 1979.

Entrance at 45 km/h limited scooters

For technical reasons, electric mobility starts within the 45 km/h limited scooter class. Here are the first-time vehicles that can be sold to normal people.

Why in the scooter class? Very small internal-combustion engines have a poor efficiency. Two stroke engines have a poor efficiency. The 2-stroke scooter has the lowest efficiency of all classes of vehicles.

Much gasoline and expensive lubricants for two-stroke engines consumed for a bad driving performance.

While there probably are some improvements in the battery technology and increases in the price of oil necessary to trump a 3 liter car, the 4 liter scooter is the weakest enemy in the great battle between the electric and fossil mobility.

The only thing missing to make our cities free from the noisy rattle and the smell of burnt lubricating oil is a proper infrastructure to charge the scooters. Outlets are everywhere, only not just where you normally park your scooter.

Infrastructure is a task of the state, thus, a large-scale migration from rattle stink scooters to electric scooters is a political issue.

No registration possible for gasoline scooters

September 29th 2006 I am at the RenExpo fair in Augsburg, Bavaria. In one hall are electric vehicles. The usual Twike and CityEl and some electric scooters. One of the exhibitors tells me that gasoline scooters are forbidden in many Chinese cities. Shell I believe this? Gasoline scooters forbidden and nothing in our mass media? It's too good to be true! I can't publish wild rumors in my online magazine.

So I write October 2nd to the WKO (Chamber of commerce Austria) foreign trade center in Shanghai. I receive the answer on October 12th 2006:

Dear Mr. Mösl,

Coming back to your inquiry of October 2nd, we have for you inquired at the Ministry of Communications of the PRC and may inform you that there is no uniform national legislation for the registration of gasoline scooters in China. In economically developed cities such as Shanghai, Guangzhou, Hangzhou, etc. however, is a new authorization of gasoline scooters no longer possible.

New registration of gasoline scooters in most developed cities in China forbidden and nothing about it in our mass media? How is this possible?

It's the first-time in history, that a whole class of gasoline vehicles is wiped out by electric vehicles. A milestone for humanity on the way to solar age. This should be discussed in talk shows all around the world.

Austria should be free

October 26th 2006. In Austria is national holiday. October 26th 1955 was the first day where Austria was free from foreign soldiers after the second world war.

To celebrate this day I start my long-time test with an electric scooter. Austria should be free from unnecessary oil imports. The test should show how useful electric scooters are in this task.

The 40 million electric scooters surprise

October 30th 2006, I find a study from the Institute of Transportation Studies (UCD), UC Davis: "The Transition To Electric Bikes In China: History And Key Reasons For Rapid Growth":

Abstract: Annual electric bike (e-bike) sales in China grew from 40,000 in 1998 to 10 million in 2005. This rapid transition from human-powered bicycles and gasoline-powered scooters to an all-electric vehicle/fuel technology system is special in the evolution of transportation technology and, thus far, unique to China. We examine how and why e-bikes developed so quickly in China with particular focus on the key technical, economic, and political factors involved. This case study provides important insights to policy makers in China and abroad on how timely regulatory policy can change the purchase choice of millions and create a new mode of transportation. These lessons are especially important to China as it embarks on a large-scale transition to personal vehicles, but also to other countries seeking more sustainable forms of transportation.

1991 as I started with the GEMINI inhabited solar power plant project: “National science Board names e-bike as one of 10 main technology projects during the 9th 5 year plan period.”

I had a special idea 2003: Serial hybrid recumbent bicycles without chain. The driver generates only electric power. The pedals are connected to a generator only. I created some spreadsheets to calculate the performance with different batteries and different trip profiles. I had negotiations with some producers of special bicycles about this project. Nobody told me that: “E-bike sales surge after the outbreak of SARS when many riders shift from public transit.”

In 2005 as I thought at the camping fair in Stuttgart this is a new exotic export article from China: “Annual domestic e-bike sales top 10 million.”

2006 as I started my first electric scooter test: “E-bike production in China in 2006 projected to reach 18 million.”

I thought that I am a well-informed citizen of a country with a free press and all the possibilities of the Internet. Now I discover 40 million electric scooters and the history behind this development.

The freedom of parking

I forgot four AA rechargeable batteries for my camera in the Robert Jungk library on September 16th 2006. Now it’s November 2nd. I drove every week to the weekly market at Mirabell place. Everytime I searched for an opportunity to stop at the Robert Jungk library, no chance.

During shopping, I use the underground parking area below Mirabell place. Walking from there to the Robert Jungk library would increase my parking bill by 2 EUR because of the longer parking time.

Now I park my electric scooter direct at the Robert Jungk library. That’s the freedom of parking.

The shopping list of my wife sums up to 35 kg in vegetables and fruits. Who wants to transport this over 11 km on a bicycle?

A new age of quality journalism

The discoveries of the last days start the question, what is quality journalism? To write every some month articles about how terrible the gasoline price is, while hiding 40 million real existing solutions for this problem in China?

November 13th 2006, I start to Milano and visit 14th and 15th the EICMA motorcycle fair. I write 60 pages on my website about the electric scooter fair in Milano.

My report reaches from small BSEB Bicycle Style Electric Scooter up to the 20 kW Vectrix. I discover several scooters with the same coachwork as my E-Max S, but with different engines. It seems to be usual in China that many different companies use the same coachwork.

EICMA motorcycle fair in Milano 2006: A SSEB - Scooter Style Electric Bike with pedals. The users usual dismount the pedals.

CO2-free service delivery

How many car kms can be avoided by using an electric scooter? Sure, I was with my car in Milano, but I want to visit all my customers in the range of my electric scooter only with the electric scooter.

November 28th 2006, Söllinger, the inventor of the photovoltaic and heat combination needs a visit. One of his employees learns how to make the company's homepage with my CMS Content management system. Today is the last session to complete the seminar.

I drive 57 kms to Strass im Attergau. 5 hours later, the seminar is finished; My scooter is recharged and I drive home. Nearly CO2-free delivery. My electric power vendor Salzburg AG states 40 g CO2 per kWh. 5.4 kWh from this source are 216 g CO2 for 114 kms. Some cars emit even more for one km.

Johann Söllinger, a 280 W photovoltaic module with combined heat production, my electric scooter and his web designer.

The yearly yield of this photovoltaic in not so sunny Austria is enough for about 6000 kms a year.

Trusting the data sheet of the batteries

January 25th 2007, a very cold winter day. Temperature below -10 degree Celsius. There is a peak-oil lecture in Traunstein 50 km away from Salzburg. I have already tested my electric scooter up to the 60 km range in the data sheet. But all tests at temperatures above freezing water. I know from the CityEl forum, they use heating systems for the batteries even at plus 5 degree Celsius.

The data sheet for the batteries indicates, that they have a much better performance at low temperatures than normal lead-acid batteries.

I wear many layers of clothes against icy conditions. I am heading 75 minutes travel time to Traunstein sitting on my electric scooter with up to 45 km/h through the -12 degree Celsius cold air.

Each event requires a proper outfit. You can't go wearing a swimsuit to the opera. As a pioneer of the solar age, you can't visit a peak-oil lecture with an oil dependent vehicle.

The data sheet of the batteries is correct. They have really a better performance at low temperatures than other lead batteries. I reach the holy cross church in Traunstein.

Peak-oil lecture in a church

Theoretically, there should be a broad public discussion about peak-oil. Dr. Hubbert was right with peak-oil in USA about 1970, and now it's the beginning of the 21st century, the foretold time for worldwide peak-oil.

But in reality, the peak-oil theory is hidden from the public. Nobody should know, there is a necessary oil exit. When people do not know the trap, they will not escape the trap of fast rising oil prices when demand exceeds the offer.

No chance to bring this information to the mass media. Lecture tours are necessary to inform the public about the disaster ahead. So the DGS - Deutsche Gesellschaft für Sonnenenergie e.V. (German Society for solar energy) makes a lecture tour with Tomi Engel. Today is the

lecture tour in the holy cross church in Traunstein.

Something reminds me on the situation of the Christians in old Rome. There was this state religion and this new underground religion Christianity. Now we have as the new state religion economics. The believe in eternal economic growth based on cheap fossil energy. Here is a meeting, that there is no eternal cheap fossil energy.

As expected, Heidi Reiter is also there. I start my game: who has the better electric vehicle? I ask her “Where is your CityEl?” She answers “At home, it’s impossible to drive such a long distance when it’s so cold.”

After the lecture and all discussions, my electric scooter is recharged. I drive home. The first what I do in the stairway: I hug a heater.

Tomi Engel welcomes me in front of the lecture hall of the holy cross church in Traunstein, Bavaria.

Shopping with the electric scooter

Cars with internal-combustion engines have a high consumption at short distances, special at low temperatures. My car even has a 5 kW oil heater impossible to switch off. It's to bring the engine and the passenger room fast to comfortable temperatures. All together, this needs 0.5 liter Diesel to go shopping to the 2 km distant super market and back.

120 times a year driving to this 2 km distant super market consumes more diesel than my last vacation travel to Poreč in Croatia. 120 times to the super market are only 480 kms. To Poreč and back 860 km, but I can drive my minivan below 5.5 liter diesel / 100 km on a long journey, while this can be up to 12.5 at such short distances.

January 27th 2007 at a super market in Neu Anif. All of these purchases in the shopping cart must be stowed on the scooter.

Jingle bells! Oh, what fun it is to ride!

Dashing through the snow in a one-horse open sleigh. No horse! Electric scooter! January 27th, I realize this carol for my daughters, but their sledges are not pulled by a horse. I pull them with my electric scooter.

Next day, also two neighbor kids want to have this fun. So I test my electric scooter pulling four sledges. Every car driver knows how difficult it's to start moving on snow. One wheel starts spinning. That's all, the car does not move.

Not so with an electric scooter. It starts moving like a train. I tested also to pull the four sledges by myself at last one meter. I failed. It needs much power. So the consumption was more than three times higher: 16 kWh / 100km.

Pulling my daughters and 2 neighbor kids on sledges with my electric scooter.

Allow fluctuations of the oil price only in one direction

On February 8th, 2007 at US$ 59.71 oil price I write a proposal: As an additive to reform the Kyoto Protocol should be introduced a kind of backstop for the oil price. By this method, a fiscal redistribution could be controlled.

Backstop for the oil price

To escape from the dependence on oil and to stabilize the world's climate, all reductions of the oil price should be offset by increasing fuel tax. For example, if the average price per barrel drops from US$ 70 to US$ 50 in a quarter, then automatically the fuel tax is increased by US$ 20 per barrel. At the daily consumption of 2.7 million barrels in Germany this would have meant a tax redistribution of EUR 15 billions per year.

Relieve work - reducing social security dues

With this increase in the fuel tax, the social security dues could be reduced by 4%. A small but important step away from the taxation of human work towards resource taxation.

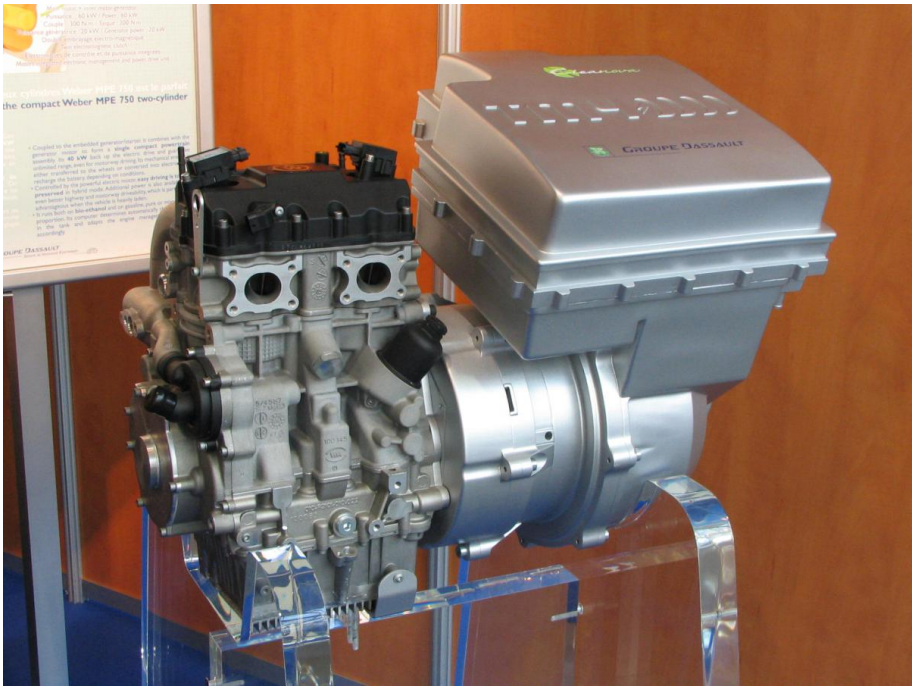
Radical reduction in consumption could reduce the oil price

There is an enormous potential for savings on oil consumption. Especially plug-in hybrid cars and energy-plus houses have an enormous potential to reduce oil consumption. But modern technology is precisely prevented by cheap fossil energy. It could really happen that the price of oil falls down to US$ 10 a barrel by a radical reduction in consumption. Until then, the fuel tax should have increased by US$ 240 a barrel, that no one comes on the crazy idea of coming back to cheap oil.

Renault Kangoo plug-in hybrid

March 29th 2007, my second visit at the EVER - electric vehicle renewable-energy fair in Monaco. The Groupe Dassault presents the Renault Kangoo Cleanova II as an electric vehicle and a plug-in hybrid version. 150 km electric only range and on longer travels, a 750 cm³ two cylinders 40 kW engine produces electric power (serial hybrid) or has a direct connection to the front wheels (parallel hybrid) at more than 80 km/h. The Weber engine can use any combination from gasoline and ethanol.

I make a test drive with the Renault Kangoo Cleanova II plug-in hybrid in Monaco. I hope this will be my next car, when it will be publicly available 2009.



Combined parallel serial hybrid engine from the Renault Kangoo Cleanova II shown at the EVER Monaco 2007.

Opel Flextreme plug-in hybrid

September 13th 2007, my third day at the IAA in Frankfurt. The fair sensation is clearly the Opel plug-in hybrid. This is the future as long as batteries are far too expensive for 500 km range.

80% with the battery, 20% with the range extender saves enough liquid fuel until battery technology is ready for the holiday trip of a family.

German Chancellor Angela Merkel on her highlight of the IAA tour. She studied physics, so she should understand, that plug-in hybrid cars like this are an important step to escape peak-oil and to solve the climate problem.

September 13th 2007 11:39 am: German Chancellor Angela Merkel sitting in an Opel Flextreme plug-in hybrid car at the IAA Frankfurt.

Vectrix at Mozart place

October 18th 2007, the oil price exceeds the first-time in history US$ 90 a barrel. The population is concerned about the fast-rising oil price. My cell phone rings. My wife tells me “Roland, there is a big photovoltaic and 16 electric maxi-scooters at the Mozart place in Salzburg.”

Mozart was a very famous composer. The place with his memorial is in the center of the town and is mostly visited by tourists. The place is not visible to a near main traffic street “Rudolfskai” in Salzburg.

I immediately drive to the 10 km distant Mozart’s place in the center of Salzburg with my electric scooter. There are a turnable photovoltaic from Solon and 16 Vectrix electric scooters for test driving direct at the Mozart memorial.

The Solon Vectrix electric mobility tour on Mozart place, in the background the Salzburg Cathedral.

I met this demonstration tour for electric mobility by photovoltaic first-time during the Intersolar fair in Freiburg June 2007, now they are in Salzburg.

I spend some hours there. I make many photos. The vice governor of Salzburg is also there. Many journalists are there.

I imagine the top story of the local TV in the evening. I imagine the headline of tomorrow's newspapers:

"Don't worry about US$ 90 oil price, come to Mozart's place to test mobility without oil dependence!"

Can there be anything else more important for the mass media in the region near Salzburg, than mobility independent from the fast-rising oil price, mobility without the dangers of the climate-change by green house gases, shown at the Mozart place?

The treason of the fourth estate

The separation of powers, the "trias politica" principle, journalism as the fourth estate. Information for the people to know about all important developments, about necessary changes and about ongoing changes.

Not one mass media brought the smallest message about the Solon Vectrix electric mobility tour.

More than ten thousand people drive on the Rudolfskai every day in a distance of about only 50m. People in sorrow. What heights will the oil price reach? What problems will the climate-change bring? Can there be a solution?

Nobody had the slightest idea, that there is a solution to test drive just right now and so near. The treason of the fourth estate.

Ghost driver Sigmar Gabriel

On December 19th 2007 German environment minister Sigmar Gabriel protests against the CO2 limits for cars in the EU. A normal thinking human would think that an environment minister can only protest because the CO2 limits for cars are much too high. Wrong! He protests because they are too low for the German premium car producers.

What is this? Didn't Angela Merkel sit in a German plug-in hybrid car September 13th at the IAA? Didn't Angela Merkel study physics? Wasn't the plug-in hybrid car explained to her? Isn't the oil price at US$ 91.24 today? Will the oil price not develop to a severe economic threat?

What would a normal thinking human expect from an environment minister? He should declare plug-in hybrid as the state of technical development. He should propose new norms how to determine the energy usage and emissions of a car. He should propose new registration rules for cars.

This could look like this: How much kWh electric power and fuel for 80 kms in urban surrounding? How much kWh electric power and fuel for 100 kms highway? How much kWh electric power and fuel for 1000 kms highway? The three values should be weighted 30% - 60% - 10%. The minimum range for electric only mode is 50 kms in urban surrounding. With an electric only range below this, no registration of the car is possible.

It's evaluated what the consumption of all sold cars in kWh electric power and fuel are at 20,000 km a year. Every car producer can purchase shares for solar or wind electric power plants. When the car producer has no shares in sun or wind power plants, 1000 g CO2 per kWh is assumed, this is the value of a coal power plant. When the car producer has enough shares to cover the electric power consumption of all his cars for 20,000 km a year, zero CO2 per kWh is assumed.

	Cheap small car just to meet the requirements	Middle class car optimal for long distance commuters	Premium car big and very comfortable
Electric range	50 km	80 km	150 km
Electric mode	14 kWh/100	18 kWh/100	24 kWh/100
Hybrid mode	5 l / 100 km	6 l / 100 km	8 l / 100 km
Urban 80 km	7 kWh +1.5 l	14.4 kWh	19.2 kWh
Highway 100 km	7 kWh +2.5 l	14.4 kWh +1.2 l	24.0 kWh
Highway 1000 km	7 kWh +47.5 l	14.4 kWh +55.2 l	24.0 kWh +68 l
Mix 30/60/10 for 100 km	6.90 kWh +2.54 l	14.18 kWh +1.27 l	21.96 kWh +0.68 l
CO2 emissions evaluated with g CO2 per kWh electric power:			
1000 g / kWh	128.96 g/km	171.92 g/km	235.68 g/km
500 g / kWh	94.49 g/km	101.00 g/km	125.88 g/km
250 g / kWh	77.25 g/km	65.54 g/km	70.98 g/km
0 g / kWh	60.01 g/km	30.08 g/km	16.08 g/km

It is much easier to accommodate a 45 kWh battery in the price of premium cars than 18 kWh battery in the price of a cheap small car. Technical Progress in cars starts usual at premium cars and comes later also to cheap cars.

So Sigmar Gabriel should have proposed 50 km minimum electric range and the discussed method above to determine consumption and emissions. Decrease CO2 emissions down to 20 g / km instead of wailing around that 120 g / km are too low.

Replace oil by electric power

It's February 19th 2008 the incredible happens: The oil price has now 3 digits. US$ 100.01 for WTI oil. In all the years since 2004, politicians talked that the oil price will decrease to US$ 35 again. Now we have nearly 3 times the price what they prognosticated.

How to replace oil by electric power, mainly from photovoltaic? First, there is a replacement factor how: many kWh electric power is necessary to replace one liter oil product?

Application	Oil product	kWh	Repl.
Super sports car urban 100 km	25 l gasoline	15.0	0.60
Small 45 km/h scooter	4 l gasoline	5.0	1.25
Change to heat pump best	1 l heating oil	2.0	2.00
Renault Kangoo urban 100 km	6.7 l Diesel	14.4	2.15
Change to heat pump worst	1 l heating oil	4.0	4.00
Renault Kangoo highway	4.7 l Diesel	19.6	4.17
High temperature process heat	1 l heating oil	7.0	7.00
BMW 7 gasoline vs hydrogen	13.7 l gasoline	202.8	14.59
Ship propulsion with hydrogen	1 l fuel oil	15.0	15.00
Convert CO2 + H20 to	1 l Kerosene	20.0	20.00

Up to "high-temperature process heat", it's how to direct replace oil by electric power. The rest is how to create fuel by using electric power. The replacement factor gives a logical sequence of replacing.

Look at the replacement factor gasoline scooter vs electric scooter and you know why they started in China here with the replacement of oil by electric power.

This strategy is described in "two-phase change" page 26. Electric power from coal is cheaper than to import oil and emits less CO2. The electric power generation can be changed to cleaner and cleaner production later.

At replacement factor 2.5, it requires 145 TWh electric power per year to replace one million barrels crude oil per day. No limited energy resource like natural gas, coal, uranium or biomass is able to replace more than 80 million barrels a day. Limited energy resources react on more demand with an increase of the price. We just experience this effect at oil. For this we need an energy resource where the price goes down on rising demand. Something like 20 percent price decrease each time the world market doubles. We need photovoltaic for this.

To replace 80 million barrels a day means not 80 times 145 TWh because the replacement factor will go up. China started even with a replacement factor of 1.25 for gasoline scooters replaced by electric scooters. At a replacement factor of 4, 80 million barrels a day require 18,560 TWh yearly electric power production.

The worldwide electric power production in 2002 was 15,900 TWh. Only to replace 80 million barrels oil per day, more than this is required.

But we need not only to replace oil. It's also necessary to replace other limited energy resources like coal, natural gas, uranium and biomass. The corn price increase caused by ethanol production is as dramatic as the current oil price increase. In delivering energy for car driving photovoltaic is 500 times superior to biomass. One square meter sun flower field delivers 0.1 liter vegetable oil for 2 kms driving with a Diesel engine powered car, 1 m^2 photovoltaic delivers 150 kWh for 1000 kms driving with an electric car. The roof of your house and the desert is in no competition with the production of food for humans.

A yearly photovoltaic production of 1,000 GW per year should be reached as fast as possible. With a war economy like it was applied in the USA from 1942 to 1945, this is possible until 2014.

Besides the photovoltaic production, it's necessary to produce 5 kWh lithium iron phosphate batteries for each kW peak photovoltaic for the day / night balancing and electric vehicles.

When the sun rises in the east

From October 2007 to March 2008 the oil price raised by US$ 30 a barrel. Now there is a second argument against mobility with internal-combustion engines: The oil could be soon too expensive and too rare, to be burned in an engine.

What is the answer of the automobile industry for this situation? There always has been this rumor that solutions are ready in the drawers of the industry. Isn't it the right time just now and the Geneva International Motor Show the right place to show all these solutions out of the secret drawers of the industry?

On March 9th I start towards Geneva. First-time I have to pay more than 1.20 EUR for a liter Diesel. On March 10th 09:20 am I start my search for all the new cars at the International Motor Show solving the oil price problem.

Two hours desperate search, am I in Geneva or in Cloud Cuckoo Land? Are all the exhibitors unable to read the signs of the time? Oil is just becoming too expensive to be burned for everyday road traffic!

Suddenly, I read "DM - dual mode", "EV - HEV". I am standing in front of a plug-in hybrid car. For the most common everyday usage, it's an electric only car. For longer distances outside the electric range, it's a hybrid-car.

From where is it? It's from the same country as my electric scooter comes from: People's Republic of China. The name of the company is poesy of a new age: BYD - Build Your Dreams.

I know cars like the Ventura Fetish, Tesla Roadster or Fisker Karma. Companies with the business model to create expensive products for small niche markets. There is no price tag at the BYD F3DM but I am sure that the intention of BYD is to compete against normal cars to bring electric mobility to the broad mass of people.

the stars dim

I go to the next fair booth and ask for electric cars “We don’t have”, I ask for plug-in hybrid cars “What is this?” I ask several staffs at the Mercedes booth. I look at all the cars. They really don’t have it, they really ignore the oil crisis.

I go back to the BYD booth and think how this situation can be best expressed with a photo and with a text. I create a photo with the two plug-in hybrid cars from BYD in the front and the Mercedes booth in the background.

Review from March 2010

On the way back from Geneva’s International Motor Show 2010, I hear the top news on the radio: cooperation agreement between Mercedes and BYD.

The first-time that BYD exhibits at the Geneva International Motor Show 2008. Two BYD F3 DM in the front, in the background the Mercedes booth.

The technology of the BYD F3DM

It's a combined parallel - serial hybrid system. The Toyota Prius has a parallel hybrid drive system. Both engines, electric and ICE - internal-combustion engine have a mechanical connection with the wheels.

The first version of the Chevrolet Volt / Opel Ampera introduced at the IAA 2007 in Frankfurt was a serial hybrid. The ICE had no mechanical contact with the wheels, was only connected to a generator to produce electric power. The 2011 actual production version is also a combined parallel - serial system.

The ICE - internal-combustion engine can produce electric power by a generator and/or has mechanical access to the front wheels. The system has no gears. So the mechanical access from the ICE to the front wheels is only possible at higher speeds.

BYD F3DM serial parallel hybrid system: Left the internal-combustion engine, right the engine controller and below the electric engine.

An 1 liter gasoline engine with 50 kW and a 50 kW electric engine. Combined, enough speed required, 100 kW maximum power.

100 lithium-iron-phosphate cells with 3.3 Volt each, have together 330V. Each cell has a capacity of 60 Ah. This gives 20 kWh battery capacity. To maximize the service lifetime, the batteries are not fully discharged before the ICE is switched on by the system.

The consumption is listed with 16 kWh/100 km in electric only mode and 6 l/100km in hybrid vehicle mode. The weight is with 1600 kgs higher than at comparable sized cars with only an ICE.

To have enough place for the batteries the gasoline tank only has 23 liters giving a combined range of 490 kms.

BYD was founded 1995 as a battery company for cell phone batteries. They started 2003 with cars. Here a 3.3V 120Ah lithium-iron-phosphate cell.

Mission electric scooter

Congress of the Bavarian Green party from June 6th to 7th 2008 in Augsburg. The day when the oil price jumps from US$ 127.79 up to US$ 138.54. The electric scooter vendor Christian Deinlein and I travel 210 kms to visit the congress, and we have a message with us: Freedom from the oil price horror. Clean solar energy is cheaper than dirty oil. Two electric scooters on the trailer, one with lithium batteries.

Where should be a better place and a better time to start a political campaign for electric scooters? Beside the electric scooters, we have a petition with us. This paper should be the base for the campaign.

The Bavarian Green Party leader Sepp Daxenberger makes a short test drive in front of the Congress center.

Petition

Electric scooters in the 45km/h class are state of the art. After the top runner principle, therefore stricter registration requirements for limited to 45km/h mopeds (low-powered motorcycle - scooter):

1.) CO2 limit 35g CO2/km.
(Electric scooter with German power mix 26g CO2/km plus 30% tolerance surcharge)

2.) Stricter noise limit. No moped may be more than 10 db louder than a typical electric scooter (sounds really generous)

3.) Stricter emission limits. The emission limits for mopeds for CO, HC and NOx must be aligned with the EURO 5 standard for cars with petrol engines. Currently partially worse than EURO 1

To the more stringent registration requirements also other measures:

1.) Badge for driving in environment zone as for cars, according to emission standards of cars

2.) Scrapping bonus for 2-stroke engine scooters like in South Tyrol 2007

3.) Premium for the registration of electric scooters.

4.) Ban signs for noise abatement reasons do not apply to electric scooters.

All the day in the congress building. Party leader Sepp Daxenberger made a test drive in front of the building. I drive around in the building to demonstrate environment-friendly mobility. I try to explain how important a big campaign with my petition is.

In the late evening, I drive some Green politicians to the hotel where they stay for the next day of the congress. We continue the whole Saturday, but no result.

Politics in coma

The oil price doubled within one year. A great opportunity for political parties and for politicians to demand a change, to push new ideas. PEGE volunteer Roland Schneider made a survey May 2008 with 100 politicians in Germany listed as energy or traffic specialists of their parties.

100 opportunities given to sharp the political profile, to demonstrate competence in how to master the oil price crisis. Now it's June 9th; I review the sad results of the survey. Only 5 out of 100 politicians for energy and traffic answered.

Not one program for political actions. Four answers wailing around, one answer about "This has nothing to do with politics, the free market will solve all the problems."

On July 7th to 9th 2008 the 34th G8 summit takes place in Tōyako. It's less than a week after the oil price record of US$ 147.27. What would a normal thinking human expect when the leaders of 8 leading nations come together in such a situation?

A big announcement about an international organization for the oil exit, like I published end of June 2008? All the possibilities of politics to control the oil price by decreasing the demand? A great speech of Angela Merkel like: "We announce now the end of the oil age. At the IAA 2007 in Frankfurt, I was sitting in a plug-in hybrid car. In 10 years, we will require by car registration policies, that all new cars must drive minimal 50 km only electric. By this way we will control oil demand, in this way we will bring the oil price down. We will take far more taxes on oil as soon as the price decreases and invest all this in the oil exit."

Do you remember this historic speech of German Chancellor Angela Merkel? No, it did not happen. She did not hold a great speech. She was only whimpering like a junkie with withdrawal symptoms not able to pay to the dealer the doubled price for the dope.

First lithium batteries for cars

Search engines are great to bring together people with similar ideas. I wrote end of June about the oil exit: “Even large sea vessels will use lithium batteries instead of fuel oil for distances up to 1000 km”. This page was discovered by the pioneer of large and fast charging lithium batteries:

Dr. Ing h.c.Franz W. Winterberg wanted to support a plug-in hybrid car project in Germany: The Irmscher Opel based on the Opel Corsa. Who killed the electric car? The lead battery! Who could stop the Irmscher plug-in hybrid car project? The lead battery! To avoid this, far better batteries are obligatory. So he founded the Walter Nernst Institute for physical chemistry in 1994 and Gaia in April 1996.

Gaia as the name of the company should express the intention: Make electric mobility possible. Make a clean power supply possible by storing electric power from sun and wind.

For misfortune, Günther Irmscher died in 1996 and the other German car companies believed in the eternal cheap oil. The Irmscher Opel Corsa plug-in hybrid could have been the fair sensation at the IAA 1997, 10 years before the Opel Flextreme in 2007.

Dr. Winterberg gives me a deep insight what will be possible in the next decade with improved battery technology and how the price will develop. Now it’s August 2008; I am on vacation with my family and write a study about the storage demand of electric power from sun and wind.

The storage crisis of renewable-energy

The whole solar electric power and wind energy branch denies the storage crisis. The standard answers about the storage problem are easy to disprove.

1.) Why are in sunny countries diesel generators working?
2.) Why do new cars not drive with electricity from renewable-energy?
3.) Why do new trucks not drive with electricity from renewable-energy?
4.) Why do ships not drive with electricity from renewable-energy?

For all questions is a single answer, the storage crisis of renewable-energy. Electricity from sun and wind has to be consumed immediately or stored. Is there no storage, renewable-energy remains a niche product.

The grid as storage

When you ask fans of sun and wind energy, you will hear: “We have the power grid as storage.” How does this work? When the sun shines or the wind blows, we switch off caloric power plants. Very nice, when we have a serious extension of renewable-energy in Germany 100 GW wind energy and 300 GW solar energy in the foreseeable future. That would be theoretical 80% of electricity. Theoretical, because what happens at a sunny and windy day? 75% of installed capacity feed in at the same time. How to switch off 300 GW caloric power plants, when only 80 GW are on?

Storage power plants

The fan of sun and wind brought so in embarrassment means: “We have storage power plants.” A famous example for this is Kaprun. 130 MW for pumping up the water, so for 220 GW we need only 1692 times Kaprun. The Limberg II and Limberg III extensions will increase the maximal power to store to 1100 MW. Great, now we need only 200 times Kaprun!

Where to build 200 times Kaprun? Actual, it’s even extreme difficult to exchange the old 220 kV high-voltage line by a stronger 380 kV required for the Limberg III extension of Kaprun.

Throwing stones in a glass house

In plain lack of knowledge about the storage problem environmentalists say “Nuclear power highway” or “Nuclear power refinement system” about infrastructure to store electric power.

A question of cost optimization at nuclear power

France shows, a grid with 80% electricity from nuclear power is possible. Compared to the amount of nuclear power are minimal storage systems. Nuclear power plants are slowly at the power change. So when it is impossible to follow the decreasing load fast enough, there is not useable excess electricity. Excess is waste. In this sense, storage power plants do waste utilization. Excess electricity becomes valuable top demand electricity.

Storage power plants in the alps are the cheapest variant just right now. Would they not exist; the next more expensive variant would have been to use. For example compressed air power plants. The storage problem is at nuclear power insignificant.

A question of existence at wind and sun

Theoretical, it would be possible with 100 GW wind and 300 GW solar electric power to have a similar high share of renewable-energy, like France has in nuclear power. But in this case, at a sunny and windy day, four times the demand could be fed into the German grid.

Storage power plants suddenly are for more than cost optimization: “Oh, our nuclear power plants are producing just right now 3 GW too much electricity; the demand decreased too fast; we need storage for cost optimization.”

Here the storage technology is a question of existence: “Oh, our sun- and wind power plants are just producing 220 GW too much electric power.” This situation will never happen, because as long as the storage problem is not solved, electricity production from sun and wind will not be enlarged to this dimension.

Reasons for the storage requirements

This can be from some seconds when a cloud covers the sun up to half the year from summer to winter.

Reason	Short time weather changes
Duration	Seconds to some hours
Event	Clouds and sun shine, changes of wind
Handling	High efficient short time storage or the average of sun and wind over a great area.

Reason	Rotation of planet Earth
Duration	One day
Event	Day and night
Handling	High efficient short time storage. Mainly new developed batteries.

Reason	Long time weather changes
Duration	Some hours to some months
Event	Clouds and sun shine, changes of wind
Handling	Here is the border line between high efficient short time storage and high capacity long time storage

Reason	Tilt of the Earth axle
Duration	One year
Event	The seasons winter, spring, summer, autumn
Handling	High capacity long time storage. Mainly converting excess electric power in methane or hydrogen, large underground storage, and CCPP - Combined Cycle Power Plants

High efficiency vs high-capacity storage

The time range for the main storage demand varies from 1 times per day to 1 times per 365 days. Technical requirements set for day/night balancing and summer/winter balancing are completely different.

Day/night balancing is decentralized. A small photovoltaic has the same efficiency like a large. Small batteries work as good as large batteries. So excess electric power should be stored in batteries before fed to the grid. This is high-efficiency storage with efficiency above 90%.

Summer/winter balancing can only be done by converting excess electric power into methane or hydrogen. Huge existing underground natural-gas storage are already used in Germany for this task. This huge underground gas storages have a cost and security advantage against small decentralized storage. Central CCPP - Combined Cycle Power Plants have a cost and efficiency advantage against small units at converting methane to electric power. This is high-capacity storage. To add one more kWh storage capacity is very cheap. Cents instead of hundreds of EUR, but the efficiency is below 30%.

The table is with 2% interest, 20-years credit period and purchasing at 10 Cent / kWh. All costs in EUR.

	Battery	Methane
Cost per kWh storage	200.--	~ 0.20
Efficiency for a complete round trip	92%	30%
Load discharge cycles	7000	40 years
300 full cycles per year cost per kWh	0.149	0.370
100 full cycles per year cost per kWh	0.231	0.370
30 full cycles per year cost per kWh	0.516	0.370
10 full cycles per year cost per kWh	1.332	0.371
3 full cycles per year cost per kWh	4.186	0.374
1 full cycle per year cost per kWh	12.340	0.382

Money has to work! When a costly battery does not work every day, the costs for storing one kWh electric power explodes. On the other side the costs of the methane storage system are mainly determined by the cost of the electric “power to methane” equipment and the CCPP - Combined Cycle Power Plants. The cost for the storage is very low. So the costs are mainly assumed by the number of cycles per year. With only one cycle per year, one kWh storage needs only 0.5 W of electric power to methane conversion. Charging in 2000 hours, discharging in 2000 hours. With 10 cycles per year, each kWh storage needs 5 W of conversion equipment. To the conversion equipment cost add 20 Cents per kWh storage.

The assumption for this example was 10 Cents per kWh. There will be dynamic electric power prices. Maybe the methane storage facility purchases excess electric power from photovoltaic in the summer for 5 Cents and sells in winter for 30 Cents.

The influence of dynamic electric power prices on solar architecture: A photovoltaic on an east west roof has less yield than on a south roof, but achieves more money per kWh. Offer and demand determine the price. The photovoltaic on the south roof delivers most when the offer is the greatest. The photovoltaic on the north roof delivers well at cloudy weather when the offer is low and prices are high. The blue sky at a sunny day delivers much less light than a cloudy sky.

Designing a civilization by taxes and rules

Will people mount photovoltaic even on a north roof? At 45 degree slope it gets about half the yield of a south roof. It’s only a question of the tax system and the rules for dynamic electric power prices.

The ground usage tax has to be paid, regardless the quantity of photovoltaic mounted on the building. After the CO2 tax has fallen into insignificance, the ground usage tax is the major tax in the system. So purchasing electric power is expensive, therefore everybody tries to get the maximum out of his own house.

N	Cloudy day	S	N	Sunny day	S
Photovoltaic yield in percent of peak					
25%		25%	5%		85%
	50%		Combined	90%	

The value in the change of time

There is a fortress on a mountain in the center of Salzburg. Half millennium ago this fortress had a high military value. Now it's just for sight seeing.

The same can happen to pumped-storage hydroelectricity. Now it is the only choice to store some GWh electric power. In some decades it could be as outdated as the military value of the Salzburg fortress.

Performance and price development of batteries is critical for building new pumped-storage hydroelectricity. The higher efficiency of the battery has a high influence in the calculation.

93% for the high-voltage line towards the pumped-storage hydroelectricity, 90% at pumping up, 90% at producing, 93% for the high-voltage line to the consumer gives a round trip with only 70%.

Storing valuable renewable-energy with 10 Cent/kWh here makes a huge difference. At one GW storage used to store 300 GWh per year, the difference between 70% and 92% efficiency is 205 million EUR after 20 years.

Driving license for 11 kW scooters

When I was young, I was a very extreme bicycle driver. When I made my driving license, I thought it would be better for my life expectancy to make only the 'B' license for cars and not the 'A' also for motorcycles.

So I only am allowed to drive 45 km/h limited scooters. But I also want to test stronger electric scooters like the Vectrix. The solution for me in Austria is the B111 extension for the B license to drive up to 11 kW strong two wheel vehicles. Six hours of training for the driving license extension are required. The general representative from "Solar Scooter" brought me a "Solar Scooter Sport" to the driving training area Brandlhof. In September 26th 2008, I was the first one in Austria making the training for the driving license extension on an electric scooter.

Premiere at ÖAMTC driving center Brandlhof September 26th 2008: For the first-time, the training for the B111 - 11 kW scooter driving license extension is performed on an electric scooter.

A solution for the commuters

The poor US commuter. He just realized his dream from the own house, living in the green. He has to commute a long distance, but he makes this sacrifice for his family. He has the usual 6 cylinder car with only 25 MPG. (9.5 liter / 100 km). Suddenly, he is forced to spend far more money than usual for the fast rising gasoline price; nothing left to pay the mortgage. He was not the only one with this problem. Fannie Mae and Freddie Mac, the biggest two US mortgage banks were been the first victims of the increasing oil price.

It's now October 3rd 2008. The problems of the poor commuter gave its share to the world economic crisis. The oil price has declined to US$ 93.88, but the next oil crisis is sure to come. Very likely before gasoline cars are replaced by electric cars. As long as electric cars are too expensive for the poor commuter, electric scooters are the only solution.

My test with the 45km/h limited electric scooter E-Max S is running successful already 10,890 km. Now I start to test a solution for these commuters: The Solar Scooter Sport. 4 kW wheel hub engine and 20 lithium iron phosphate battery cells with 40 Ah gives 2.56 kWh battery capacity. It's offered for 4000 EUR.

I will drive in the next days 360 km. From Bad Hofgastein 84 km to my home. Test on the mountain street on to Gaisberg. What a difference to the E-Max S 2006! The E-Max S climbed up the street with about 20 km/h, and the wheel hub engine heated up over 80 degree Celsius almost to the thermal shutdown. I stopped the test at 1000 m above sea level.

The Solar Scooter Sport climbs up with 40 km/h average speed to the top of the mountain 1287 m above sea level, and the engine remains cool. On the next day 47 km to Abersee, recharge and 47 km back, all with top speed. Only 4.22 kWh / 100 km. Since it can be also ordered with 21 60 Ah cells giving 4 kWh battery capacity, it's a good solution for commuters which live up to 70 kms away from their workplace.

100 billion economic stimulus package

Point three from the foreword: “How do we switch from one supply chain to another before a shortage hits the economy?”

It’s the same like “How to change the direction of your car before you crash against a wall?”. Take the steering wheel and bring your car in the new direction before the crash with the wall occurs. The wheels of your car will build up a pressure away from the dangerous direction towards the desired direction. It sounds very simple.

But not for a politician. “Maybe the wall does not exist.”, “Maybe the wall is only speculation. We can fight down speculation.”, “Maybe driving a curve threatens the passengers.” There is a perfect security system built in the car called “perfect market”. So this crash cannot happen, because we are all protected by the “perfect market”.

Tax systems are very similar all around the world. Because there are so different political systems you would expect very different tax systems reflecting the differences of the political systems. But you find the term “employee benefit” in the rules for income tax in Germany and in China.

The following example is worked out for Germany. This stands as an example for any industrial country. Differences are small.

But what happens, when you turn the steering wheel too fast around at highway speed? The car could spin. So this was worked out as a very moderate small first step of a great tax reform called the “PEGE Tax Transition Concept”.

Why is it called an economic stimulus package? Each citizen tries to hold his living standard with as few expenses as possible. He searches the cost optimum for all his requirements.

This tax reform changes this cost optimum. So each citizen tries to move towards the new cost optimum. So the government has not to spend money as an economic stimulus, the government only changes the cost optimum.

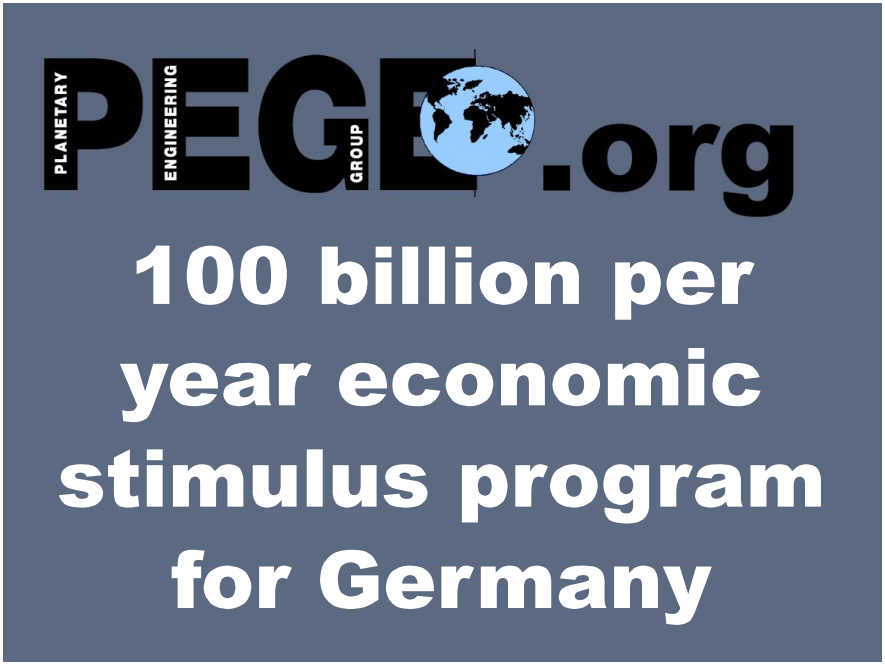
The basic principles of the PEGE Tax Transition Concept have been published since May 2004. Exactly, this first step of a tax reform has been demanded by PEGE November 26th 2008 as the worldwide economic crisis slumped the oil price down to US$ 32.40.

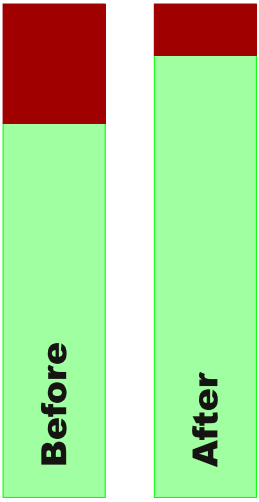
This would have been the ideal time to start with this tax reform, but politics believed “It was all only a speculation bubble and politics can control speculation bubbles.”

The fossil recession and the tax reform had also been the main theme of my new year’s speech 2009 .

Now in July 2009, it’s about giving examples and to present it as a video created with the green box method.

The following presentation is from an 8 minutes 27-seconds video.





100 billion EUR
economic stimulus program

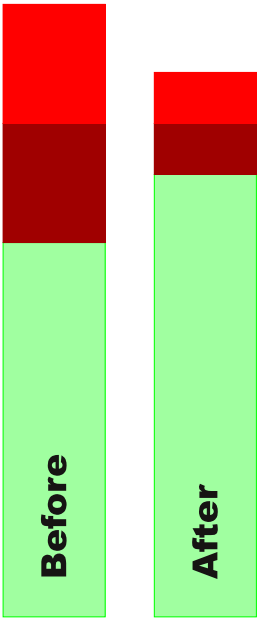
In the same time a tax reform increasing the income of the employees and

decreasing the expenses for the employer

Yearly 1200 EUR more income for the employee.

Dark red: Employee part of social insurance dues

Light green: Employee income



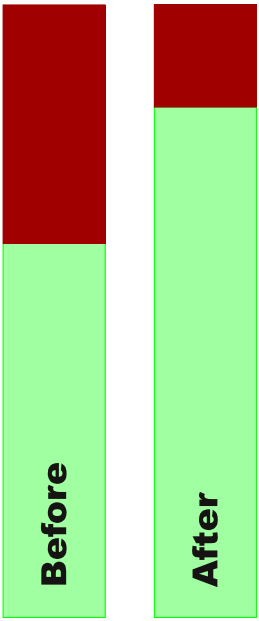
Yearly 1200 EUR less expenses for the employer.

So much is the employers part and the employees part of the social insurance reduced.

Red: Employer part of social insurance dues

Dark red: Employee part of social insurance dues

Light green: Employee income



Self-employed are employer and employee in one person.

Therefore 2400 EUR relief per year.

Dark red: Social insurance

Light green: Income

For not working adults 600 EUR more per year,

for children 300 EUR more per year.

Light green: more per year.

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Financing of the 100 billion EUR economic stimulus program for Germany

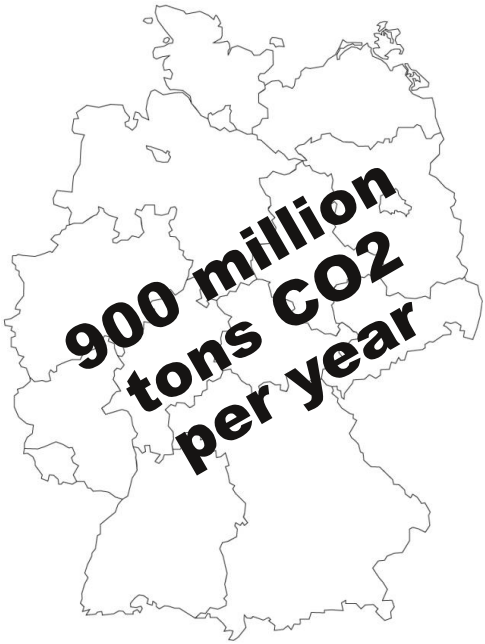
per kg CO2

100 billion more public debt per year?

No, nobody could finance this.

From where should the counter financing come?

With 10 Cents per kg CO2 tax.



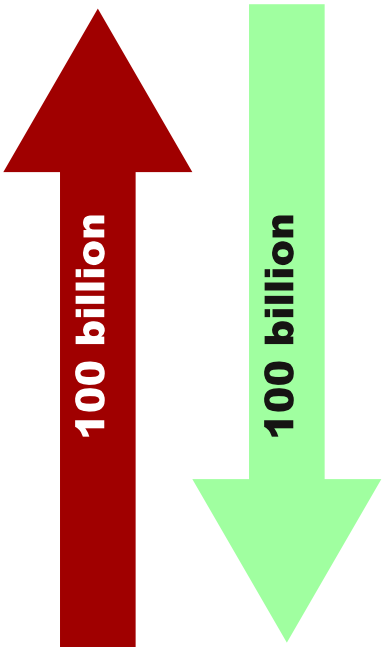
Germany emits
900 million tons
CO2 per year

This makes
90 billion of the
counter financing.

10 Cents per kg CO2
7 Cents per kWh nuclear power

100 billion EUR

The Rest is a nuclear waste precaution tax
of 7 Cents per kWh from nuclear power.



This tax reform is revenue-neutrally.

The total sum of earned taxes remains the same.

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Taxes steer: the steering effect of the tax system

Tax on tobacco

Taxes steer

When the state wants
that the people smoke less,

than the state legislates
a high tax on tobacco.

Tax on tobacco
Tax on alcohol

When the state wants
that the people drink less alcohol

than the state legislates a high tax on alcohol
like in Sweden.

Tax on tobacco
Tax on alcohol
Tax on humans

When the state wants, that the economy employs less people, then the state legislates exactly the steering taxes against human work that we have now.

This leads to more and more unemployment and transferring the production of companies to other countries.

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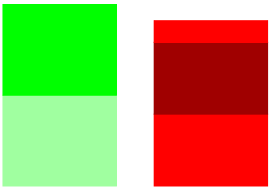
Tax relief for the large majority

1200 Employee
1200 Employee
3000 Liter Heating oil
3000 Liter Diesel
4000 kWh Electricity

+215 EUR



The utmost part of the employees will be disburdened by this tax reform.

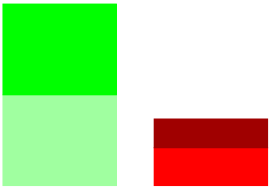
A couple, both employees, lives in an old house needing thermal renovation.

3000 Liter heating oil per year, the 2 SUVs drive 30,000 km per year with 3000 liter Diesel, 4000 kWh electricity consumption.

They are sure no masters in saving, but even here the tax reform brings 215 EUR.

1200 Employee
1200 Employee
7000 kWh Electricity
1200 Liter Diesel

+1520 EUR



Low energy house, household and heat pump require 7000 kWh per year.

Only 1200 Liter Diesel per year for 20,000 kms in economical cars.

Here the tax reform brings 1520 EUR

Left column: More income by less dues for social insurance

Right column: More expenses by CO2 tax

4800 2*self-employed
600 for 2 children

Extreme example:
Both self-employed

2 children makes 5400 EUR more per year.

(Photo below)

This is the dream car of the family far above the 120g / km CO2 norm.

Long vacation trips and many weekend tours.

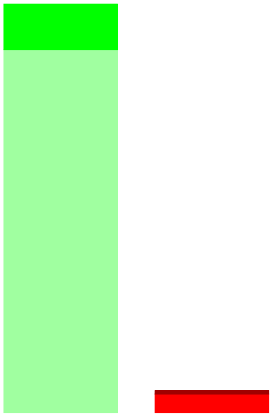
(Photo next page top)

But for everyday traffic, nearly at all weather conditions the two electric scooters of the family are used.

4800 2*self-employed
600 for 2 children
800 Liter Diesel
660 kWh Electricity

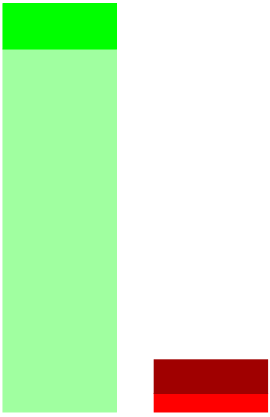
Only 10,000 km per year with the camper make 800 Liter Diesel and 245 EUR CO2 tax.

Together 15,000 km with the two electric scooters make only 660 kWh electricity. 44 EUR more tax.



4800 2*self-employed
600 for 2 children
800 Liter Diesel
6660 kWh Electricity

+4710 EUR



At home, they work with economical notebooks.

2000 kWh household
4000 kWh for the heat pump,

40% is claimed as company expenses.

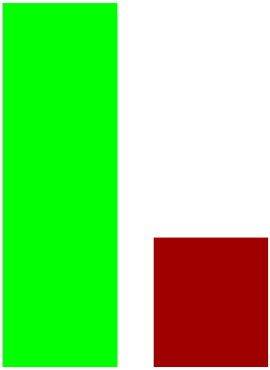
401 EUR more taxes.

There will 4710 EUR remain after 5400 EUR relief and additional expenses for CO2 tax.

We estimate that over 95% of the employees win from the tax reform.

4800 for 4 drivers
7200 Liter gasoline

+3101 EUR



At the employers, we research a taxi company.

All the day car driving and the Diesel becomes 26.6 Cent (VAT excluded) more expensive.

Big surprise! Even the taxi company saves money, because even at a taxi company

the smaller expenses for the driver outweigh

the higher expenses for the fuel.

Over 95% winners

We estimate, that 95% of the employers win by the tax reform.

Unfortunately, this 5% extremely energy-intensive companies are with the most powerful lobby and protested loudest against such reforms.

How many employees have this extreme energy-intensive companies?

What do they contribute to the total national revenue from Germany?

(for the photo below)

1 kg aluminium becomes only 1 EUR more expensive. Can’t you effort an aluminium rim because of this?

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Better profitability better opportunities for our economy

1.) Natural laws

(Photo last page)

The profitability calculation

These famous calculations that imported fossil energy is cheaper than a thermal renovation with local workers is influenced by 4 components.

(this page)

1.) The natural laws

Politics can't influence the natural laws

1.) Natural laws
2.) Technique
3.) Interest rates

2.) The technique

Politics can here contribute with research furtherance.

3.) The interest rates

The politics can make possible low-interest rates for investment to reduce our dependency on imported fossil energy.

1.) Natural laws

2.) Technique

3.) Interest rates

4.) Tax laws

4.) The tax laws

The tax laws can manipulate a profitability calculation from profitable in one year up to be never profitable.

(Photo below)

The local worker from the renovation company, unaffordable expensive, crude oil and natural gas unbeatable cheap.

This 100 billion EUR economic stimulus program is the first step to change these profitability calculations against the import of fossil energy and in favor if the German economy.

In order to make the purchase of cars easier, which are able to drive cheaper with solar electric power from German house roofs than with imported oil.

Review July 2013: 4 years on YouTube

On July 19th 2013, four-years anniversary on YouTube: The German video about the 100 billion economic stimulus program is 73,121 times shown on YouTube. A lot for a political video.

German election campaign 2009

Google Alerts are a good method to be informed about all the news; mass media want to hide intentional. The highest authority for energy prognoses in the OECD countries is the International Energy Agency - IEA - in Paris, founded 1973.

Dr. Fatih Birol, the Chief Economist of IEA gave a dramatic interview in April 2008: “We have to leave oil, before the oil leaves us”, so one of my Google Alerts is set to “IEA”.

August 3rd 2009 in the morning, I read a Google Alert for IEA. I click on the first link in the email and reach “Radio China International”. Fatih Birol warns before a worldwide energy crisis, most important existing oil fields have passed their maximum production.

A Swiss and an Austrian newspaper writes about it, but in Germany, only special magazines about the stock market and the lefty’s magazine “Young world” write about it.

I read the original of the interview in independent.co.uk:

“The IEA estimates that the decline in oil production in existing fields is now running at 6.7 per cent a year compared to the 3.7 per cent decline it had estimated in 2007, which it now acknowledges to be wrong.”

“But it also believes that we are heading for an even earlier ‘oil crunch’ because demand after 2010 is likely to exceed dwindling supplies.”

The political campaign for the election of the German parliament in September 27th just started. What could be a more important theme than to prepare the fragile economic recovery for the oil crunch?

Which political party can prepare Germany best possible for the next oil crisis? The voters should be informed about the problem and decide at the election who has the best solution.

That’s the theory of democracy, well informed citizens choose the best political leaders. But now I head to learn how far this can go wrong.

10 point election program

After reading about this dramatic oil prognosis, I start to develop a 10 point election program for the German parliament election:

1.) 100 billion EUR economic stimulus package and tax reform.

2.) Low-interest loans, only 0.5% above EZB rate for all investments to reduce fossil energy dependence.

3.) Incentives for investments to increase photovoltaic production in Germany to 40 GW peak per year as fast as possible.

4.) Incentives for investments to increase lithium battery production in Germany to 200 GWh per year as fast as possible.

5.) Copy the NOVA tax from Austria without 16% upper limit. NOVA is a car registration tax in Austria depending on the fuel consumption of the car.

6.) Infrastructure for electric mobility.

7.) No more registration for 45 km/h limited gasoline scooters, only electric scooters in this class allowed.

8.) Solar duty for new buildings. As soon as production capacity is big enough, also solar duty at roof renovations.

9.) Forbid oil and natural-gas heating in new buildings and at renewal of the heating system. A good heat pump reduces the import dependence from oil and natural gas. Natural gas used to generate electric power in a CCPP - Combined Cycle Power Plant brings by a heat pump around twice the heat in a house compared to simple burning.

10.) Founding an international organization for the oil exit as most important task for the foreign policy.

You see, considerably differences from the electoral programs of CSU, CDU, SPD, FDP, Green and Left. An election program, which provides an honest, fair and social answer to the challenges, instead of ignoring all problems and driving Germany full throttle against the wall.

1: Tax reform makes EEG superfluous

For years, the EEG (renewable-energy feed in law) is criticized as a subsidy. The critics forget, that fossil energy is cross-subsidized by the extreme taxation of work.

Step-by-step establishing of tax fairness

It's impossible to perform the whole tax reform in one step. The 100 billion economic stimulus program and tax reform introduced by PEGE on page 202 is only the first step in a comprehensive tax reform. Nevertheless, it's the largest tax reform ever in Germany, redistributing 100 billion EUR per year.

Wind energy competitive without EEG

However, just this reduction of cross-subsidizing fossil energy makes wind energy not only competitive. No, much more! A wind power plant will therefore be a license to print money. So you must also have another resource tax legislated: the ground usage tax. It's a part of the impossible to increase planet's surface used. This has to be paid. How much, the local politics has to decide.

Solar energy in the stage 2 competitive

The first stage of the tax reform should be from 2010 to the end of 2011. The gained knowledge will be used for the preparation of stage 2. Photovoltaic always becomes cheaper. At a further reduction of the cross-subsidization of fossil energy, also photovoltaic becomes a license to print money.

Exempted amount at ground usage tax and ground usage tax are here the means of political design. Own home in the Green - no ground usage tax because everything is within the exempted amount. The house with much photovoltaic and low own energy consumption, mobility with the power from one's own roof as a model for the future prosperity.

2: Low-interest loans

The state must do everything so that people can afford the things to reduce our dependence on imports of crude oil and natural gas.

On page 211 a couple in an old house is provided as an example of the tax reform. Both employees. 2,400 EUR more on payroll account, but also 2,185 EUR more expenses by the enormously high energy consumption of 3,000 liters of heating oil, 3,000 liters of diesel and 4,000 kWh of electricity.

	Heating oil	Electricity	Renovation
Without renovation	3000 l	1200 kWh	
Thermal renovation	1200 l	800 kWh	20,000 EUR
Heat pump		10000 kWh	20,000 EUR
Heat pump+thermal renovation		3000 kWh	40,000 EUR

The combined effect of tax reform and fitted credits for the reduction of our oil dependency.

	Before	After
Price heating oil	0.80 EUR	1.12 EUR
Price electric power	0.18 EUR	0.25 EUR
Interest rate (20 years)	5.5 %	1.5 %
No renovation - yearly	2616 EUR	3660 EUR
Thermal renovation	2778 EUR	2709 EUR
Heat pump	3474 EUR	3665 EUR
Heat pump+thermal renovation	3887 EUR	3080 EUR

To find the cost optimum: Before the reform was no renovation the cost optimum. After the cost optimum is at the thermal renovation.

Task of the government is to bring the interest of the individual and the group in agreement.

The interest of the community is a reduction in the demand for oil, an attenuation of the oil price and jobs in its own country.

But in the current system the interest of the individual listed as an example is to continue to burn 3,000 liters of heating oil per year in his house because this represents the cost optimum for him.

Point 1 tax reform and point 2 low-interest loans show thermal renovation as a new cost optimum. 1,800 liters of heating oil less per year. This is already an approach between the interest of the community and the interests of the individual listed in the example, but it is still not the optimum. That is why point 9 of the election program is to ban the oil heater and the gas heater in new constructions and renovations.

The state which engages many high-paid politicians to develop long-term strategies (Here I am speaking about the "should be" condition; it is clear that the current condition is extreme wide away from this) must protect the citizens from bad investments. So this gigantic thermal renovation effort cannot end with only 60% less heating oil. 100% less has to be the target.

That is why point 9 exists. Prohibition of the oil heater and the gas heater is so important to achieve the maximum effect in the task to reduce import dependence from crude oil and natural gas.

The couple in the 3,000 liters of heating oil per year house decides for the thermal renovation and a heat pump. Thus, the benefit of the tax reform increases from 215 EUR to 795 EUR.

How well this election program prepares to the crisis shows the renovation calculator at the scenario for US$ 200 oil price. Without the reform, the heating costs would have arrived at unbearable 4740 EUR per year. Thanks thermal renovation and a heat pump; they pay only 3140 EUR per year with a slight increase in the price of electric power.

3: Photovoltaic production

Solar power from German roofs is much cheaper than gasoline and diesel fuel. We only need to have enough factories to produce enough photovoltaic.

The 70 GW photovoltaic nonsense

But there are really studies, that only 20% of the German roof surfaces are suitable for photovoltaic, that makes 70 GW photovoltaic with 60 TWh yearly yield. Just 10% from the current total electricity demand in Germany. Just the power consumption will dramatically increase, then 60 TWh are only 5 %. Strangely enough, this study is not made by the enemies of the photovoltaic. Well, if you have friends like this, then you need no more enemies.

900 TWh solar electric power yield

Of a very different caliber was the first solar electric power study from PEGE 1992: 900 TWh solar electric power should be produced 2040. The total power consumption to rise to 1,200 TWh. (Page 82)

80% of roofs 20% of facades

We would all starve to death if farmers would not use an agricultural area with more than 20% less yield as the best field. The agriculture has a significant dispersion in area yield. The nurturing of mankind would be completely impossible if we used only the top areas for agriculture.

But this is exactly the assumption of this photovoltaic study with only 20% of the roof surfaces. They are raisin-gatherers. They think to starve, if they do not find raisins in a bread.

Therefore is the demand for photovoltaic much larger, therefore the demand for storage technology is much larger, to make the solar electric power useable.

4: Lithium battery production

Germany must further remain a leading industrial nation. Germany must further produce over 5 million cars per year. Key industry lithium batteries.

PEGE already published a forecast of the card advertising in the next oil crisis: “16 kWh solar electric power are cheaper than 2 liters of diesel.”

Politics and economy will decide whether a German or a Chinese car will be shown on these posters. No automobile manufacturer, which is not capable to produce competitive plug-in hybrid and electric cars will survive the next oil crisis.

5 million * 20 kWh = 100 GWh

The simple calculation for this is 5 million cars produced per year times 20 kWh batteries are 100 GWh batteries.

Electric power storage

Renewable-energy from the sun and wind is produced then the sun shines or the wind blows. For a balance between supply and demand storage technology is required. 100 GWh batteries to store electric power per year. With this we are at the 200 GWh battery production per year as proposed in the PEGE election program.

Already published in February 2008 the PEGE demanded 5 kWh batteries per kW photovoltaic. This was put in a large study about storing electric power August 2008. (Page 193)

5: New car registration tax

The NOVA (Norm-Verbrauchs-Abgabe NEDC consumption tax) is a tax in Austria due at the first-time registration of a car in Austria. The NOVA tax depends on the New European Driving Cycle consumption of the vehicle.

Infrastructure and incentive programs for electric mobility need to be financed. Socially just and accurately should thereby be hit cars with high CO2 emission. This is exactly what the NOVA does since decades in Austria.

This was playing a large role on my last car purchase 2003. I decided for the minivan with the lowest NOVA.

Electric cars are free from NOVA. So the difference between cars with internal-combustion engine and electric drive is increased.

No upper limit for the NOVA with 16% like in Austria.

With a New European Driving Cycle fuel consumption of 14.9 liters/100 km you pay at this limit only 16% NOVA for the Porsche Cayenne S, because the tax is capped. Without capping 23.8 % NOVA would be due.

Every so-called “new car” with fossil drive creates a demand pressure for fossil fuels over decades. This demand pressure will increase the price of oil extremely. Any reduction of this demand pressure lowers the price of oil and is good for the economy.

According to the IEA, we have to replace until 2030 alone at crude oil 6 * Saudi Arabia by renewable-energy and electric mobility.

6: Infrastructure for electric mobility

The expansion measures for electric mobility must be after the expected needs. Simple power outlets throughout instead of solitary lighthouses of the cutting-edge technology.

Simple power outlets throughout

I make my everyday experiences with electric mobility since September 2006. I speak with the leading distributors of electric scooters, the leading manufacturers of electric scooters, the customers in the shops deciding for gasoline or electricity.

In 2006 I myself had the luck that I could place an electric cable from my cellar room to the parking place in the underground parking area. Before I recharged very cumbersome in my cellar room.

Politicians love it to open up any lighthouses of progress. For example a battery exchange station for electric cars. However, this does not solve the urgent mobility problem in the time of the next oil crisis.

The right for a socket on the parking lot

Everywhere where the building codes require a parking lot, this must be equipped with a power outlet. Mobility in the oil crisis means that the tenant in the 4. floor can recharge his electric scooter in the underground parking are. That he can drive to his 15 km distant workplace and he finds there also a power outlet.

Great Plug-in hybrid and electric cars until the oil crisis for everyone are simply in this short time impossible. This is because too many decades have been wasted.

Demands on the manufacturer

The battery charger must be fixed installed in the vehicle; the charger must be adjustable in the performance. 3 KW charging capacity if you’re in a hurry, but only 200 Watts when on the company`s parking lot a sign says: “Staff: Please set your chargers to 200 Watts charging capacity.” So the chief can accomplish to charge 15 vehicles at a single 16 A fuse.

7: Registration ban for 45 km/h petrol scooters

The electric scooter industry has to be build up as fast as possible to be able to fulfill the demand in the next oil crisis.

Change to electric cars and plug-in hybrid cars is not possible so fast. 45 million German cars are depending on oil. The IEA prognoses an oil crunch in 2013.

The oil demand should be reduced by 5% per year. If each new car were a plug-in hybrid or pure electric car, -5% per year would be possible.

But this change can not be met by 2013. So the demand pressures against declining oil production will lead to extreme oil prices. But the mobility of the people must be maintained as good as possible.

For a plug-in hybrid car in the middle class 20 kWh batteries are expected. For a pure electric car with this size even 50 kWh batteries. A 45 km/h scooter with 2 kWh batteries is already sufficiently equipped and with 3 kWh batteries fully competent for the pizza maker for delivering.

You can equip one electric car or 10 electric scooters with 20 kWh lithium batteries. The car owner can do most short trips very economical with the electric scooter.

It could come back to a situation such as after World War II in Germany: Shortages in raw materials made Germany a scooter nation. Small cars such as BMW Isetta, Messerschmitt cabin scooter and many scooters were common on the streets.

At that time, it was a general lack of raw materials, today the lack of enough lithium batteries.

Buildup of dealer network and model range

With the registration ban for petrol scooters as soon as possible dealers and manufacturers are prepared for the rush in the prognosticated oil crisis. There are a few electric scooter manufacturers who develop in Germany and manufacture in China. I know of even 2 companies that produce in Germany.

This industry must be prepared on the next boom as good as possible, so that it’s possible to fulfill the demand.

I am of course an extreme example in the use of my electric scooter. From my 25% of saving in Diesel, the entire population will save perhaps 10%.

25% less yearly Diesel consumption

I test my electric scooter since October 26th 2006. I reduced car driving from 26,000 km a year with 1,700 liter diesel down to 20,000 km a year with 1,200 liter diesel. The average consumption has decreased, because the electric scooter replaces drives with the car where the consumption is very high.

Many will also continue to drive only with the car also in the next oil crisis. Many will replace much less car driving kms by the electric scooter. On the other hand, I am with my previous 26,000 km per year significantly above the average.

If a driver of 10,000 km per year replaces 3,000 km by an electric scooter, then this are even 30% of km and maybe even 40% of the fuel consumption.

10% less diesel and gasoline

I think in a severe oil crisis like prognosticated by the IEA, 10% less fuel demand by the usage of electric scooters is realistic.

Potential savings are essential

These potential savings make a fast buildup of the distribution network, product range, and production of electric scooters to an essential measure for the preparation of the oil crisis. That is why the registration ban of 45 km/h petrol scooters is such an important measure.

8: Solar duty

At politicians optimized for the lowest voter resistance by PR-agencies creates the word “duty” alone a panic. You can not mention something like this in front of the voters.

Great politicians, such as Roosevelt and Churchill have dared it to speak about duties. The duty to defend the homeland and the democracy. An absolutely mortal duty such as the high losses in the second world war show.

We want not your life, only your roof

How ridiculous is this compared with the duty to provide roof and facades for the energy supply! Imagine we would ask a young US citizen in 1943 the following questions:

What would you like more?

* Marine for operations against Japanese islands.
* Gunner in a B17 bomber for operations over Germany.
* Put cells that convert light into electricity on the roof of your house.

This young US-citizens would have considered it as an insult, to call the photovoltaic on the roof as a duty.

9: Prohibit new oil and gas heaters

Each new oil or gas heating means further depending on the import of oil and gas for decades. The consumer must be protected from such wrong decisions.

Two phase change

Already in 1993 PEGE wrote about the 2 phases change in “Aufstieg zum Solarzeitalter” (Advance to solar age). Electricity as a universal energy source. Converting everywhere where the primary energy consumption is reduced by this conversion. (Page 26).

COP 1.6 is enough for equality

Thanks to modern CCPP - Combined Cycle Power Plants; this is the case at COP 1.6.

Oil heater with 93% efficiency against CCPP with 58% efficiency in the electricity generation from natural gas or crude oil and a heat pump with annual coefficient 1.6 mean the same primary energy-consumption. COP 3.2 already means halving of the primary energy-consumption.

More clean energy mix in the future

More and more often caloric power plants are switched off because enough offer from sun and wind.

More and more it happens; that excess energy from the sun and wind is stored in lithium batteries for day/night balancing.

More and more it happens, that the storage capacity for the day/night balancing is completely full, and still excess power from the sun and wind goes in the methane production.

CCPP power plants work almost in the winter only and more and more with methane, that has been produced from surpluses in the summer.

Therefore, a further approval of oil and gas heating is according to the top runner approach impossible.

10: Steering for the energy market

Unnecessary demand pressures must be removed from the oil market. This includes to prohibit all the applications of petroleum products, where there are better options.

In order to fly also remains possible in the oil crisis

In the oil crisis in 2008, there was a price theory: a $20 higher price per barrel offsets the under production of one million barrels, because the higher price decreases the demand.

Let's apply this price theory at 19 million barrels less oil production in 2015:

$70 current oil price + 19 * $20 = $450.

At this oil price, you sure don't fly to your holiday.

Fight against the wasting of oil

Several of the measures are already in the election program for Germany. With a comprehensive thermal building renovation will be 3,000 liters of heating oil replaced with 3,000 kWh of electricity for the heat pump. With the registration ban of 45km/h gasoline scooters 4 l of gasoline on 100 kms replaced by 4 kWh of electricity. With the NOVA, the buyer will be used to look at the fuel consumption.

As soon as the production is sufficient, only cars can be registered able to drive at last 50 kms purely electrically. This is an action which the Chinese government already explained to German Environment Minister Sigmar Gabriel.

Price target $200

Only with the world's very resolute measures to reduce the demand for oil it can succeed to keep the price below $200. According to the price theory from 2008, it's necessary to reduce the demand by 12 million barrels per day until 2015.

Review 2012: Even US$ 100 oil price destroys economy

Oil imports can only be paid by exports. The effect of this simple fact has been underestimated for a long time. Many countries with a good trade balance between 1990 and 2003 developed a more and more growing trade deficit when the oil price went up.

At what oil price would be a good trade balance? A sign of the economic downfall is when this number declines or even goes below zero. Countries able to pay their oil imports without a trade deficit until 2003 would have now even a trade deficit at oil for free.

The downfall of Herculane

Since some month, my wife visits doctors to get a rheumatism cure. No chance. We have to pay much for social insurance, but receive nothing when we need it.

11th August 2009 we start our travel to the famous spa Herculane in Romania. Well known as a rheumatism spa as far back as the Roman empire. My wife invited her mother 1995 to a cure in Herculane. Since this time, my mother-in-law has no rheumatism anymore.

They resided in the best luxury hotel in town in 1995. In the 19th century, the Austrian Emperor Franz Joseph I used also this hotel. It is an international protected cultural monument.

12th August in the morning, we make a walk from our hotel towards the center of the city. The shock what 14 years can do to the best hotel in town, an international protected cultural monument.

I published my 10 point election program first-time August 9th 2009 in my German newsletter. No reaction. I do not know what failures changed Herculane in only 14 years into an accumulation of ruins. But I know what can change USA+EU in the same way as it happened to Herculane. So on August 17th I write in my newsletter:

To react appropriately on the oil crisis prognosticated by IEA. Head-in-the-sand policy is not a solution. The Bundestag (German parliament) as an ostrich farm, not a single head of them not in the sand a shameful picture of absolute inability.

China is preparing to this oil crisis since a long time and will be one of the big winners of the oil crisis. The oil crisis will be the great boom for BYD; they want to be the world's largest car manufacturer until 2025. They will test electrical mobility on the domestic market. The large export offensive will come when Western carmakers collapse and they can buy complete sales and service structures for an apple with an egg.

A fatal affair

The politicians and the PR-consultants are a fatal affair. Politicians were trimmed to the lowest possible voters` resistance. Never say something unpleasant. Such people have to be forced by law to tell the truth. Voluntarily would not be on each cigarette package "Warning! Smoking can be fatal" or any other written warnings.

Where is the regulation that on each election propaganda has to be written?

"Warning! Election programs, which ignore forecasts of an oil crisis can be fatal for the economy and lead to your personal ruin."

Again no reaction. So I write an appeal on August 19th 2009:

This was the hotel where Emperor Franz Josef I made his curs in Herculane. It was 1995 a luxury hotel. Only 14 years later a ruin.

Appeal to the politicians and political parties in Germany

Take position in your election programs to the dramatic forecast of Dr. Fatih Birol from August 3rd. Or do you want a life in fear like Bernard Madoff?

Bernard Madoff - a life in fear.

For decades, a permanent life in fear, the system could be revealed; the life in the lap of luxury could be swapped with a prison cell. The deep fall from an investment genius to the largest financial con man.

Uncovered by the oil crisis 2008

Bernard Madoff only has concealed the fact that his investment system is a pyramid scheme which will collapses, as soon as not enough new investors get into the system. He was uncovered as soon as the oil price explosion 2008 triggered the first fossil recession.

Uncovered by the next oil crisis

The politicians and parties conceal the fact that the current system only works with an increasing oil production; it collapses as soon as the forecasted oil crisis occurs. You will be uncovered in the economic crisis triggered by the next oil crisis.

Ye shall look like Bernard Madoff; the depth fall from top-politicians, parties always claiming their economic competence down to quacks; funky dilettantes try to cover the problem with silence, destroyers of economy and demolishers of millions jobs.

Perestroika and Glasnost instead of Omerta

The Omerta politics towards the oil prognosis has to be abandoned, Have the courage to talk about or do you want to be listed in history books as the most cowardly politicians who ever existed?

Jeopardizing democracy

The biggest danger to the democracy in Germany is the Omerta politics of CDU, CSU, SPD, FDP, green and left party towards the necessary fast exit from the dependence on oil.

Competition of the systems

It is not that all will be affected by the next oil crisis evenly. From the oil price explosion 2008 the United States were hit by the hardest. The economic crisis emerged from the United States and also had the biggest consequences there. China came through the crisis in the best way.

These differences can dramatically increase in the next oil crisis. Chinese Plug-in hybrid cars and electric cars as the major export, many German carmakers insolvent.

Millions of new unemployed will ask questions. The Omerta politics of CDU, CSU, SPD, FDP, left and green towards to the forecast of the IEA will be uncovered.

Why hushed politicians such a problem in the 2009 election campaign?

How could a different political system, the Chinese people's dictatorship, prepare the country systematically for this problem?

Why is the economy booming in China, while only mass unemployment is here?

Why brings the poor farmer in Africa his products with a Chinese electric car charged with Chinese photovoltaic modules to the market?

Why could the democratic parties in Germany fail so? Why did democracy fail so?

You will have to answer for it. Erich Honecker was able to escape. Where do you intend to flee after your ignorance has turned Germany into an industrial ruin?

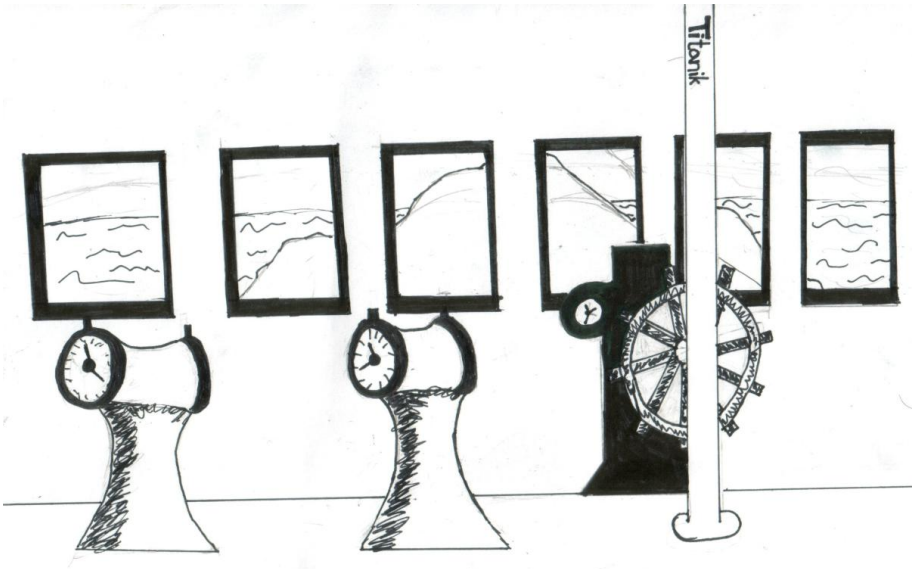
They did it; they really did it. German election for the parliament September 27th 2009 without any word from any political party about the oil prognosis of the IEA. Immediately after the election, I write:

Election show for the best lunch tomorrow

The Titanic races through the ice sea, the bridge is empty and deserted. Down in the ballroom the team stands divided into five groups, dressed colorfully.

They wear colorful uniforms, black, yellow, red, green and dark red. It's Showtime: The election for the best lunch tomorrow.

The radio operator curses on those pesky iceberg messages, who cares? The show must go on, but more important: the commercial messages of important passengers. All that plays during the ship races leaderless through the ice sea.

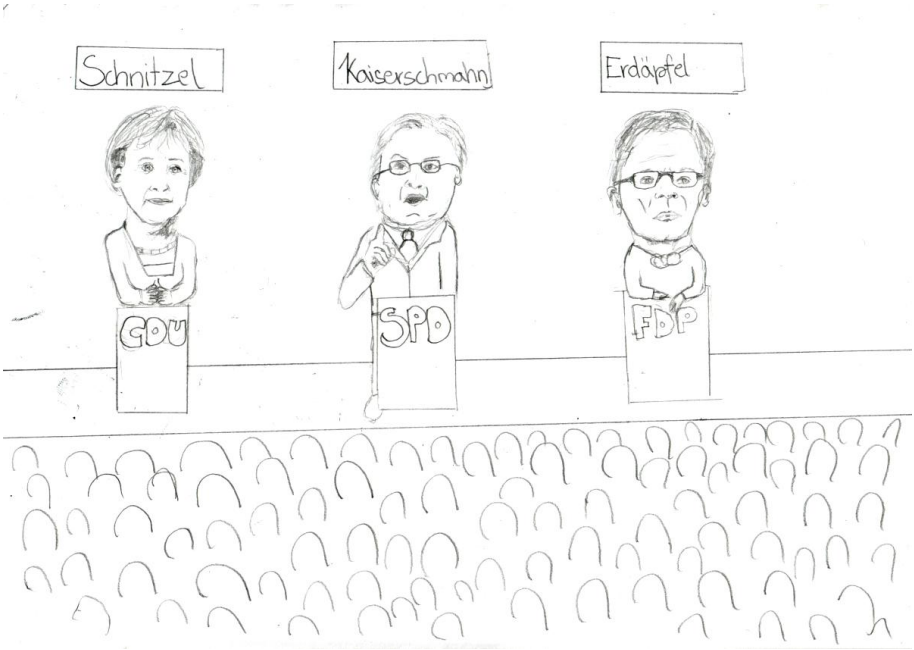


The Titanic with maximum speed in the ice sea. The bridge is empty. Nobody cares about the ship. The crew is sure; nothing can happen to the unsinkable ship.

Titanic and the presence of 2009

During the oil crisis of 2008, we compared the ship disaster with the irrationality of the present.

It seemed at this time that an increase of ignorance is impossible; no one could count on the total ignorance of the German federal election campaign 2009th. No one could expect that the Greens have been so domesticated to a lapdog of outdated fossils. They even considered not a timid "Wau" at the disastrous IEA oil forecast.



The crew of the leaderless ship performs a big show in the aula of the ship: The election campaign for the lunch of tomorrow. What lunch will receive the most votes?

Historical failure

At the end of October 2009 I start to research what was the main historical failure responsible for the current situation. How a wrong political decision from 1883 brings the civilization on planet Earth near the abysm. From the climate-change over crude oil crisis to the unemployment problem.

Financing social insurance

The German prime minister Bismarck created the social insurance 1883. There were several different models for funding:

* Deduction from the wage
* Coal tax
* Ground usage tax

Furthermore, the ground usage tax would tax coal, because the ground of the mine is only valuable until the mine is exhausted. Funding by deduction from the wage had been chosen.

What had been known 1883?

In this time much was unknown. The problem with the greenhouse-gases was completely unknown. Svante Arrhenius published only 12 years later in 1895 the effects of CO2 on the earth`s climate. Svante Arrhenius thought this would be a positive effect to have a warmer climate. But it was known that it's impossible to take coal out of a mine forever. Sometimes, the coal mine will be exhausted. So why not funding the social insurance with a tax on coal? This would create a demand for higher energy-efficiency; the stock would last longer.

Time-travel to save mankind

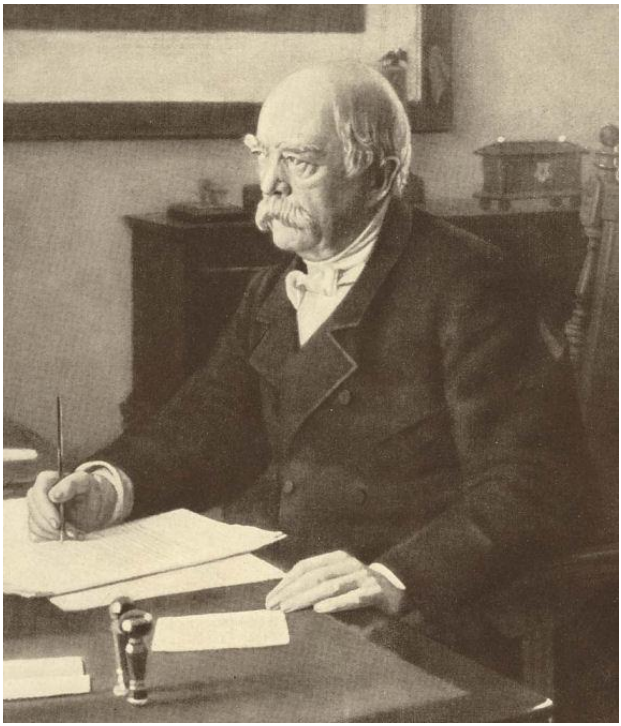
What intervention by a time-travel would have the greatest positive effect on the presence and the further development until 2050? First, you would think to stop causes for worldwide wars:

* To stop the assassinator in Sarajewo June 1914
* To stop Adolf Hitler before 1933

Would there have been a second world war without the German defeat in the first world war? Isn't it great to save 17 million war victims from WW I and 70 million war victims from WW II? Hundred years ago, militarists were as mad as economists today. So the attentat in Sarajewo was only a spark to blow up all the gunpowder. So maybe some month later, another spark would have caused the same effect.

And how should this solve all our severe problems in the present with the potential to cause much more trouble than WW I and WW II together? There is a much better possibility to improve the fate of mankind:

A friendly talk with Bismarck about how to finance the social insurance. Finance social insurance by a coal tax! The pressure towards a higher efficiency at using coal as an advantage for the German industry.



Otto von Bismarck in his study in the year 1886

Published by Walter Stein

Life span increases

Since the introduction of the social insurance 1883, life span increased in Germany from 39 to 81 years. Big progress in health care. All this improvement caused an ongoing increase of social insurance dues. Here the fundamental difference between funding the social insurance by dues on work or by a tax on resources:

Social insurance is financed by dues on work

* Contribution to social insurance increases
* Work becomes more expensive
* The motivation to avoid work places increases
* The motivation for illicit work increases
* Advantage for products needing much energy
* Disadvantage for products needing much work
* The expenses for the health system increase (very much work)

Social insurance is financed by a tax on energy

* Energy becomes more expensive
* Work remains at the same price
* The motivation to avoid energy usage increases
* What is illicit work?
* Disadvantage for products needing much energy
* Advantage for products needing much work
* The expenses for the health system remain more stable

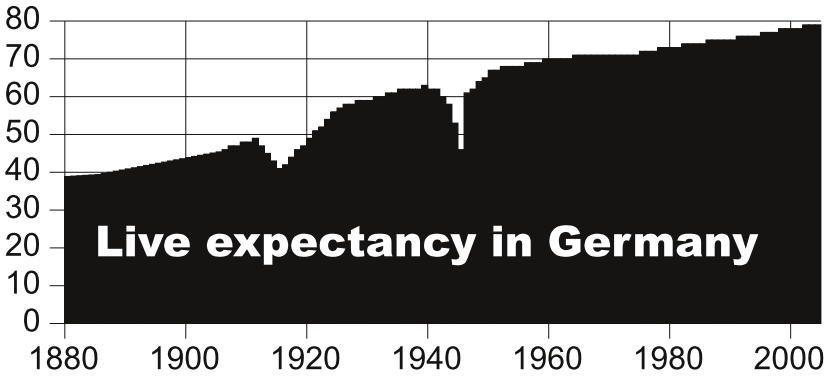
Correction of a fundamental political failure

We have no time machine to talk with the German prime minister Bismarck about funding the social insurance by a tax on coal in 1883. How different would be our world? This would be a very interesting theme for many dissertations, political and economic simulations. But because we cannot change the past, this would be only an analysis of how much worse we live today compared to what would have been possible.

We need a step by step correction of this failure. For decades, increasing life expectancy and improved health care caused increasing payment to the social insurance and increased the pressure on companies to decrease the number of employees, to transfer work places to cheap countries, even to have less children and to solve this problem by immigration.

In the other world the increasing life expectancy would have increased the taxes on coal for decades, followed by taxes on oil, natural gas and uranium. The pressure to save energy and to produce energy from renewable sources would have been systematical increased.

The two worlds are so far away from each other, that the failure cannot be corrected in one step. The correction is only possible in many small steps. The first small step is shown on page 202: the 100 billion EUR economic stimulus program and tax reform for Germany.



Step 1 to 2 of the tax reform

More purchasing power, less working costs for the employer financed by a CO2 tax, nuclear power tax, ground usage tax. The first two steps for a complete reconstruction of the tax system.

From beneficiaries to taxpayers

At the tax reconstruction, fossil energy becomes fast unprofitable. On the other side, beneficiaries of the German EEG (renewable-energy law) change from beneficiaries to taxpayers. CCS (carbon capture and storage) will be also unprofitable because of ground usage tax. The house owner with the big photovoltaic on the roof profits from the exempted amount at the ground usage tax.

	2009	Step 1	Step 2
Tax per kg CO2		10 Cent	25 Cent
Estimated amount	900 Mt	900 Mt	680 Mt
Tax estimation		90 billions	170 billions
Nuclear power per kWh		7 Cent	15 Cent
Estimated amount	150 TWh	143 TWh	140 TWh
Tax estimation		10 billions	21 billions
Wind on land per kWh	EEG subv.	4 Cent	12 Cent
Estimated amount	40 TWh	50 TWh	67 TWh
Tax estimation	EEG subv.	2 billions	8 billions
Wind offshore per kWh			8 Cent
Estimated amount		5 TWh	25 TWh
Tax estimation			2 billions
Photovoltaic per kWh	EEG subv.	EEG subv.	5 Cent
Estimated amount			20 TWh
Tax estimation			1 billion
Total tax estimation		102 billions	202 billions

The average yield of a 5 MW wind power plant promises 1.2 million EUR taxes per year. Only the own house roof is free of taxes by the exempted amount at the ground usage tax.

The ground usage tax for a house is due, no matter there is photovoltaic on the roof or not. This gives a high motivation to make the best use of the ground.

Remain ground tax free by using only the exempted amount of ground usage for own housing purpose. Optimize expenses by producing as much solar electric power as possible and a low own consumption.

Tax consultants will change to solar architects and energy consultants. All their creativity to optimize our usage of resources instead of searching loopholes in the tax system.

	Step 1	Step 2
Decrease employer part of social insurance	1200 EUR	2400 EUR
Decrease employee part of social insurance	1200 EUR	2400 EUR
More for not working adults	600 EUR	1200 EUR
More for children	300 EUR	600 EUR

Review 2011: Why only 2 steps preview?

How will each citizen react on the tax reform? How fast will they change to the new cost optimum, because the tax reform changes the cost optimum. How fast can new created industries offer the required stuff to make it possible to change to the new cost optimum?

There is no institution on Earth able to make detailed predictions with so many components involved.

Economic growth

June 18th 2010, it's time to clarify the PEGE position towards economic growth. How long, how much, and what sort of economic growth is necessary?

What was the economic growth before the industrial revolution? Let's look at the economic growth from 3200 B.C. until 1800 A.D. The population growth during this 5000 years was 80 times from 12 million humans to nearly one billion humans.

What was the economic growth per inhabitant? How different was the economic power of an average person 3200 B.C. until 1800 A.D.? Do not see only Europe. For a large part of humanity, this 5000 years made no big difference. Let's assume a very big number: 10 times more GDP per inhabitant. This makes an average economic growth from 0.046%. per year. 80 times more inhabitants and 10 times more GDP per inhabitant make a 800 fold growth. However, over 5000 years is this only 0.13% yearly growth. That's far far away from the 2% minimum yearly growth in economics theories.

Cross check with 2% yearly growth during 5000 years. This increases GDP 10,000,000,000,000,000,000,000,000,000,000,000,000,000,000 times. There are 43 zeros behind the 1.

When somebody earns only 5 EUR per hour in 2012, he has only to wait for the year 3171. At 2% yearly growth, he will earn every hour all the money from Bill Gates. 413 years later even every second. So far about the dogma of economics "We need minimal 2% growth per year".

Development targets

What is the development target for a baby? To grow to the size of an adult human. That the leg of the baby growth to the size of the leg of an adult. That the arm of the baby growth to the size of the arm of an adult.

It's not good when the growth stops at the size of a midget. It's not good when it reaches a height of 2.5 m.

It is similar with the development target of a civilization. The development from being helpless as a baby to a grown-up civilization able to deal with common problems.

How can this be expressed in US$ GNP? There are some basics like water, food and dwelling. There are necessary things like information, communication, education, mobility and the ability to travel. How can this be expressed in US$ when the cost to transfer information changed in 100 years by more than one to one billion? Compare the price: To send a telegram from London to New York in 1912 was more expensive than to send in 2012 one Gb of data. A today's cellphone has far more storage than the largest computers from 1972.

So the following table can only be expressed with everything in similar like today prices. 2007 had 6.625 billion humans in average US$ 8302 GNP. It makes US$ 55,000 billion in total. This table is about the yearly economic growth to reach 2040 to 2100 between US$ 10,000 to US$ 30,000 for each of 9 billion humans.

	2040	2050	2060	2070	2080	2090	2100
$ 10,000	1.5	1.2	0.9	0,8	0,7	0.6	0.5
$ 15,000	2.8	2.1	1.7	1.4	1.2	1.1	1.0
$ 20,000	3.7	2.8	2.3	1.9	1.6	1.4	1.3
$ 25,000	4.4	3.3	2.7	2.3	1.9	1.7	1.5
$ 30,000	4.9	3.8	3.0	2.6	2.2	1.9	1.7

Ready for the climate MCA challenge

Civilization on planet Earth is not grown-up now; a further growth is necessary from a civilization helpless as a baby to a grown-up civilization able to deal with big challenges.

The first big challenge could be the climate MCA (Maximum Credible Accident). What happens when melting permafrost releases Green House Gases (GHG) in gigantic quantity? All the so called "climate conferences" talk only about GHG from human activities.

This is an almost non-researched problem. So let's assume a climate MCA makes it necessary to take 30 billion tons CO2 per year out of the atmosphere and to split this into C and O. To take out 30 billion tons CO2 each year over a span of 40 years could be a US$ 600,000 billion investment.

The abilities of mankind have to grow up to a level to deal with the climate MCA challenge. This means to be a grown-up civilization, being able to deal with common problems. One of these common problems is the renovation of the planet from all the problems caused by the civilization jump.

Taken the current GNP from 2010, US$ 15,000 billion would be more than 25% from the GNP. When the climate MCA strikes, US$ 15,000 billion should be less than 10% worldwide GNP.

Less CO2: prevention efforts

There are the following main phases to reduce CO2 emissions:

1.) Higher efficiency of fossil energy usage. This splits in 2 phases:
   a.) Houses with better thermal insulation, but still using direct natural gas or fuel oil. Cars with less gasoline or diesel consumption.
   b.) Change to high efficient heat pump and electric mobility, high efficient electric power production by CCPP - Combined Cycle Power Plants.

2.) Change to renewable-energy. This splits in 3 phases:
   a.) Use energy from sun and wind immediately.
   b.) Day / night balancing by storage technology.
   c.) Summer / winter balancing by storage technology.

3.) CO2-free production. This splits in 2 phases:
   a.) Process heat by electric power from clean sources.
   b.) Filter and split CO2 emissions from chemical processes.

Steel production without CO2 emission? Now industry refuses to even think about this. Industry now is mainly in phase one and a little bit in phase two. The manager of a steel mill is proud, that his steel mill emits 5% less CO2 per ton of steel than an outmoded steel mill in India. It's far beyond his wildest imaginations to reduce CO2 emissions by 100%. The chemical reduction of iron causes 1.75 tons CO2 emission per ton of steel. But it's possible to split the CO2 and reuse it. The electric energy for this process it in the same range of what is associated with aluminium production: 14 kWh per kg iron. All electric power only from photovoltaic, the CO2 emission from the reduction split into C and O and reused.

The 1200 TWh yearly electric power demand prognosis for Germany on page 82, 394 - 395 covers only phase 1 to 3a. Even 1200 TWh are not enough to cover all up to phase 3b in Germany.

Less CO2: reduction efforts

We have not reached the end of the list. Defrosting permafrost can lead to the climate MCA. Huge GHG emission from permafrost can create a situation that even the reduction of all human CO2 emissions to zero is not enough.

After more and more efforts to reduce CO2 emissions, the next logical step is to reduce CO2 which is already emitted into the atmosphere.

4.) Reduce CO2 in the atmosphere. This splits in 2 phases:

   a.) More plants, more humus. But where is the land to grow more plants? So this includes irrigation and sea water desalination.

   b.) Technical solutions to filter CO2 out of the atmosphere and split it into C and O. This costs 8 kWh per kg CO2.
   8,000 TWh per Gt CO2, 240,000 TWh for 30 Gt, the current yearly emission of mankind.

PEGE Tax Transition Concept

Government invitation from China

On 3rd July 2010, I start to read my emails in the morning. Can you imagine my surprise as I read the subject "Government invitation from China"?

Dear President,

We are honored to extend to you our cordial invitation to

The 1st WORLD EMERGING INDUSTRIES SUMMIT (2010)
(Aug. 31- Sept. 3, 2010, Shangri-La Hotel, Changchun, China)

The Provincial Government and People of Jilin Province
Welcome You!

Sincerely yours,

The Organizing Committee of WORLD EMERGING INDUSTRIES SUMMIT

· Free for participation, 5-star accommodation, meals, pick-up and organized business visit & sightseeing provided by the Chinese government after our confirmation;

· Speech opportunities (Should be informed beforehand);

· Media interview (As above);

Since 2004 I tried to wake up the politicians in Austria and Germany. There has to be a change to avoid a disaster. For six years it was impossible to push a change here. It seems my wake-up call was so loud that it was heard in far away Beijing.

China, the land of unlimited possibilities, Wang Chuanfu: from the son of poor farmers to the founder of BYD - Build Your Dreams, a key company for the future of mankind.

And now I am invited to an important economic summit there. The emerging industries are electric power from sun and wind, storage technology for electric power, electric mobility and new materials.

My application for keynotes

On July 6th 2010 late in the night, my answer is ready to be sent. I apply for two keynotes. Most important is the keynote about the change of the tax system. The open-source world prognosis system would be a great method to proof how important the change in the tax system is.

Thank You very much!

It's a great honor for me to receive this invitation.

> Speech opportunities (Should be informed beforehand);

I want to make 2 speeches.

Both speeches are about obstacles for the products of the emerging industries special in EU - European Union and US - United States.

Here, the two titles and a short outline of the speeches:

Tax reforms to control and increase the growth of emerging industries

Old industries determined for more than a century the tax politics of the high developed industrial countries.

The tax system of US and EU is best suited to slow down the success of the products of the emerging industries.

While the old industry established a strong lobby for their interest, the emerging industries even have no awareness how the tax system influences profitability calculations and how tax reforms for their favor look like.

A fast-changing world needs an open-source world prognosis system

We do not have it now, so it could happen in Germany 2014, that they have to throw away solar electric power on a sunny day, because they neglected the development of electric power storage systems.

They thought many years, that this problem is far far away, but the market increased so fast, that it's probably only four years away.

Universities of all branches should be integrated in a huge computer project to calculate how our world will look like in the future.

It should be possible to base scientific works on prognoses of the system, so science can deal with problems occurring only in the future.

Politics and economics need much more certainty about future developments. They should be able to test different strategies to optimize the development.

An open-source world prognosis system should strengthen the position of the emerging industries.

best regards

What means this?

In this email, I declare myself to be the best lobbyist for the emerging industries. I think from myself to be the best lobbyist for the people, for the economy and for the environment.

Review October 2011

The "Open-Source World Prognoses System" was first-time mentioned in the German newsletter February 21st 2010. What was here outlined as the application for the second keynote was declared August 26th 2011 as the main task for the new science of ethics:

To integrate all the knowledge of all the different sciences and to evaluate all this data for the best possible survival, see page 309.

In August 14h 2010, I received this email, that my keynote was approved:

Dear Friend,

Congratulations!

You have been approved as a speaker to deliver a key speech in the AFTERNOON session on 1st, Sept of the summit.

Pls note that we provide the English-Chinese simultaneous interpretation and If you wish to make a PowerPoint presentation, projectors will be on hand for use. Please send the PowerPoint presentation file to us 20 th, Aug. Time duration: 5 minutes, on 1st, Sept.

Since 2004 the necessary tax reform is my main theme. I could talk hours about it, but now I have only 5 minutes during my keynote to explain it.

Invite wise men, listen and learn

August 31th 2010 in Changchun. I am in the Shangri-La hotel at the registration for the "World Emerging Industries Summit". I meet the German consultant Falk W. Föll and I tell him my story, my big surprise about the invitation.

He tells me, that this is an old Chinese tradition, invite wise men, listen and learn from them. He asks me how today wise men are called in Germany. I do not know. His answer is shocking:

Freaks

There are severe problems in Germany where scientists, wise men, demand solutions since decades. There are very similar problems in almost all countries of the EU. However, politicians in the EU act like all this wise men would be freaks only. Climate-change and peak-oil are only one part of all the ignored problems. Way too low birth rate in the EU, people not able to live from their wage and many others. All obvious problems, but politicians ignored all these "freaks" warning them.

It's a great honor to be here

It's the first-time that I present
the PEGE tax change concept
at an important conference

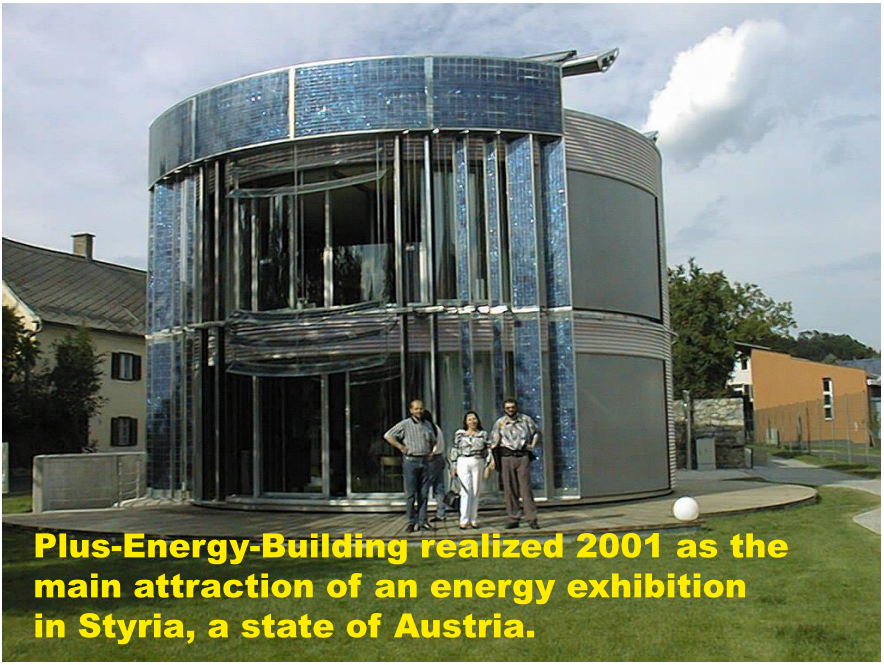
It's a symbol for the global development
that this first-time happens in China
to be presented in an elite audience

PLANETARY ENGINEERING GROUP PEGE.org

Planetary Engineering Group Earth

Independent think tank
founded by me - Roland Mösl
1991 in Europe - Austria - Salzburg

First project 1992: GEMINI inhabited solar power plant, a cylindrical house following the sun with 150m² PV.



Plus-Energy-Building realized 2001 as the main attraction of an energy exhibition in Styria, a state of Austria.

In 1991, I envisaged millions of houses producing more electric power than their own consumption by 2001.

Why was the progress so slow?

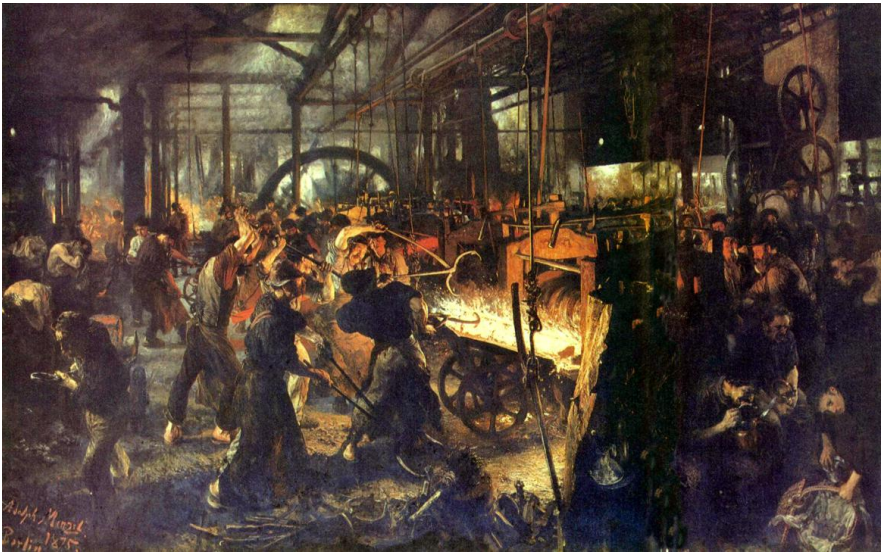
Because the current tax system is best suited to slow down the success of the emerging industries.

Humanity has been changing civilization level beginning with the 19th century.

Before that time, only renewable-energy had been used.
After this ongoing change, also only renewable-energy will be used.

The time to use fossil energy for a fast economic growth during this historical change should be as short as possible in order to avoid problems.

19th century emerging industries started to use resources to an extent it never had been used by mankind before.



The basic postulate of the 19th century emerging industries: Resources should be as cheap as possible to get a fast economic growth.

This basic postulate has been deeply implemented in nearly all societies and their tax systems for over 2 centuries:

Resources should be as cheap as possible to get a fast economic growth.

**It was very successful in the past.
So many economies still believe in it.
Although, by now it does not work anymore.
And even more, it has a negative impact on the people and on the environment.**

The basic postulate of the 21st century emerging industries is:

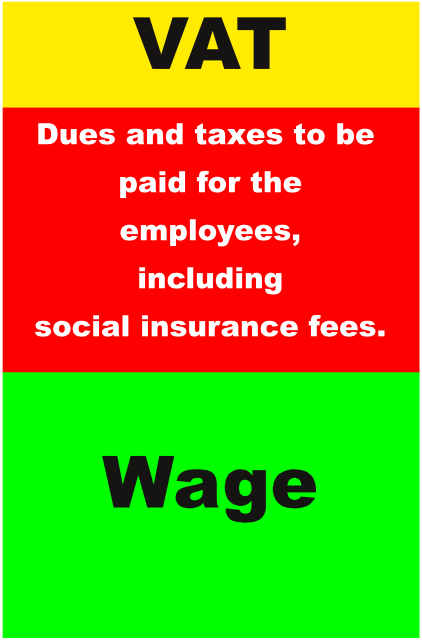
Less usage of resources for the same task

The new emerging industries can and will influence society and the tax system:

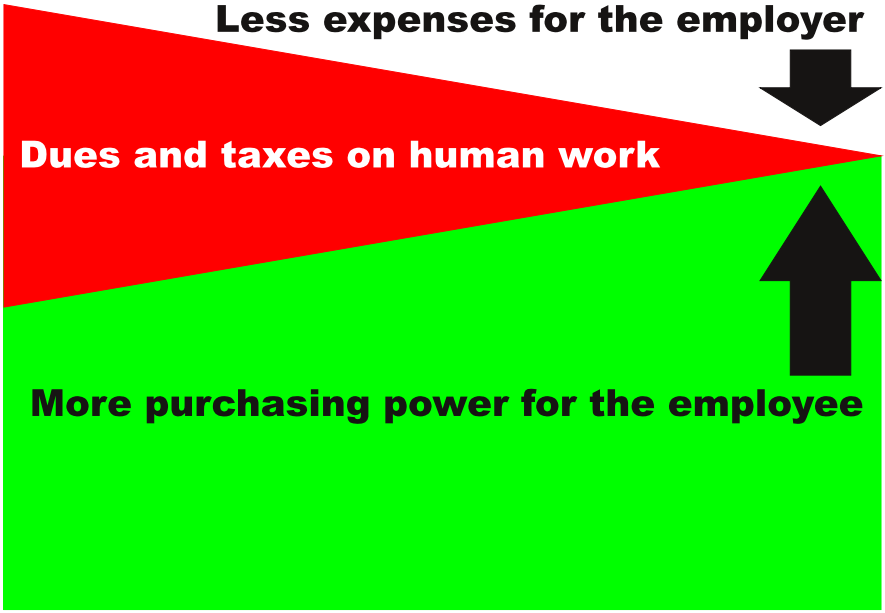
A tax system based on the usage of resources will bring us a fast economic growth.

This is the exact opposite of the current system in the highly-developed countries.

In the highly-developed countries, low taxes on usage of resources cause extreme high dues and taxes for human work.



Changing towards a resource-based tax system:



The PEGE tax change concept:

Replacing taxes and dues on human work by taxing resources in 3 main areas:

1. **CO_2 emissions**
2. **Usage and future recycling costs of rare materials**
3. **Land usage**

It starts mainly with a tax on CO_2 emissions.

Several decades

It is impossible to make this change in one step.

It will be a main task of politics in the coming decades to determine the optimal speed of the change.

Let's look at the cost situation of a taxi-company in Austria, which is typical for Europe:

Net-wage for the driver 15,722 EUR per year

Taxes to be paid for the driver: 11,834 EUR

Fuel without tax 900 EUR

Taxes on fuel 900 EUR

The taxi-company has to pay 13 times more taxes for the driver than for the fuel.

Now we apply 100 EUR taxes per t CO2:

Net-wage for the driver increased to 16,922 EUR per year.

Taxes to be paid for the driver decreased to 9,434 EUR.

Fuel without tax 900 EUR

Taxes on fuel increased to 1,332 EUR

Surprise, the owner of the taxi-company cheers, the cost reduction for his driver is 3 times higher than the cost increase of the fuel.

CO2 emissions have significantly decreased, so the next step increases to 250 EUR per t CO2.

Net-Wage for the driver increased to 18,122 EUR per year.

Taxes to be paid for the driver decreased to 7,034 EUR.

Fuel without tax 900 EUR

Taxes on fuel increased to 1,980 EUR

Now, it's time for the taxi-company to change cars and fuel source.

Electric power prices per kWh coal vs photovoltaic:

Current situation

At 100 EUR per ton CO2 tax

At 250 EUR per ton CO2 tax

At 250 EUR per ton CO2 tax

Coal electric power price

Photovoltaic electric power price

**At this point,
the emerging industries
have to be big enough
to fulfill the demand
caused by the changes.**

**Let's work out a proposal for the
next climate conference based on the
PEGE tax change concept
to make the next climate conference
a big boost for the emerging industries.**

A member of the EU parliament

September 2nd 2010 in the late evening, I am sitting in the Shangri-La hotel. A conversation with another hotel guest starts. I talk about the proposed tax reform and the big problems of the current tax system.

The discussion is complete different from the other discussions in the last days. The man refuses to understand anything and explains repeatedly, that there is no alternative to the current system. It can be done only like it is.

I talk about the problems, injustice, negative effects, worsening of conditions. He answers; it's necessary like it is, it's the best what can be done.

After a long discussion, we exchange business cards, what a surprise: he is a member of the EU parliament. I never talked with a politician of the crushed Eastern block, but when I imagine how a discussion with a politician of the German People's Republic 1987 would have been, exactly like the discussion with this EU politician 2010.

Review October 2011

Was it a right or left politician? This does not matter. They all obey the theories of economic science. They all have the same calculation errors in their political theories.

Human rights violations

On September 4th, I am on the way back to Europe. For two month I was thinking about the arguments for the PEGE Tax Transition Concept now, four days discussing about this theme, special at the encounter with the EU parliamentarian.

I am very angry, I write all the way back from Changchun to Munich about human right violations in the EU. If you do not believe this, I have an ASUS UL30A notebook with 12 hours on battery. There have to be two rights added to the list of human rights.

Human right on future

Every human has the right to be informed about all aspects of the future, special about necessary changes and possible problems. Politics and mass media have the duty to inform about all aspects of the future. A failure to fulfill this information duty is a heavy violation of human rights.

Remember August 2009. I read in Radio China International about the expected oil crisis. However, it was not to find in mass media in Germany. It was impossible to bring this theme in the election campaign for the German parliament. This was a severe human right violation done by the mass media and the politicians in Germany.

Every human has the right to make precautions for his future. Every human should be allowed to make the precautions best suitable for his situation.

The government has the duty to assist the population best possible to make precautions for the future. However, the EU governments treat citizens as if all this had been legally incapacitated of their right to choices.

All working people are forced to pay an of state retirement precaution. An own house producing much more energy than the own usage by photovoltaic would be a great precaution. However, when people are forced to pay the of state retirement precaution, most of them have not enough money left to invest in a plus-energy-house.

What will be the energy prices in 20 years? It even can happen that the operating expenses of a rented apartment exceed the pension paid by the of state retirement precaution.

Paying forced dues for decades for even not being able to pay the operating expenses of an apartment? These forced dues make it impossible to do the own far more efficient retirement precautions.

This is a systematic severe violation of the human right on future.

Human right on being honest

No human leading an honorable life, working in an honorable profession should have disadvantages for being honest. This means when you are a thief, and you confess to the police all your crimes, it's okay that you suffer the disadvantage for being sent to jail.

But imagine you are an architect; you make good houses; all your clients recommend you for your good work. An honorable life working in an honorable profession. You go to the tax office and confess at all your projects were about 30% illicit work. You would not have any chance in your profession without illicit work, because this would be too expensive for all your clients.

When the tax office now closes your company and sends you an invoice over some million EUR, your human right on being honest is violated. The whole system is set up in a way making it impossible to be honest.

When you ask 100 architects "Have you ever been dishonest with the tax office, have you ever used illicit work" and one architect answers, "Yes, I cannot survive without using illicit work", then it's a criminal problem.

When 100 architects answer: "I cannot survive without using illicit work", then it's a heavy violation of the human right on being honest. A good government makes the rules in a way that honesty is common and dishonesty is the exception. A bad government makes the rules to force more and more percent of the population to be dishonest.

The governments even publish statistics how bad they are. There are statistics about the black market and illicit work. This ranges between 15% in Germany and 28% in Greece.

These statistics have to be seen as a proof, how unable these governments are and how heavy the human right on being honest is violated.

The principle of illicit work explained: The offerer has to pay VAT, income tax and social security dues. After he has paid all his taxes and dues, he receives only around 40% what the customer pays him.

Around 60% is for the state and of state organizations. It is common to split this 60% between offerer and customer. The illicit worker has much more income, and the customer pays much less.

Look back on the principles of the PEGE Tax Transition Concept. The endpoint is exactly like this; the state replaces all taxes and dues on human work by taxes on resources.

Back in Europe

On September 4th I arrive on Munich airport. I go by train from Munich airport to Munich. I wait at the railway station for the train to Salzburg. I try to discuss about politics with some people. It's impossible to discuss in Germany on the street about politics. The people have only insults for all the politicians. There is not the slightest chance for a constructive discussion.

A society with such a huge dissatisfaction should be in a desperate search for solutions. Let's discuss everything, there is something severe wrong, we need any idea to come out of this situation.

Does this sound reasonable? Should it be possible to start a discusssion? I write emails and make telephone calls to many mass media in Austria. For example, I write to Andreas Koller, the deputy managing editor of the "Salzburger Nachrichten", the leading newspaper in the region of Salzburg:

Good day!

I have been trying for years in Austria and Germany to wake up the politicians. Turning away from our destructive tax system. It is a tax system to economize humans and so companies are forced to reduce or outsource jobs.

After waking up the politicians here did not work, on July 3rd completely by surprise I got a government invitation from China.

On September 1st at the 1st World Emerging Industries Summit I gave a keynote on the promotion of the growth of the emerging industries (Solar+wind energy, electric mobility) by a conversion of the tax system away from tax on human work towards tax on resources.

I think the Salzburger Nachrichten should make an event to discuss:

* Does our tax system ruin our economy?
* Does our tax system ruin our society?
* Does our tax system ruin our environment?

Why am I ignored here, but invited to China?

September 16th, I had not any reaction on my actions to bring my story in Austrian's mass media. I call Andreas Koller:

AK: We will do nothing, I will not explain this.
RM: How many advertisers from the car industry?
AK: Please no conspiracy theories!
RM: I bring no conspiracy theories, only the basics of modern journalism:

True is, what is good for our advertisers.
A lie is, what is bad for our advertisers.

He terminates the telephone call immediately. In December 2010 Andreas Koller was announced as the "journalist of the year" in Austria.

Only new protest parties allowed

In December 2010 the series "Austria needs a new political party" by Andreas Koller was in the "Salzburger Nachrichten". But what sort of political party? Anything about real political reforms is censored by the mass media.

All what is allowed are political parties for protest voters. A typical party for protest voters is "Hans Peter Martin". With the help of the biggest newspaper in Austria - "Kronen Zeitung" - he got 17.7% at the election for the EU parliament 2009.

At the 15th anniversary from the fall of the wall in Berlin I wrote in 2004: In the East ruled the "Socialist Unity Party", in the West the "Economic Growth Unity Party". (Page 155)

On the ballot are several different parties, but the real election is done long before. Only parties are allowed that fully are obeying the system. Critic is only for the political show allowed, but no reform of the system is allowed.

The PEGE Manifesto

The PEGE Manifesto

October 21st 2010, my hopes to have a big event in Cancun during the climate conference have vanished. I thought my keynote at the "World Emerging Industries Summit" would be the big breakthrough. But I live in a crazy world.

My ideas are hidden behind a wall of silence. My ideas can only be found by people entering in the search engines the right questions to discover the pages with my answers. People are thinking there is a free press informing them about every important event or idea.

"None are more hopelessly enslaved than those
who falsely believe they are free."

Johann Wolfgang von Goethe

One month later will be the 16th big show "We have to destroy the economy, the society, the environment, because normal behavior is too expensive". This shows are called "climate conferences".

I hoped to present my ideas at a climate conference first-time 1992. I remember TV documentations like "Last exit Rio".

One can sum up all these climate conferences in two sentences:

A said: "We need to invest more money in the climate protection."
B said: "We are highly indebted, we have no money."

To lead civilization on planet Earth to a sustainable future.
To organize the resources of planet Earth in such a way that the whole of mankind can have a good standard of living.

Mankind has the technical prerequisites to create a sustainable paradise, but has a tax system that can turn this planet into hell.

New, resource-efficient technology must be implemented as soon as possible. But this is impeded by a tax system designed in the 19th century to spur on the first Industrial Revolution by means of the cheapest use of resources.

Earth has limited resources.

We must share these resources as fairly as possible.

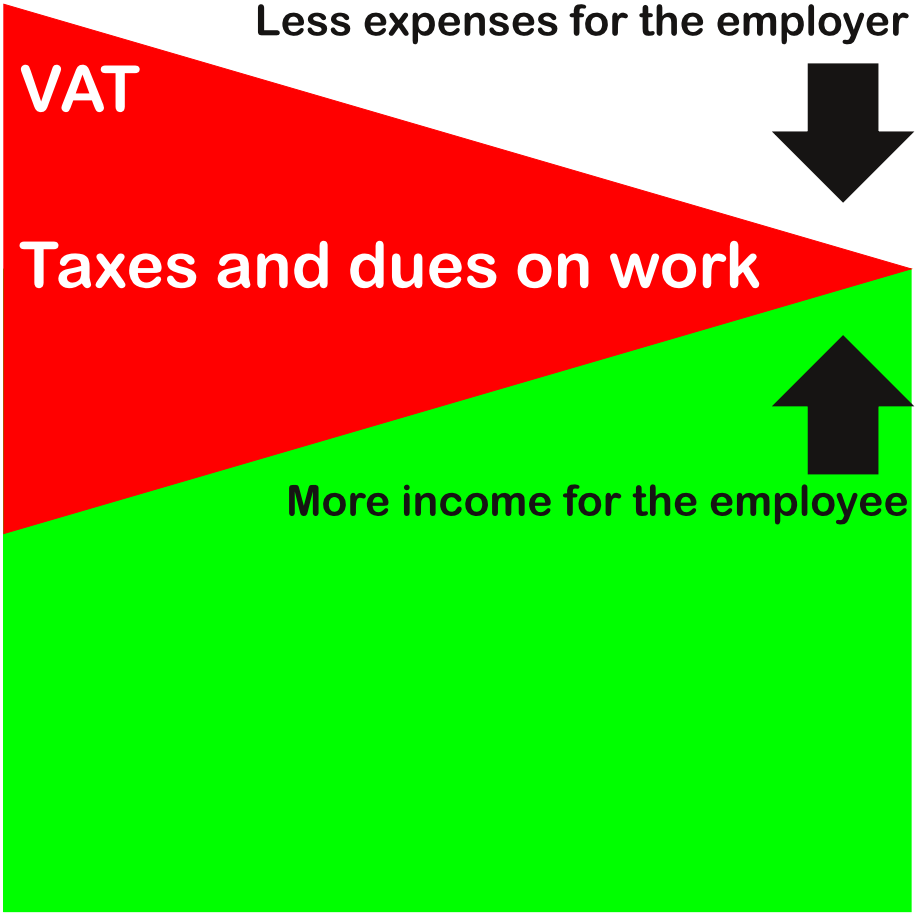
A tax system based on resource use can lead to fairness.

Those who use an above-average amount of resources should make an above-average contribution to the common welfare through taxes on these resources.

The whole social system, including child care, education, health, and old age benefits should be financed by resource taxes.

* **To give taxes on resources effective steering power**
* **To decrease the wage expenses of the employer**
* **To increase the wage for the employee**

All basic social benefits, from child care, education, health, to old age benefits have to be financed by resource taxes.



Less expenses for the employer, more purchasing power for the employee,

taxes and dues on human work replaced by taxes on resources.

Human right on future, human right on honesty, social problems will be solved by the change to 100% resource taxes.

For the whole civilization is given a pathway starting with 30% of the whole state budget, including social system financed by resources and ending at 100%.

States below the pathway, typical high developed industrial states with a high amount of income tax and social insurance, should pay in a pool.

States above the pathway, typical low developed states with a small state budget, should receive from the pool.

Different regions are different developed. So every state should decide about level and type of resource taxation.

Worldwide the same level of CO2 tax would make worldwide at the same time old technique obsolete. This method is not compatible with economic development and available production capacity.

Regional different CO2 tax levels make it possible to bring a model region fast forward, to use a technique in other regions, which became obsolete there.

Imagine Germany develops fast, 2025 with 300 EUR per ton CO2. The number of new purchased cars increases from 3 million to 6 million electric cars per year. 6 million used cars are transferred per year in less-developed regions, where it is useful at 100 EUR CO2 tax per ton to replace very old cars with ICE by modern cars with ICE.

Tax tariffs on resources can be different depending on usage. Government should have the possibility to steer precise the use of resources.

A house can be easily changed from fuel oil to a heat pump. New cars should drive with electric power instead of diesel. But airplanes cannot be changed to electric power.

Fuel oil, diesel or kerosene are all refined items from oil. From the different problems to change one of these applications to electric power from renewable-energy, it comes to the political demand to tax them very different.

To avoid a breakdown of air traffic and maritime transport in a future oil crisis, other applications have to be terminated by hard taxational steering.

The antecedent political spectrum from left to right will be complemented by a new dimension.

The speed to change the tax system towards 100% resource taxes.

Today are left and right parties, right radical and left radical parties.

In the future will be parties, wanting to implement the change towards resource taxation fast or slow.

There will be slow radical parties, wanting to prevent the change of the tax system.

There will be fast radical parties, wanting to complete the change of the tax system in a few years.

Private or professional use of resources is an irrelevant question. This takes out the basis for all methods to determine the wins. Taxation only for the usage of resources.

The determination of wins, the division in professional and private expenses created a system of madness, the child or career question, because the nanny became unaffordable expensive as a private expense.

The system of madness brought the children per woman rate down to 1.2 in Europe.

On the half way at the transition towards resource taxation has the determination of wins be terminated, because this requires a division of expenses in professional and private usage.

The finance office has only to be interested in the usage of resources.

Taxes should not stand as barriers between humans.

Regardless how much, regardless what bureaucratic effort. The duty for bookkeeping should be restricted to production companies.

A final taxation in production companies for all produced goods. Service, mounting and selling companies do not produce goods, so they need no bookkeeping.

On the half way at the transition towards resource taxation, the abolishment of the VAT and the introduction of the final taxation should be realized.

VAT requires a balance sheet to determine the win and for this, a separation between professional and private expenses, but which will be not longer allowed at this time.

Expected discussions

The most loved idea of left parties is: “The rich should pay”. But the PEGE Manifesto is a radical stop of this concept. We are not interested in how much money a person has and how much money a person earns, only in how much resources the person uses.

There can be an exempted amount at the ground usage, there can be a small payment for everybody, but there is no room for “You are so rich, so we have to punish you with high taxes”. This is replaced by “You contribute more for using more resources than the average.”

Let’s compare the tax situation from a self-employed carpenter and from a manager. Both claim tax-deductable company expenses in their tax declaration.

The manager claims his 250 km/h top speed premium car as company expenses. Is this car an expression of his personal lifestyle, something to express his high status? Yes, it is!

The carpenter claims his van to transport furniture to his customers as company expenses. Is this car an expression of his personal lifestyle, something to express his high status? No, it is really necessary for his work.

The manager has an office in his villa. 50 m² with the most expensive luxury furniture and some works of art. All this claimed as company expenses. Is this office an expression of his personal lifestyle, something to express his high status? Yes, it is!

The carpenter has at his house a 100 m² workshop. To improve the quality of his work, he purchases some modern CNC machines. Is this workshop an expression of his personal lifestyle? No, it is really necessary for his work.

The manager could do his job also with a 15,000 EUR car and with a 10 m² office with simple furniture. 90% of his tax-deductable company expenses are in reality only expression of his personal status and lifestyle.

The carpenter makes a tax declaration with 50,000 EUR wins for a year before taxes. The manager makes a tax declaration with 100,000 EUR wins before taxes. So he has in the current tax system of most countries to pay more percent income tax than the carpenter. That's what all left parties declare as fair. The manager has such a high income, so he should contribute much more than the average.

But now let's make this calculation with all the tax-deductable company expenses beyond real needs, only expressing personal status and lifestyle. The picture turns; the carpenter has to pay more percent of his income for taxes than the manager.

The business of legal accepted lies

Tax consultant, the business of legal accepted lies. The tax office has to recognize every lie as truth, as long as the lie is within the legal parameters. The current tax system is broken beyond any repair.

The great ideals of the lefties to take from the rich and give to the poor are broken by the reality of a profession where the target is to go with lies as close to the border of legal acceptance as possible.

House for own usage or as an investment

When somebody purchases a house or apartment for own usage, it's private expenses. He has to pay it after income tax is deducted from his wins. However, when the purchase is an investment, the expenses are deductable from the wins.

Details are different from country to country, change from time to time, but in general, the family who wants an own house is discriminated in the income tax system against an investor.

They always told us the income tax was to redistribute from rich towards poor, but all statistics show the opposite. The income tax system is a great tool to redistribute from poor towards rich.

Achievement society

Achievement society

On February 22nd 2011, more than three months after I published "The PEGE Manifesto" on my website, I tried to found the "non-party platform PEGE Manifesto". Again and again I heard "He is in a meeting. He will call you back." Not from one, not from two, from dozens of people. Not from some people, I have more than ten thousand people in my database. This has been the election of people from whom I believed they would recognize the problems of our society. From whom I believed they would do something.

There was this success trainer. He makes his living by teaching managers how they can be successful. So he should be the one to buildup a movement to change society.

"Great what you are doing, but I am only a simple success trainer" was his answer. In what sort of society am I living?

"1945 had been destroyed houses in Germany,
but there had been humans.
Now there are houses,
but the humans are destroyed."

People should be able to reach out in the society, to perceive what's going on. People should want to change the society, when the society worsens.

The lowest status is to be only able to see the own problems, to have blinders for all the problems of society. I thought to communicate with the elite of society, but they had all blinders.

Just the right point, just the right motivation to analyze the so called "achievement society".

How the achievement society is driving our existence into a brick wall, and systematically destroying our society. Settling the score with a crazy system.

We know about the religious wars of the past, but we are not aware of the most significant holy war of the present day: Achievement society vs. stability.

For decades we have been living in a society that vehemently opposes the remedies to all its problems. Discussions about renewable-energy and electric mobility inevitably turn into a kind of holy war.

* From 1991 on I thought it was just a question of presenting the Solar Age in a more appealing way
* From 2004 on I thought it was just a question of restructuring the tax system
* From 2011 on it is about the fundamental philosophy of the entire debate

The suggestions developed in the book "Advance to the Solar Age" are an entirely logical solution for the good of mankind.

"PEGE Tax Transition Concept" and "PEGE Manifesto" are entirely logical solutions for the good of mankind.

Logic was not able to assert itself against questions of faith. PEGE 1991 to 2010 is logic. The logic of leading mankind into the solar age is opposed by a belief that is just as harmful as when members of a sect prevent a seriously injured person from having a lifesaving blood transfusion.

The foundations of our society are analyzed

You must fully understand the next pages in order to grasp the scale of the disaster our society is embroiled in. The belief in the achievement society shapes our lives much more strongly than Saudi Arabia is shaped by the Islamic faith.

The achievement society's ideal and its concept of the enemy. The GEMINI inhabitable solar power plant, ideal for a stable, sustainable society, is the worst bogeyman of the achievement society.

In 1992, these ideals were defined in the book "Aufstieg zum Solarzeitalter" (Advance to the Solar Age): The GEMINI house, a unique

investment in one's own housing requirements and in the energy supply of the region as a whole. It provides the electricity supply of the house, warmth through a heat pump, power for the family's electric vehicles and also adequately contributes to the region's energy supply.

Even just this contribution to the energy supply is enough to finance a modest living.

In 2010, the longing for a stable society without the neverending pressure to achieve in order to sustain one's standard of living was expressed thus:

"If typical citizens of 2050 charge the electric car, they bought in 2030 with the photovoltaic they bought in 2020, then we will have achieved a stable society."

Our ideal, the achievement society's worst nightmare

What will happen to economic growth if in the year 2050 people charge the electric car they bought in 2030 with the photovoltaic they bought in 2020? For the achievement society such citizens are regarded as anti-consumerists. What means would an achievement society have to goad these citizens to ever more achievement?

Someone who has been energetically self-sufficient for 30 years through solar energy. Someone who hasn't bought any petrol or diesel for the last 20 years? An anti-consumerist who drives a 20-year-old car? Our ideal is the achievement society's worst nightmare.

The goal of the achievement society

What is the goal of the achievement society? More achievement. Whoever follows this entirely senseless aim will end up living in an entirely senseless society.

To give a drastic example of the goal of the achievement society, let us compare it with the Guinness Book of Records. What is the goal of the Guinness Book of Records? New records of course! Does the question come up here as to whether these records are useful, whether

they advance humanity? No, it's purely about breaking records.

But no one is forced to read the Guinness Book of Records; no one is forced to break records. It is entertainment, and it is voluntary. But the achievement society has developed a whole lot of perfidious methods to force everybody to achieve more.

To complete the comparison: does anyone ask whether the added achievement forced by the achievement society is useful or advances humanity? No it is just about more achievement. Questioning this is even fiercely opposed by the achievement society through propaganda and other measures.

The achievement society gives people goals, which are completely meaningless. Achieve more, achieve even more, it's still not enough. Extra achievement is required. What for? The compulsion to achieve is forced on society, it is a society without goals that is being ever more destroyed by this pressure to achieve.

Please refer to what I wrote on this in 1992 in the book "Advance to the Solar Age", page "no future", here on page 114.

The perfidious methods for forcing people to achieve more and more. How all increases in productivity have been withheld from citizens in the last decades.

The embezzlement of increased productivity

What happened to the results of the enormous increase in productivity of the last 50 years? It should have been enough to create paradise. But let us compare the situation of an ordinary worker in the years 1960 and 2010. Looking optimistically into the future in 1960, the fear of unemployment is rife in 2010, of redundancy, and life as a temporary worker or on benefits.

Where has all this increased productivity gone? How did the system manage to prevent all this progress from reaching the broad masses of the population in the form of a secure life without nagging worries about the future?

Instability as the slaveholder's whip

Because the achievement society system always makes decisions that promote instability. To create unstable situations. Instability as a means of forcing people to achieve more:

Forcing more achievement by creating unstable situations.

This simple sentence mirrors the entire horror of the achievement society, the whole disaster of how the increased productivity of the last 50 years has not led to a more stable, secure standard of living.

But with this method of forcing instability as a means of economic growth, the achievement society has condemned itself to ruin.

An outstanding example of how the achievement society favors solutions that lead to instability is the USA's dependency on oil imports.

Already in 1956 the geologist Dr. Hubbert coined the term "peak-oil" to refer to maximum oil production. He predicted this would occur in 1970 for the USA, and at the beginning of the 21st century worldwide. In the case of the USA: US oil production has been declining since 1970.

Already in 1970 the USA had to import 24% of its oil demand. By 2005 this figure rose to 65%, tendency rising. Since then, eight US Presidents have announced their intention to reduce the US dependency on oil imports: Richard Nixon, Gerald Ford, Jimmy Carter, Ronald Regan, Bush Senior, Bill Clinton, Bush Junior and Barack Obama. But they are only presidents, helpless men in the White House, who can do nothing against the madness of the achievement society.

The philosophy of the achievement society 1973

Rising oil imports create an unstable situation, which drives the USA to ever more achievement. People will have to earn more if they want to keep driving a car.

The US military will have to be in a position to protect the oil trade routes everywhere. There will be wars, forcing the USA to renewed achievement.

The philosophy of the stable society 1973

The dependency on oil imports is an economic and military threat for the USA. The 1960s were the decade of space travel. We declared the 1970s to be the decade of wind energy, the 1980s to the decade of solar energy, and the 1990s to the decade of electric mobility.

Of course, all projects start at the same time, but we expected the relevant technologies to be mass market capable by these respective decades.

Biofuel as an incredible hype

The achievement society needs instability as a slaveholder's whip. The debate about biofuel vs. electric mobility is a classic example of this.

How could fuel made from biomass become such a hype when all the facts speak against it? Because it is a fundamental principle of the achievement society to create unstable situations to spur people on to more achievement.

The philosophy of the achievement society regarding biofuel

Competition forces more achievement. If the car competes with humans for food, people will be forced to achieve more so that they can afford to eat.

Fortress Europe, fortress USA, compulsory expenditures as protection against the tide of economic refugees.

In this respect, biofuel is an ideal solution for the achievement society.

The philosophy of the stable society regarding biofuel

As much nature as possible. Biofuel cultivation areas are not nature but are death zones for all animal life during the harvesting period.

A photovoltaic system of the size of the carport under which the car parks is large enough to produce as much energy as the electric car needs.

Photovoltaic and wind energy have an area efficiency that is higher by several orders of magnitude than biomass. Photovoltaic and wind power plants can harvest energy in places where it is neither sensible nor possible to cultivate food for humans.

Biofuel should therefore be rejected.

Wood gatherers in the forest

What is better? An unemployed person who heats his home with domestic fuel oil, or a wood gatherer who collects way more wood lying around in the woods than he needs? Two ideologies collide.

Already in 2005 rotting wood in the forest was a topic in the "Decay" series.

But at the time an explanation could not be found. Only the psychopathological "achievement society" approach provides an explanation.

The attitude of the achievement society to the wood gatherer

Are we a developing country? Are we in the postwar era? In the system we have created a wood gatherer cannot even work enough to make his contribution to the social insurance system. In this way, the achievement society has made sure that no one does such useless work.

The unemployed are worth much more for the achievement society. They serve as a bad example, can be accused of being social parasites, and can be used to apply pressure to workers to achieve more: "Bring greater performance! Look at all those unemployed people out there gagging for your job! Achieve more or we will make you an unemployed social sponger!"

The unemployed also contribute more to economic growth. After all we have to take money away from other people to pay for his or her overpriced housing, food and heating. This forces the others to achieve more after we have taken away their money to finance the expensive life of the unemployed.

The attitude of the stability society to the wood gatherer

Thanks to the restructured tax system and other measures, the wood gatherer can lead a modest life, and above all, he has a stable situation, and is probably much happier than an unemployed person in an achievement society as he feels like a useful member of society.

Managers

What does society expect from a manager? The different conceptions of the achievement society and of the stability society of the manager.

The achievement society's expectations of the manager

Managers are among the top role models of the achievement society. Everywhere and at every occasion, they must demonstrate what they have achieved. Rushing from meeting to meeting in the company car at up to 250 km/h. When they race by with flashing lights on the motorway, everyone is supposed to feel a devout kind of jealousy about those who have made it, role models for us all.

Managers' time is too valuable to waste on children. A clear decision has to be made between children and a career. Partly, because managers with children of their own tend to develop intolerably sentimental attitudes to human resources.

This clouds the rational mind like a drug when it comes to making important decisions like adapting employee numbers to the demands of shareholder values or closing and relocating unprofitable sites.

The stability society's expectations of a manager

Managers' working hours and business trips mean that they require help through nannies and domestics to make it possible to have both children and a career.

Having children of their own is an important experience for managers as it helps them better understand the worries of their workers, and helps them make humane decisions.

CER climate certificates pollution rights

The damage created by the achievement society is supposed to be countered by an idea that has its origins in the neoliberal casino.

I receive a very special spam mail:

Dear Mr M,

make use of the Climate certificates traded in Germany as a new asset category for your private asset formation. The Deutsche Bank is expecting appreciation of up to 25% per year in the next two years. Experts predict growth of up to 500% to 700% within the next 7 to 10 years. Click on the link below for further information.

PEGE has been demanding planning security since 1992

Page 158 of "Advance to the Solar Age", here on page 48:

"Planning security for phasing-out old technology and introducing new technology."

This basic idea of PEGE is also reflected in more recent work on the gradual restructuring of the tax system. The economy needs planning security. Revenue neutral, through redistribution of the tax burden away from human work to resources.

But a basic premise of the achievement society is to create precarious situations. Here too. What will a CER cost in 5 years? What's your bet? What is more precarious than a gambling casino? Well, company boss, would you set the future of your company, the fate of all your employees at 5 EUR per tonne or 200 EUR per tonne? Rien ne va plus - the ball is rolling.

We have to export more at any price

The export trade is thousands of years old, but today the majority of states are caught up in an export race. Everyone has to export more to pay their oil bills.

Exports are necessary and useful but only to a reasonable extent. Many states have gone far beyond this reasonable extent, as after all, the foreign-currency drain has to be counterbalanced. This dependency on oil is a typical feature of the achievement society: an unstable situation that is a driver for every new export achievements.

Export stress by increasing oil price

Well, what do exports actually cost? If you are not under export stress, you can ask for a reasonable price. But there is this gigantic oil bill to be paid every year, the threat of a trade deficit is looming. More must be exported, at any cost. Let the prices sink, to keep up with the competition from all the other countries that also have to pay their oil bills.

Export world vice-champion is Germany: the miserably wage development of the last 10 years and more than 2000 billion EUR state debt. Is this a success story or a drama? What will happen to Germany in the next oil crisis?

Renewable-energy reduces export stress

This export stress can be reduced only through the transition to renewable-energy from the sun and the wind. As things are we are in a deadly export race in the desperate effort to keep the balance of trade even after all those oil imports.

Easy-earned money, hard-earned money

Every bit more income is harder to earn. The achievement society principle destroys humans with its demand to earn ever more, ever harder-earned money.

Once upon a time there was a farmer who had a cow. The neighbor came along wanting milk. That was the most easily earned money, but it wasn't enough. The farmer expanded, until he had 9 cows and a wagon with which he drove to the market and sold the milk. Now his income was sufficient to lead a very modest life, but it was more difficult to earn than when the neighbor just came to the farm.

Then came a representative from a dairy in the next big city. He offered incredibly low prices but with 40 cows that would earn him enough money to pay back the credit for the cowshed and all the modern equipment.

The farmer didn't have enough pastures so first he bought animal feed in the nearest town, then in the neighboring country and then from a different continent. You have to keep up with the times and modernize. The buying agent of a large discount chain finally made him realize that in order to double his earnings he had to have 500 instead of 50 cows. Obviously, the more the better, even though the profit margin is somewhat narrower.

Letter from the animal feed importer

Due to the higher oil prices, which raise the costs of the whole product chain from the fertilizer and the tractor to transport, we unfortunately have no choice but to raise our prices by 6.4%.

The farmer read the letter with trembling hands. Everything had been so tightly calculated, that this price increase was a catastrophe and would take him into the red. After failing to pay several installments, the bank demanded repayment of the credit.

Today, the farmer is unemployed and has no property. He has enough time to make the most of cheap shopping opportunities. Today he rides 10km on his bike to buy milk directly from a farmer.

Review September 2011: a great relief

This chapter shows how a deadly philosophy destroys society. What sort of beasts can do this to his fellowman? What sort of immense sadism is necessary to cause all this destruction?

It's a big difference between killing somebody with intention or just in an accident. So it was a great relief, that all the disaster is not created with intention, that all the disaster is only a calculation error.

Ethics - the science of survival

Ethics in the public opinion

The development of the civilization on planet Earth is running terrible wrong. Since 2009, I write every year at the political part of my website "Another lost year, we are heading full speed against a wall".

I watch all the ongoing discussions. The opinion spread by the mass media is most times the opposite of my own opinion. They write about cheap fossil energy, I write about cheap renewable-energy. They write we have to wait for electric mobility, because there is a long time for development. I test electric scooters since 2006 and cannot imagine how to life without electric mobility. Photovoltaic is even in not so sunny Germany cheaper than gasoline without taxes, but they write the opposite. I could write now a very long list, where my opinion is the opposite, but most important fact:

In May 2011 I realize that even ethic in the mass media is the opposite of my own opinion. Is ethics really too good for this world? Is ethics really something like to shoot in the own knee? Is it really necessary to be unethically to survive better?

Ethics - the science of survival

No, no, no, there can be no bigger misunderstanding, than this! Ethics is the science of survival. Best possible survival is reached by applying the concepts of ethics as good as possible.

A decline happens caused by aberrance from ethics. This is true for the individual as for big groups like USA and EU. The negative effects on a very big group takes usual only much more time to be obvious.

Survival as the target

Survival as the target and ethics as the science of implementing this target. Of course, we must then define who, how and over what time period survival refers to in this context.

You as the last survivor? Living it up and never mind what happens afterwards? No, surviving all by yourself and even then only for a short period of time is much too little. So let's define some areas and time periods of survival.

	Short-term	Middle-term	Long-term
Self			
Family			
Group			
Mankind			
All living beings			

How to fill out the ethics diagram correctly

If I do this, it has the following consequences. Each field in the diagram can be filled out in green, gray green, gray, gray red or red, depending on whether it is very good or very bad for this area of survival over this time period.

Fill in the diagram for each possible course of action and its possible consequences and compare the results. You will immediately see what is ethical and what is unethical.

But very soon, you will find yourself wrapped up in questions like "what if...", or "if I knew more about this...". And looking back on decisions in the history of mankind: "If they had only known this, then".

Cosmic threat for mankind: meteorites

According to game theory, the task of intelligent life is to protect the home planet from catastrophes. Let's look at the ethics related to this.

Ethics as the science of survival: But to make the right decision here, we first have to find out what the threats to survival are.

One of the first threats was food scarcity. This led to the transition from hunting and gathering to agriculture. To be aware of the threat presented by meteorites from space, the science of astronomy first had to be developed, as did telescopes, and also geology in order to understand the significance of traces of previous catastrophes.

How should a simple hunter or gatherer have known that a piece of the sky could fall onto his head? His most immediate problem was not to starve. Only a great deal of progress in civilization made it possible to identify other potential dangers. This leads to the first central concept of ethics:

Central concept 1: Knowledge is a prerequisite for ethics

There are three levels of survival: instinct, moral and ethics. At animals which never see their parents and simply hatch out of the egg, every action can clearly only be attributed to instinct. Since hundreds of million years survive for example insects and fish on these levels, but this does not allow a further development.

In the next level moral: experiences are given from generation to generation. Morally means good to survive.

Only when these experiences and opinions are converted through systematic studies to knowledge, the third level of survival can be reached: Ethics as the science of survival, as knowing what is conducive to survival. Without knowledge there can be no ethics.

Civilization decision

Back to the simple life or on to a high-tech civilization? An ethics evaluation gives a clear answer to the course that should be taken.

Regardless of what is considered to be short-term and medium-term here, without technology it is impossible to avoid a catastrophe like the one 65 million years ago. So all long-term evaluations without technology are negative.

Simple life	Short-term	Middle-term	Long-term
Self			**Bad**
Family			**Bad**
Group			**Bad**
Mankind			**Bad**
All living beings			**Bad**

Only a high-tech civilization can prevent a catastrophe like the one 65 million years ago, so all long-term evaluations are positive.

More technic	Short-term	Middle-term	Long-term
Self			**Good**
Family			**Good**
Group			**Good**
Mankind			**Good**
All living beings			**Good**

Please note! Burning fossil fuel cannot be regarded as “high-tech”.

Knowledge brings change

Central concept 1: Knowledge is a prerequisite for ethics. Knowledge is thus able to change the bases of decisions laid by ethics.

Central concept 2: Knowledge changes what ethical decisions are.

To give a brutal example: Imagine a respected doctor of the past, who dissects corpses, delivers babies, etc. But then in 1848 a study by Dr. Ignaz Semmelweis is published. The accepted practice among doctors of not wasting precious time by washing their hands is suddenly regarded as deliberate homicide of patients.

After publication of Dr. Semmelweis's study, every doctor had to ask themselves:

Is the effort of washing my hands so big that I will accept the risk that Dr. Semmelweis is right, or is it really not such a big thing to wash my hands, and I'd rather be on the safe side?

How can Dr. Semmelweis's study be definitively proved or disproved? In the ethics diagram, a doctor would have had to fill in four variants:

* I wash my hands - Semmelweis is right
* I wash my hands - Semmelweis is wrong
* I don't wash my hands - Semmelweis is right
* I don't wash my hands - Semmelweis is wrong

If the corresponding probabilities are applied to these variants: a doctor with the training of the time would have given Semmelweis a maximum 10% probability that his study is correct. But even in the case of a 1% probability, in view of the seriousness of the consequences and the simple means to avoid them, ethics would have demanded that the doctor washes his hands.

This leads to the 3rd central concept of ethics:

Verifying knowledge

Central concept 2 - knowledge changes what ethical decisions are - necessarily leads to central concept 3: Ethics force us to verify knowledge.

Ethics force us to verify knowledge

A terrible ethical question for a doctor in 1848: Were the conclusions of Dr. Semmelweis's study right or wrong? Have I unknowingly killed or endangered patients with my previous behavior? This intolerable uncertainty should immediately have resulted in large-scale clinical studies. In short: ethics force us to verify knowledge.

Climate-change through CO2 has been known about since 1895. What Dr. Semmelweis was for doctors who didn't wash their hands, climate change through greenhouse-gas emissions is today for everyone who emits CO2 by burning fossil fuels. But in the first publication on the subject by Svante Arrhenius, a warmer climate was even regarded as a positive development.

A topic of such overwhelming importance should have been investigated immediately. How much climate-change is acceptable, what are the consequences? The issue should have been addressed all over the world. Presumably, we would have become aware of the dangers involved in climate-change at a much earlier stage. Already in 1914 or in 1939 at the latest, the first climate conferences on reducing CO2 emissions should have taken place.

Illustration in the ethics diagram. There are two variants to fill: They research it carefully or no research. What are the consequences of ignorance? Ignorance can have such serious consequences in this case that central concept 3 - "Ethics forces us to verify knowledge" becomes obligatory.

If everybody would do this

Consequences for the areas of survival family, group and mankind. An estimation of consequences always starts with the question “If everybody did this...”.

Legitimate special status

What if everyone flew 200,000 km by plane every year? Would everyone do this voluntarily anyway? Or should the question be restricted to “If every company boss with more than 5000 employees flew 200,000 km per year”? Here a legitimate special status is introduced into the question “If everybody did this”.

What if everyone had a slave? In the past, white owners of large estates thought they had a special status regarding slaveholding. How would the son of a large estate owner in the southern sates of the USA have answered this question in the 1820s? The American Civil War from 1861 to 1865 was a confrontation with this attitude.

It is impossible to do without the concept of a “legitimate special status”, a society in which everyone is equal cannot develop. So we have to accept the concept of “legitimate special status”. This represents a constant challenge for central concept 3 “Ethics forces us to verify knowledge”.

In the southern states of the USA in the first half of the 19th century it was “Does our society have special status regarding slaveholding?” In 1939 in Germany it was “Do Germans have a legitimate special status as the superior master race to lead a war of conquest?” Today it is the question “Is there a legitimate special status for leading mankind as a whole into a resource and climate crisis that threatens our very existence?”

Division of labor in society

Can each individual engage in ethics to such an extent that they can work out a complete answer to each basic situation in their life by themselves?

For example, if I think electric cars are a solution, then I have to rely on information that I cannot verify myself. According to the United States Geological Survey (USGS), in 2011 there are 33 million proven tonnes of lithium reserves. According to various sources, 86 g lithium are required for a 1 kWh battery. I haven't gone on a world trip to inspect all the lithium mines myself; I haven't been in a laboratory making a battery. I have to rely on the work of others to make the statement "The electric car is the solution for sustainable transportation". This statement require me to trust other people's statements.

But although I have to refer to a lot of previous work by other people, for after all, we live in a work-sharing society, it is still more than a fulltime job to be an ethics adviser for mankind.

What would happen if everyone would deal with it just like I? It wouldn't work, as then no one in society would produce anything anymore. A society of philosophers - but what would they live on? A legitimate special status is therefore required to spend so much time investigating these matters. Special statuses have to be verified. What would the world look like today if my advice had been followed since 1991? A whole lot better, so in my case it is a legitimate special status.

Trust is required: In order to live ethically, it is necessary to trust other people's statements because it is impossible to investigate everything oneself. In a society where the statements made by the media, the government, and leading figures in society are increasingly contradictory; an ever greater part of the population is forced to invest more and more time on the 3rd central concept of ethics: Ethics forces us to verify knowledge.

Organization of society

A society should be organized in such a way that the science of survival, called ethics, is in harmony with the generally accepted views of society.

Can everyone concern themselves with every aspect of every ethical question? No, it would take up far too much time; no time would be left for producing things. This was the subject of the section on “A society based on a division of labor”. Society has to delegate the task of thoroughly dealing with ethical issues to certain individuals.

These individuals, who organize society, then deliver ideas, ideals, concepts, guidelines, and laws. In the best case, this works smoothly. The broad mass of the population agrees with the recommendations of the elite. Elite here refers to everyone; whose output in culture, philosophy, religion, journalism and politics significantly shapes the world view of the population.

Double damage through unethicalness

If this elite acts unethically, then this does not just endanger optimal survival, or even the basic survival of a whole society, it also means that many more people have to preoccupy themselves with ethical questions. It is a violation of a work-sharing society. Since a part of society, an elite, whose task it is to organize society, fails, others have to try to deal with their tasks.

As the influence of an individual grows, the effort, he or she makes to respect the three central concepts of ethics must grow too, and they must investigate their influence on society by means of ethics diagrams.

Ethics for groups

The guidelines for a group should be configured in such a way that the decisions of individuals are influenced in a direction that is of benefit for the group.

When many individuals make a decision, this influences the fate of the entire group. The task of the group leaders is to channel these decisions, by suitable means, in a direction that is useful for the group.

In the case of a state, this group are the politicians; the pressure can range from social pressure, to the tax system, to prohibitions and criminal law.

Dr. Hubbert and Peak-Oil

In 1956 the US geologist Dr. Hubbert published his peak-oil theory. Even then it had to be assumed that on a finite planet, there is not an infinite supply of oil. In 1973, it had to be accepted that Dr. Hubbert's prediction for the USA was very accurate. Maximum oil production in the USA was in 1970.

This was exactly the point in time at which the US population should have been encouraged in the direction of an oil phase-out. Just 4 years after the first moon landing, all the technological potential of the USA should have been used to phase out oil, before global peak-oil hits.

Ethics is the science of survival, the situation in the USA in 2011 shows where the opposite, i.e. unethicalness and illogicality, leads.

Comprehensive forecasting system

What possible futures are attainable? What impact can every individual event have on the future of mankind? The ethics diagrams with all the options for decisions and their possible consequences are terribly difficult to fill in after all! Ethics is certainly not a simple science, but involves integrating all scientific insight to ensure the best possible survival.

As soon as the technical possibilities are available, one of the most urgent tasks for ethics is to develop a worldwide forecasting system,

in which the impact of every new technological option, and of every political decision can be simulated.

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I mentioned this necessity for the first time on February 21st 2010 in my German newsletter and my website. It was the result of a study for dynamic electric power prices. The value of electric power storage at only solar and wind electric power.

Even a simple example with a sea water desalination on a very sunny island turned out to be very complex. So this study ended with the recognition, there is a demand for an “Open-Source World Prognosis System”.

The birth of a new science

What is the name of the science that evaluates and integrates the knowledge of all other sciences for the best possible survival of humanity?

Can it really be that there is not such a science already established?

What would be the present imagination of society of the new science ethics? Religious men discussing abstract situations? Completely wrong idea! It will be a number crunching science. To understand all decisions from all the individuals and to create a computer model about these decisions.

Testing this model of the world with different policies and different scenarios. This can and will produce new questions about the future. Questions never asked before, because nobody thought about this. These new questions have to be included in further improved models of the world. This will demand and enable scientific work based on predicted scenarios.

This will be our navigation system to find and develop the best possible pathway to our future.

Unethicalness - confusion leading towards doom

Ethics as the science of survival, unethicalness as confusion, as illogical behavior that continually decreases the quality of survival and leads ever further towards doom.

Fundamentalism

Fundamentalism is the persistent refusal to apply the three central concepts of ethics. It is extreme fanaticism, which turns against ethics.

Central concept 1: Knowledge is a prerequisite for ethics.

Fundamentalism restricts itself to a single source of knowledge. Fundamentalism refuses to examine this single source of knowledge from the perspective of changed circumstances and new insights.

Central concept 2: Knowledge changes what ethical decisions are.

Fundamentalists are not open to changing their mind about ethical decisions. As only a single, static source of knowledge is recognized as the universal solution, as the universal salvation, all other knowledge is excluded.

Central concept 3: Ethics forces us to verify knowledge.

Fundamentalism refuses to verify knowledge. It is a refusal to think.

relegere vs. religare

These three central concepts of ethics precisely describe the original meaning of religion:

Latin relegere: “to consider carefully, to contemplate, to think about repeatedly, to be thoughtful in view of an important issue.”

Centuries later, the derivation of the word religion was held to be:

Latin religare: “to tie to something, to bind fast”, which tends in the direction of the definition of fundamentalism.

Fundamentalists

All fundamentalists are similar in that they reject the three central concepts of ethics, as the tragic events on July 22nd 2011, in Norway made plain once again.

A car-bombed street in Oslo. A government building is destroyed, as is the building housing a newspaper. It was immediately clear that fundamentalists were behind these deeds. The same kind of fundamentalists as those at work on September 11th 2001.

Our suspicions were proved right: a fundamentalist!

Of course, we were proved right: The perpetrator, a fundamentalist was soon arrested. Except that he wasn't an Islamic fundamentalist, as had been largely assumed, but a Christian fundamentalist. This clearly defined the front line: It was never about Christians against Muslims, but about reason against fundamentalism, regardless of the form that fundamentalism takes.

The danger occurs when someone who completely refuses to think fixates themselves on an 11th century view of the world and ultimately launches their own personal crusade on a holiday island.

Less obvious fundamentalists

Flying airplanes into skyscrapers, a massacre on a holiday island, that is immediately apparent fundamentalism. But there is also the kind of fundamentalism that is currently destroying the USA.

People who are not fixated on the age of the crusades, but on the age of cheap crude oil. Since 1990 alone, crude oil has become 7 times more expensive, while solar power has become 7 times cheaper.

Being a fundamentalist means denying all three central concepts of ethics, as one is firmly convinced that one has found the one and only doctrine of salvation.

To refuse to think ahead

Fundamentalists think, that somebody has found the solution for everything far in the past. No further thinking and no new evaluation of facts is necessary.

Simple minds insist in a small simple world with simple answers. For example: “Electric power from coal is cheapest; we should remain with it forever.” For the column “long-term” and the two rows “mankind” and “all living beings” in the ethics diagram is no place in this simple view of the world.

	Short-term	Middle-term	Long-term
Self			**Ignore**
Family			**Ignore**
Group			**Ignore**
Mankind	**Ignore**	**Ignore**	**Ignore**
All living beings	**Ignore**	**Ignore**	**Ignore**

Also high intelligent specialists can refuse to think ahead. I had long discussions with the chief of a project creating an 1.5 liter/100km car in 2006. I immediately thought, when batteries are now too expensive to change a 6 liter/100 km car to an electric car, only 1/4 of the batteries and 1/4 of the costs would be necessary for his project.

His opinion: “Electric cars should only be built when the whole electricity comes from renewable energy.”

Where is here the refusal to think ahead? Is it possible to have 100% renewable-energy without cheap and durable batteries? No! So let’s see some milestones for battery technology towards the target of 100% renewable-energy.

800 EUR per kWh and 5 years service life is great to start in the electric scooter market.

Imagine: 5 years, 40,000 km with a 2 kWh battery for 1,600 EUR. Here starts the competitiveness against gasoline scooters, but 5 years, 80,000 km with a 20 kWh battery for 16,000 EUR in an electric car is a joke. Competitiveness here starts with half the price and doubled service life.

Storing electric power from sun and wind for the day/night balancing again requires the double double. Again, half the price and doubled service life is required for competitiveness.

Competitiveness for	Price per kWh	Service life
Electric scooters	800 EUR	5 years
Electric cars	400 EUR	10 years
Large scale day/night balancing	200 EUR	20 years

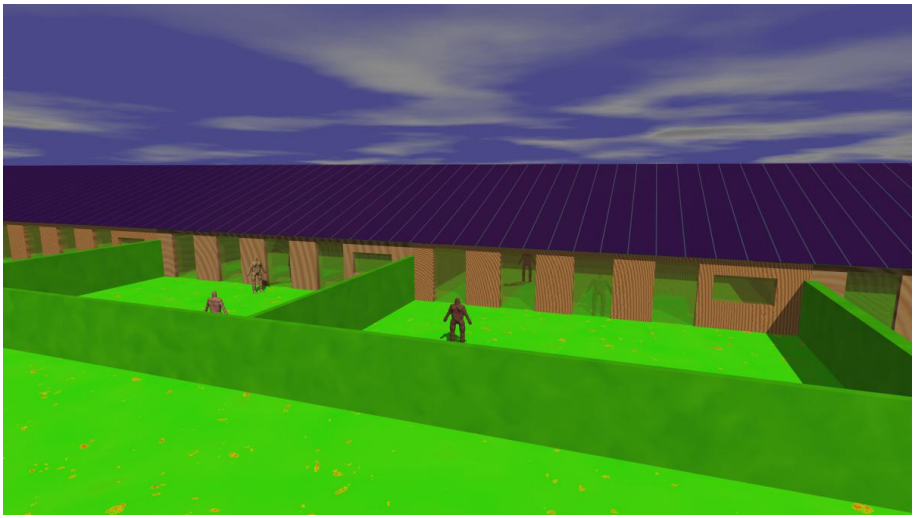
When all would have the opinion “Electric cars should only be built when the whole electricity comes from renewable energy.”, the development of batteries necessary for 100% renewable-energy would not happen.

By the way: Some years later, the only drivable prototype of this project was an electric car.

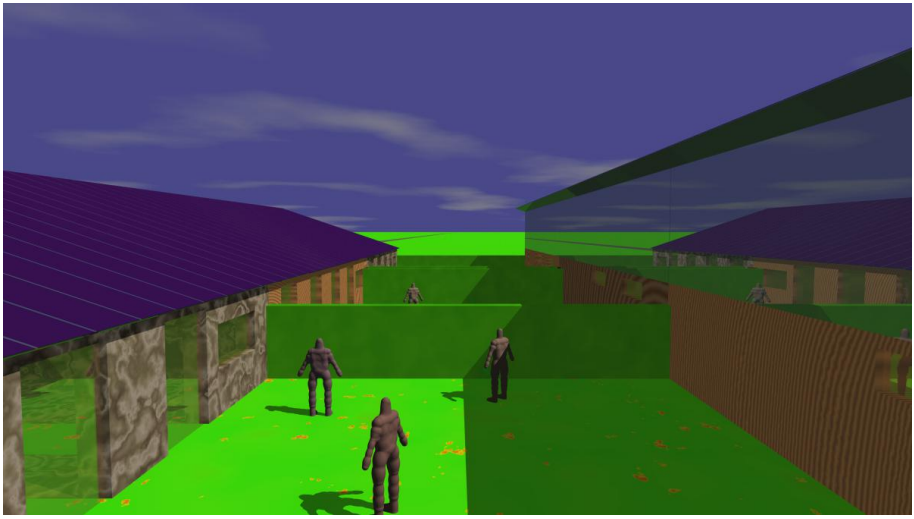
Even the whole elite of a society can refuse to think ahead: “We make a tax system based on wins and business expenses. We take from the rich more percent of their wins than from the poor.” Sounds great and fair for all refusing to think ahead. Best paid tax consultants are wining this battle what is business expenses and private expenses. The rich pays a far less percentage taxes from his real income than the poor.

The three questions from the foreword. Why are they not solved? Why is there no big discussion and research to solve them? It’s a refusal to think ahead. Ethics is the science of survival. It’s to use all the knowledge to determine the way to the best possible survival.

The current situation of USA+EU is a result from unethicalness.



Land for Energy



The village structure "Land for Energy" is a replacement of the GEMINI structure village from 1992 shown on page 76.

The expenses for dwelling are increasing faster than the inflation rate in Austria since decades. Most people have to spend more and more percentage from their income for dwelling.

More and more people are banished out of their homeland, because they can't effort the high prices for a ground to have their own house. They move away to regions with affordable ground prices. The price for an affordable ground is long distance commuting.

Unable to pay the fast increasing gasoline price and the mortgage, these commuters caused 2008 the fall of Fannie Mae and Freddie Mac in the US, the start of the world economic crisis.

The philosophy of the achievement society regarding ground

High ground prices are a sign of good economic development. No poor people allowed, because they can't pay their mortgage for a house or rent for an apartment. Living in such a high-value ground area is only possible with high wages and high dues for social security to be able to pay for the dwelling also after retirement.

High ground prices increase the GNP and are a great tool to make low value activities impossible in such areas. People will be forced to throw away appliances and buy new appliances because most repairs will be low value business wiped off in high ground price areas. This throw away and buy new instead of repair is again a boost for the GNP.

Imagine a defect dishwasher. In a poor country a service comes, finds a small defect, takes 20 EUR for the work and 10 EUR for the spare part. This in only 30 EUR for the GNP. This is unworthy low value business, which has to be eradicated.

In a high-price ground area, the service would be not 30 EUR, it would be 200 EUR. Nobody knows in advance if it is only a small repair or not. So nobody will risk calling for minimum 200 EUR a service when a new dishwasher is available for 300 EUR.

So the defect of this dishwasher in a high-price ground area creates 10 times more GNP.

Maybe the salesman can persuade the family with the defect dishwasher to purchase a high end dishwasher for more than 1000 EUR. Imagine the 300 EUR dishwasher has the first repair after 3 years. You know how expensive repairs are? This highest quality dishwasher is an investment for the next 10 years.

You would not buy such an expensive dishwasher, when the service is available just for 30 EUR to repair the cheap one.

You have really to understand this example in all its consequences to realize the importance of high ground prices for the growth of the GNP. It's the best guarantee that everything becomes more expensive. One of the most important factors for economic growth.

Offer and demand determine the price. So a good politician will be very restrictive with the dedication of ground for buildings. Artificial scarceness causes a high price.

The philosophy of the stable society regarding ground

What is a better expression for stability than the own house producing the own energy for the own living? It's impossible to spend money twice. So all the money spent for the ground is lost to improve the house for less energy usage and more own energy production.

In a system with low ground prices and high requirements for low energy usage and high energy production at buildings, the wealth is good distributed to the whole population.

In a system with high ground prices, the rich will become richer; the poor will become poorer. No poor people are necessary for ground speculation. The poor people earn no money from ground speculation; they pay only for it.

Around high-priced towns, only very rich people can afford to build an own house. People with good income become long range commuters with a house in a cheaper region. Poor people can't escape to pay way to much rent for apartments with high energy expenses because of low construction standards.

The crazy agrofuel hype and the commuter

Every day in the morning on the way to the work. A big traffic jam of long range commuters along fields with maize. Why do they not have a dwelling closer to the town?

There are only extreme expensive grounds around the town, 300 EUR per m² and more. And how is it possible to grow there maize? This is ground allowed only for agriculture. The maize is used to make biogas for electric power and for very few cars.

Ground for construction in high-price areas near an important town like Salzburg is about 500 times more expensive than ground for agriculture. Farmers do not need to win in lottery. They need only some politicians to change the dedication of their fields from agriculture to construction. Some millions tax-free money for only one hectare of ground will be paid.

The yearly yield of maize is about 2 kWh electric power or 0.4 liter fuel per m². They really call this ridiculous low yield farming. 70 kWh per m², 35 times more would be possible using photovoltaic instead of maize.

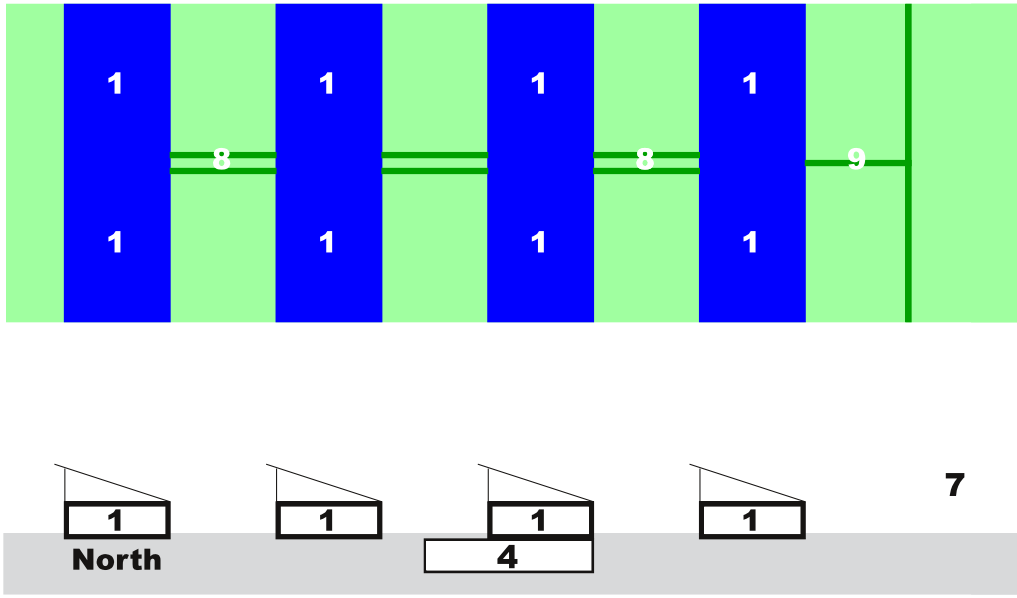
Photovoltaic has 35-time more electric power yield than maize, and became 2012 even less expensive than maize. How to motivate somebody to use this expensive high-yield plant?

The new deal: “Land for Energy”

Simple allow him to live below the photovoltaic. That’s the new deal: “Land for Energy”. A new special type of ground dedication between ground for agriculture and ground for construction.

Prerequisite for “Land for Energy” is the same yield as a greenfield PV-plant. The houses below the photovoltaic are not allowed to reduce the yield.

The lease for the land is a large part of the yield sold for a low price. What this exactly means will be different from region to region, from year to year.



1.) Houses with 110 m² living space and 160 m² photovoltaic. Each house requires 300 m² ground and has 160 m² garden. The ground is 15 m from west to east and 20 m from south to north.

2.) Shops or offices or apartments.

3.) Offices or apartments.

4.) Garage only for electric cars, basement and playground. Dome lights in the garden give natural light in the garage. The garage has 16 m width from south to north.

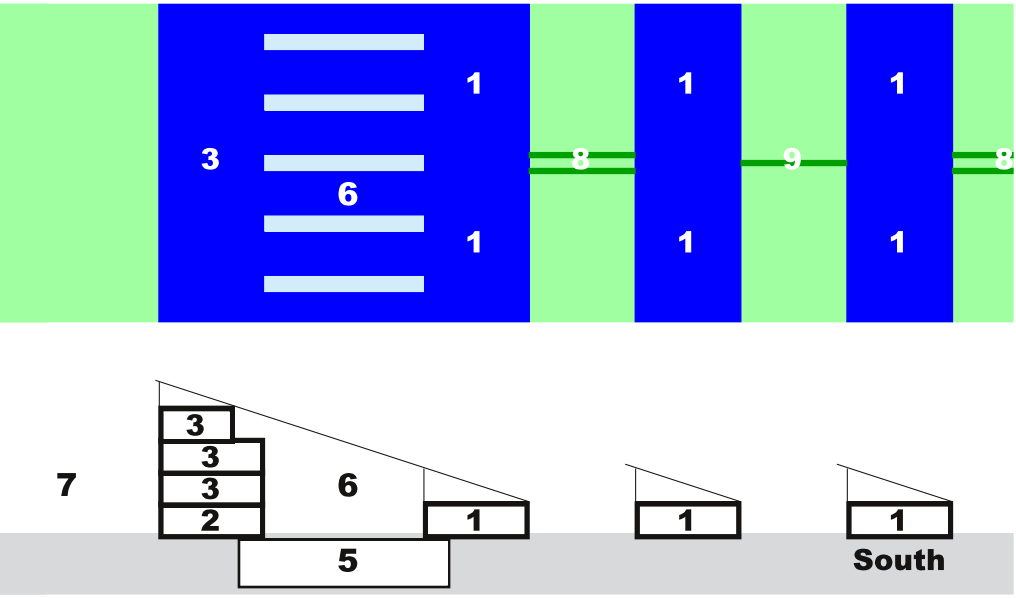
5.) Underground street only for electric cars. Dome lights on the surface to bring natural light in the underground street.

6.) Covered public area. The roof above is mixed 75% photovoltaic and 25% glass.

7.) Open public area.

8.) Two hedges to separate gardens and access way.

9.) Hedge to separate the gardens of two houses.

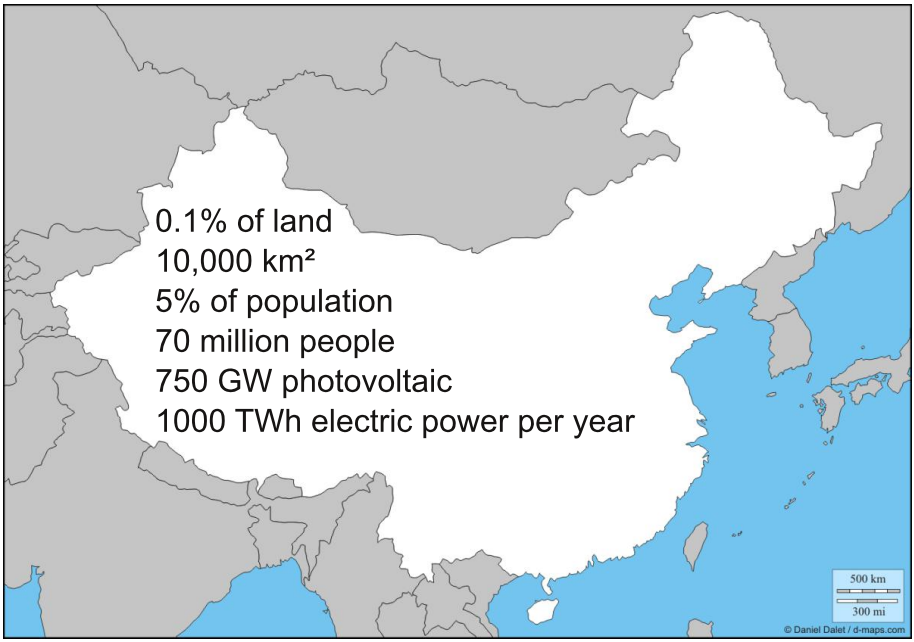


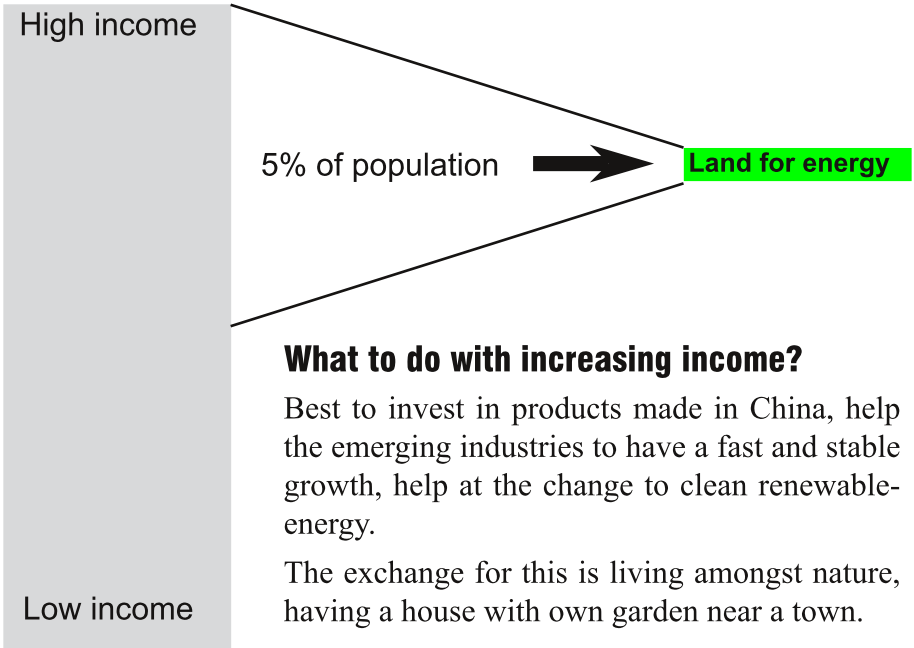
The deal has 2 targets: Low priced comfortable houses for the people and cheap electric power produced in the own country. For example, near Salzburg 30,000 EUR for the ground of a house with 110 m² living space are a very good offer.

So the lease condition can be designed in a way that the required equipment, the advantage to use the self produced electric power, the conditions to deliver electric power, equal the costs of a 30,000 EUR ground. A basic idea about the lease price: The yield is 35 times higher than with maize, so the lease price to be paid by electric power can be also 35 times higher than usual for agriculture land.

Land owner and commune should share the lease, so both have a big advantage from the new ground dedication “Land for Energy”.

A change of dedication from agriculture ground to construction ground would bring near a high-priced city like Salzburg 15 times more, but this is for the society as destructive as a freebooter contract.





What to do with increasing income?

Best to invest in products made in China, help the emerging industries to have a fast and stable growth, help at the change to clean renewable-energy.

The exchange for this is living amongst nature, having a house with own garden near a town.

International examples

The first "Land for Energy" villages should be examples for energy production, energy storage, smart grid, energy-efficiency in heating, cooling, lightning and electric mobility because only electric vehicles and plug-in hybrid vehicles are allowed in the village.

So the air in the underground parking area is so clean, that it can be used as a playground for children at bad weather conditions outside.

No combustion allowed

This "no combustion allowed" symbol was first-time published 1993 in my book "Advance to solar age". It stands for all domestic heat by heat pump, electric mobility and all this nasty loud small internal-combustion engines for lawn reapers, hedge shears, leaf blowers, snow plows are as well forbidden.

Photovoltaic to living space ratio

The introduced village has a photovoltaic to living space ratio of 1.5:1 and matches a greenfield PV-plant in yield 100%. This ratio can also be set higher when population density does not matter. A 3:1 ratio increases distance to neighbors and yield per inhabitant.

So could be 1.5:1 photovoltaic to living space ratio and 100% yield like a greenfield PV-plant the subsidized housing in the future, while 3:1 ratio and minimum 60% yield like a greenfield PV-plant is a high-class area with big gardens. This because 200 m² living space requires 600 m² photovoltaic and can have up to 2000 m² garden.

Dr. Heiner Flassbeck

June1st 2011, an invitation of the Green party Salzburg reaches me:

"Is there still hope for this economy?"
A radical change of the system is appropriate -
just for what system?

Dr. Heiner Flassbeck, Geneva (economist and author)

FR, June 17th 2011, 19.00 pm
library auditorium of the University of Salzburg.

Whether it's financial crisis, climate crisis or debt crisis, Heiner Flassbeck thinks politics and economics is hopeless overstrained both in analysis as well as in therapy to cope with the current crises. Blame it on all the academic economists: They created a model world that has nothing to do with reality. They assumed often the opposite of what is obvious.

Flassbeck said, "We need a complete detachment from the model of the economy; we have been indoctrinated in the past 30 years," and pleads for a radical change of the system: The finance, trade, social and environmental protection would finally "be correctly linked to each other."

Free admission.

Since 2003 Flassbeck is chief economist at UNCTAD (United Nations Conference on Trade and Development) in Geneva.

Great! This sounds like me since 2004! I am not alone with my concerns about the economic situation. So it's my duty to visit his lecture.

June 17th, Heiner Flassbeck presents his Greece theory: "A monetary union is also an inflation union, but there are different rates of inflation."

He tells us: "All the problems are caused, because German has less inflation than Greece."

He presents us his solution: “In the next 20 years, wages in Germany should be increased 4.5% per year”.

I cannot find any logic in his lecture. Should the increase of German wages make Greek car producers more competitive against German car producers? Or is it the competition between vacation resorts at the North sea and the Greek beaches?

After the lecture, I ask him about the 2 trillion German debt. He explains me, that these government debts are no problems, because the debts are used to create values greater than the debt.

I am shocked. Dr. Heiner Flassbeck was announced as one of the most pugnace economists in Germany. I expected a critic of economics, not an ardent supporter.

Heiner Flassbeck at his lecture in Salzburg June 17th 2011

Organization for the oil exit

On June 24th 2011, I receive a government invitation from China to the GELS - Global Economic Leaders Summit September 2011 in Changchun. Just after the PEGE Tax Transition Concept, my second most important theme is the oil exit.

So I start to compile a keynote for the GELS from all my material for the oil exit.

On February 21st 2008, I for the first-time published a rentability calculation based on a to be avoided oil price explosion. This was two days after for the first-time in history, the oil price went beyond US$ 100 a barrel.

On June 4th 2008, I called for an economic effort to build up the oil replacing industry like the USA invested 1941 after the surprise attack on Pearl Harbor up to 38% GNP to solve the two problems: Japan and NS-Germany. Now are also two problems to solve: peak-oil and climate-change.

On June 21st 2008, I first-time published the oil exit based on US$ 20 reduced oil price per 1 million barrels reduced demand. On June 27th 2008, I published the first outline for the “Organization for the oil exit”.

The oil exit was also a main theme for my 10 points program for the German parliament election 2009. But there was this wall of silence. Impossible to bring this theme into the political discussion and the mass media.

But now I have this invitation to bring it to an important economic summit in China.

I lost a friend

August 1987; I visited a show in Hotel Marriott Vienna; I was a fan of available light photography and spontaneous made some photos from the show. These photos have been used for the cover of an artist magazine and a music cassette later on.

I made photos from this artist for some years at different artistic performances for free. I photographed even his marriage, which he built into his show. Photographing was my hobby and I thought him

being a friend. Later, he founded a public relations agency and specialized in bringing press releases into the mass media.

August 24th 2011, I phone him to bring my keynote in Changchun at the summit best possible to the mass media. I explain him how important this is for the future of humanity, to bring this message through the wall of silence.

"No" was his answer. I ask him what I could do to convince him. He answered "5,000 EUR".

Is this a normal reaction from the chief of a successful 25 employees company?

Professor Joseph Stiglitz

26th August 2011, I am just preparing my keynote for Changchun. As I check the news, I find an interview with Professor Joseph Stiglitz: "The US needs 3 to 4% economic growth."

He is a recipient of the Nobel Memorial Prize in Economic Sciences 2001. So he can be seen as a top economist. The USA has a very oil dependent economy. The consumption per inhabitant is two times the per inhabitant consumption of the EU. So why does he not tell us, how to avoid at such an economic boom, that an oil price explosion chokes the boom. Every journalist writing about economic themes knows since years: A very small good news about the economic development and the oil price goes up. A very small bad news about the economic development and the oil price goes down.

Why does the journalist not ask: "Professor Stiglitz, what oil price do you expect at 4% economic growth in the US?" and "Is 4% economic growth possible at that oil price?"

It is really possible, that a top economist like Professor Stiglitz is blind at this problem? No reactions on his interview. Are all blind for this problem? Economists blinded themselves with the dogma "The perfect market solves all problems". Can it be that our society is guided by blind men to the abyss?

Who are the spiritual leaders of the western society? What is the faith of all the politicians in the western society? Economists preaching: "We need 2% GNP growth forever."

How would you call a faith so far away from reality, that it's destructive for society? A faith leading to the abyss? "Destructive cult!" I decide, that just after holding my keynote at the Global Economic Leaders Summit I will research this theme.

Professor Joseph Stiglitz shouts to the dog: "Run, run, run as fast as you can!" The dog starts to run, but seconds later; the chain (oil price) stops the dog and chokes him.

As long as the chain (oil dependence) exists, the dog has no chance to be free and independent.

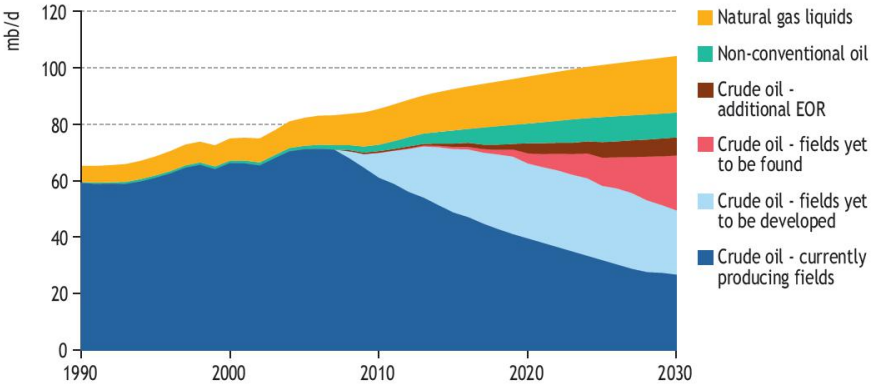
PLANETARY ENGINEERING GROUP PEGE.org

Planetary Engineering Group Earth

Independent think - tank established by me - Roland Mösl 1991 in Europe, Austria, Salzburg

We need an international organization for the oil exit

Figure 11.1 • World oil production by source in the Reference Scenario



Yet to be developed – yet to be found

The WEO – World Energy Outlook - 2008 figure predicts that there is a need to find and develop oil fields that produce at last 5 times of what Saudi Arabia produces now until 2030.

But, as things stand now, it seems it will be very hard to comply with this demand because we will not find oil fields able to produce 5 times Saudi Arabia. There is only the chance to exploit the most difficult, most dangerously, most expensively accessible oil fields ever.

Failure to exploit additional oil resources equaling 5 times the Saudi Arabian oil production by 2030 will bring about instability to the world's economy resulting from extremely high oil prices and delivery shortages.

The time where economy could be based on cheap oil consumption has ended 2008.

Where would the oil price be today with the same economic growth like in spring 2008?

We find there is a US$ 20 price elasticity per million barrels a day. This means:

1 million more demand than supply; the price rises by US$ 20.

1 million more supply than demand; the price falls by US$ 20.

If the economic growth in the western world would have continued at the same rate as it was in spring 2008, We would face now 3 million barrels more demand and today's oil price would be way above US$ 147.27.

International organization for the oil exit

The target:

Extinguish an oil demand of 5 times the Saudi Arabian oil production until 2030.

The method:

Replace the demand for oil by using electric power, mainly from sun and wind.

The basic calculation:

The daily demand for oil is today approx. 90 million barrels.

1 million barrels less demand means US$ 20 lower price.

This saves worldwide:

US$	**1.8**	billion a day
US$	**657**	billion a year
US$	**6,570**	billion over 10 years

To reduce an oil demand of
1 million barrels a day requires
40 million electric cars =
1200 GWh lithium batteries =
100 TWh electric power per year

1 million barrels less oil demand
can be generated by
1 liter fuel oil, replaced by 1 kWh
electric power, required for a heat pump,
combined with better insulation and
air exchange with heat recovery
25 million apartments or small houses =
50 TWh electric power per year

Proposed basic capital demand for an international oil exit organization:

2% of the annual worldwide oil cost as budget.

Thus, based on the current oil consumption and price, this is calculated as:

90 million barrels a day *
US$ 95 (oil price per barrel)*
365 day *
2% =
_____
US$ 62 billion a year

The cheapest method: Policy Change

The cheapest available method for the oil exit is to promote policy changes in all member countries,
funding the organization.

But this method faces 2 limitations:

1.) The production capacity of the industry producing photovoltaic, buffer batteries, electric vehicles – everything required for the oil exit

2.) People have to be empowered to follow new policies. This especially applies to consumer financing tools in support of the new technologies.

Main task credits and investment

1.) Investment in research & development
2.) Investment in building up the necessary production capacity of the oil replacing industry.
3.) Investment in building up the necessary mining capacity for all the necessary raw materials.
4.) Credits for consumers for replacing oil consumption by purchasing products of the oil replacing industry.

An International Oil Exit Organization stabilizes World Economy

It's not only about supporting measures to stabilize the oil price.

It's also an investment in all industries facing the energy challenges of the 21st century.

The minimum investment here is 2% of the oil cost, the return is having a share in the oil replacing industry.

Policy: Back Stop

In 2008, the oil price decreased from US$ 147.27 by US$ 114.87 to US$ 32.40 caused by an economic crisis.

But cheap oil in an economic crisis stops only the necessary oil exit and creates the illusion, that it's not necessary to escape oil dependence.

Back Stop by increasing taxes on oil

Reduce budget deficit

Subsidies for oil exit technology

Reduction of dues based on human work

As soon as the oil demand reduces because of being replaced by electric power from sun and wind, humanity will realize, it is still possible to solve the whole CO2 problem and the climate-change.

The oil exit is the first big step towards a stable durable harmonic world civilization.

Indictment against the economics

Indictment against the economics

September 5th 2011 in the late evening in Changchun China. After I held my keynote and talked some hours with other participants of the conference, I return to my hotel room. I check news on Spiegel.de. I read the headline: “40% of the Europeans have mental problems”. It outlines my own impressions about a total stress society. Those are the consequences of living under a system what I described in the chapter “Achievement society”. I start writing about the wrongness of economics.

The hunt for the culprit has ended

Since 1991, PEGE has been trying to lead humanity into the solar age, but has met with hard and completely irrational resistance. Who could be mad enough to be against paradise?

1992 in my first book “Aufstieg zum Solarzeitalter” (Advance to the Solar Age). The very first statement on this was provided in the chapter “Founding PEGE”:

It doesn‘t make sense to change a successful system. There are just a few price tags missing for the cost to nature and for dealing with environmental damage.

But who refused to change the price tags? Even back then, this meant making changes to the tax system.

In 2004 Appraisal of contemporary politics. But who creates such a destructive taxation system and why?

In 2009 foggy concept of the enemy “hopelessly outdated fossils”. The mortal enemies of mankind: hopelessly outdated fossils. But why are they so mad?

In 2011 I am close to the goal with the “achievement society”. The “achievement society” can explain many phenomena with which our society is being led in the wrong direction. But how can a destructive philosophy create such intensive damage?

The hunt for the culprit is over. Only one thing is influential enough to plunge the entire western world into the chaos of debt, create a lost generation, and undermine trust in politics: economics.

What is science? The example of astronomy

To understand the meaning of unscientific, we need to look at how a serious science is conducted: it is always developing better methods to measure theory against reality.

In 1509, Copernicus developed the theory that the sun and not the Earth was the center of the universe and that all the planets revolve around the sun in circles. Kepler improved on the theory, stating that circular orbits were special cases, and that most orbits were elliptical, and he also discovered the laws governing the motion of the planets.

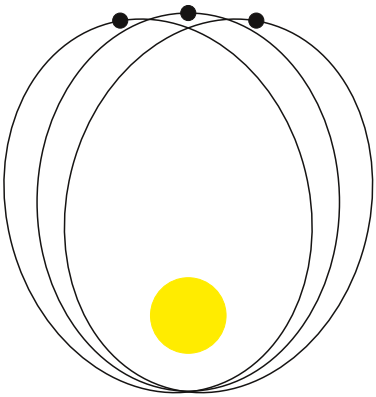
On the basis of Kepler's work, Newton developed the theory of gravity. The methods of calculation and observation were continuously improved to check the congruence of theory and reality.

Apsidal precession Mercury

The elliptical orbits rotate, and Newton's equations made it possible to calculate these rotations. But in the middle of the 19th century, Urbain Le Verrier discovered that the perihelion precession of Mercury was not 530 arcseconds per century, as calculated by Newton, but 43 arcseconds more.

It was imperative to find an explanation for this: as for a precise science like astronomy; a deviation of 43 arcseconds per century was an unacceptable discrepancy between theory and reality. An explanation was sought; it was conjectured that another planet might lie in Mercury's orbit. Astronomers tried to find it during each solar eclipse.

It was Einstein who ultimately found the explanation with his general theory of relativity. Newton's equations of motion were a borderline case of general relativity theory, applicable for small masses and velocities. But with increasing mass and velocity, there are ever greater deviations between Newton's and Einstein's calculations.



In the case of the double pulsars PSR J0737-3039 the difference between Newton's and Einstein's equations is as much as 16.9 degrees per year.

43 arcseconds deviation and an explanation is determinedly sought. That is science. Meanwhile, the discrepancy between the claims of economic scientists and reality is already 180 degrees.

Cloud Cuckoo Land

An ideal world where there is a precise correspondence between theory and reality. The world in which economic science functions perfectly.

What would this have looked like for Copernicus?

Somewhere in space, far away from all disturbances, let us imagine a tiny red dwarf, precisely spherical in shape. An exactly spherical planet revolves around the red dwarf in an exactly circular orbit. A small mass, a low rotational speed: even after 10 billion years of observation with the best measuring instruments one wouldn't be able to find a difference between Copernicus, the equations of Newton and Einstein's general relativity equations.

But astronomy didn't need this. Astronomy always took up the challenges set by the new measurements and continually came up with new answers. Even if the deviation between theory and observed reality was only 43 arcseconds, persistent efforts were made over decades to explain this comprehensively, until general relativity theory finally provided the solution.

Economics

Once upon a time there were similarities between the economic system in Cloud Cuckoo Land and planet Earth. But this was still a very small economy. The more it grew, the greater the differences became. Meanwhile, the differences have become exceedingly large, and have plunged the USA and the EU into a debt crisis.

Sinking standards of living despite more than 100 years of technical progress and greatly increased productivity. Why?

In astronomy, there are examples where in solar systems with ever greater mass and orbits with greater velocity, the discrepancies in the calculations according to Newton and Einstein became ever greater. Just as the most highly-developed national economies of the USA and the EU are most strongly affected by the false calculations of the economic scientists.

Club of Rome - “The Limits to Growth” 1972

The Dr. Hubbert peak-oil theory of 1956 was shown to hold true for the USA in 1970. Club of Rome 1972, how was this incorporated in the economic sciences?

The core message of both: a scarcity of raw materials is possible and will occur. The first issue concerning scarcity: not all raw materials will become scarce at the same rate, so are there alternative options? What else could cars drive with? With coal, crude oil, natural gas, biomass or electricity. How can a building be heated? With coal, crude oil, natural gas, biomass, solar energy or electricity. Electricity can be used directly or be used for a heat pump that draws heat from various sources to heat the building. Electricity can be produced from coal, crude oil, natural gas, uranium, biomass, wind power, hydropower and solar energy.

Very wide scientific research area

Today we know that in the transport sector oil will be replaced with electricity from renewable-energy stored in lithium batteries. But why was there so little interdisciplinary collaboration after 1973 to assess

the various scenarios? The electric car to steam car, both there was in 1900.

How is the price influenced by demand?

The price is determined by supply and demand. But there are very different markets. There are markets where increased demand leads to lower prices and others where more demand pushes prices up.

Since the Club of Rome´s report "The Limits to Growth" and peak-oil in the USA it was clear that an increasingly scarce source of energy can quickly become expensive and must be replaced by a different energy source, which is still relatively unexplored, where scarcity is not a problem and which will become cheaper through the transition to mass production.

Where have such scenarios been included into the calculations of economic science?

The oil crisis and the economic crisis of 2008

The crisis occurred 35 years after economic scientists failed to include the increasing scarcity of raw materials and alternative strategies in their calculations.

The first fossil-fuel recession

Peak - the high price of oil bursted many latent economic bubbles. For the first-time, a connection between the demand, supply of oil and prices was made: A US$ 20 higher price is equivalent to 1 million barrels shortfall on the market.

The chance was missed in 1973, but now 35 years later was a good opportunity to start with the marginal analysis. PEGE did this on 20 June 2008 and on 27 June 2008, the first series of articles on an oil phaseout based on marginal analysis was published.

In business management, "marginal analysis" is an altogether common concept but economic scientists persistently refuse to apply it to various supply chains for transportation and home heat.

The best proof of this is Nobel Memorial Prize in Economics laureate Joseph Stiglitz, who was still demanding 3 to 4% economic growth for the USA in August 2011. But what would happen to the oil price then? By how much would the US trade deficit rise, because although more is exported the costs of oil imports would rise much faster?

Follow-up environmental costs

The way economic scientists deal with follow-up costs for the environment: Trusting in a "science" that ignores the requirement of survival?

Selling poison and selling remedies. In economic science, there is no good and bad, only money and growth. This makes it rather like someone who first sells poison and then sells the antidote to the seriously ill victim.

Maximum credible follow-up costs

In June 2010, PEGE coined the term MCF for the Maximum Credible Follow-up costs. Melting permafrost emitting billions of tons GHG. This can force mankind into a very expensive planet renovation.

Easy-earned money - hard-earned money

Most of the costs for transportation and home heat have to be paid with the hardest-earned money: imports can only be paid through foreign exchange assets from exports.

We must increase our exports! This is the battle cry of the economic policy-makers. Why? Increasingly expensive energy imports have to be paid for by more export revenues. Economics omitted from developing a scale rating about the difficulty with which money was earned. This omission means that in many fields, especially transportation and home heat, we are dependent on imported energy because people were persuaded that this was the cheapest option. Wrong profitability calculations leading to the debt crisis and to economic breakdown.

When the oil price rose from US$ 30 to US$ 100, every single US citizen had to export US$ 1120 more per year to keep the trade

balance stable, as every US citizen imports an average of 7 liters of crude oil per day. But of course, many exports consist of imported pre-products. A product is exported for around US$ 1000, but it includes imported components worth US$ 500.

Who is the better consumer?

They both live 50 km (31 miles) distant from their workplace. They both live in old houses using 5000 liter heating oil per year. Both invest US$ 100,000.

A purchases a 500 PS super SUV. B invests in a thermal renovation of his house, changes the heating system to a heat pump, mounts 10 kW photovoltaic on the roof and puts 30 kWh buffer battery in the cellar. For his daily way to his workplace, B purchases a Renault Twizy, a very small electric car for only US$ 10,000. All together with some own work invested in the thermal renovation and mounting the PV on the roof, also US$ 100,000.

The economist says A is the better consumer. A will purchase in the next 10 years gasoline and heating oil for another US$ 100,000. So he consumes for house and car twice the amount of B.

B stops purchasing oil products and purchases less electric power than he sells. So B is a bad consumer not contributing to a GNP growth.

I say A creates 1/4 barrel a day demand pressure on the oil market. This demand pressure causes a higher oil price. All oil consumers worldwide will have to pay US$ 1,500,000 more for oil over the next 10 years because of this demand pressure.

B creates a demand pressure towards products where the price will shrink caused by mass production. So years later other consumers will have to pay less for these products.

At Mercury was a 43 arcseconds problem between Newton's calculation and reality. Here we have a 648,000 arcseconds, a full 180 degree difference between economics and me.

Gusi Peace Prize

Gusi Peace Prize

Just after I gave my keynote "We need an international organization for the oil-exit", in Changchun, Prof. Emil-Silviu Ciobota, 1st Vice President of the Gusi Peace Prize Foundation contacted me and made a several hour interview about my work.

I made a long email about all the details of my work. September 21st, I switched my cell phone silent during a discussion and discovered a missed call from a +63 number. This is the international area code of the Philippines.

September 23rd, I had my first talk by Skype out with ambassador Gusi. He requested an email where I should describe from what scientific direction I am. What is my profession? That's always the most difficult question to answer, so I tried my best writing this email:

My data

Hallo!

What scientific direction am I?

I worked in the field of architecture.....
1992 GEMINI inhabited solar power plant
2001 GEMINI house at the Styria country exhibition for energy
2008 building standard 2020
2011 "Land for Energy" (first English translation special for China)
.....but I am not an architect

I published in the field of politics.....
2010 PEGE Tax Transition Concept
as a keynote at the World Emerging Industries Summit in Changchun
2010 PEGE Manifesto
Outline of the necessary political change in this century.
.....but I am not an politician

I published about our future energy supply....
1993 in my book “Advance to solar age”
2008 Storage necessary for renewable-energy
.....but I am not an engineer

I published in the field of economy.....
2011 “We need an international organization for the oil exit” as a keynote at the Global Economic Leaders Summit in Changchun
.....but I am not an economist

Who evaluates the knowledge of all the different sciences for the best possible survival of mankind?

Who demands necessary changes beyond the scope of his own science?

The definition of my work since I founded PEGE 1991

Collect and evaluate data to improve conditions

I just started in July with a series about ethics, sorry, just right now only in German.

But here the key paragraph:

What future worlds are reachable? What consequences can each event have for the future of mankind? The ethics-diagrams with all the possible decisions and the possible consequences are really hard to fill.

Ethics is certainly not an easy science.

Ethics is the integration of all scientific knowledge for the best possible survival.

As soon as the technical possibilities are available, it will be the most important task of ethics to build-up a worldwide prognosis system, where it’s possible to simulate the outcome of each new technical possibility and of each political decision.

When a captain moves a big ship fast through a dangerous sea, he needs a good navigator to come safe through all the hazards.

Mankind is 7 billion members big and is just right now moving very fast in a very dangerous time.

Just right now, politicians are being at a loss, and economic science is misguiding straight to a reef.

The navigator to bring mankind through all this hazards is the new science of ethics.

1991, I founded PEGE Planetary Engineering Group Earth.
2011, I try to establish ethics as a new science to integrate the knowledge of all sciences for the best possible survival.

The chance to break the wall of silence

Two times invited to economic conferences in China as a keynote speaker, but nothing about this in the mass media in Europa. But now the Gusi peace prize, called the “Nobel prize of Asia”. The chance to break through the wall of silence.

The start of my 2 month preparation work, the start to write this book.

My page for the laureates´ yearbook

I was born on July 9th 1958 in Innsbruck, Austria in the center of Europe, but what makes the difference to be now here? I think it’s best expressed with the Latin word “relegere”, to think again and again about an important theme. It’s so easy to draw simple friend-enemy pictures; it’s so demanding to analyze until there is a real understanding and a real solution.

In 1991, I wanted to change from a small apartment to my own house. This private project quickly turned into a study of solar energy and construction. The targets to solve became more and more demanding. What will be the demands for a house in 100 years? To produce all the energy for usage inside the house, mobility by electric cars, an

adequate contribution to the total energy consumption of an industrial country with high energy demand like Germany, more than 48 degree north and with high population density.

I named the solution “GEMINI inhabited solar power plant”, dual use on the ground for a house and a solar power plant. When I realized that this is far more than only extreme solar architecture, it was the beginning of PEGE – Planetary Engineering Group Earth, and I started to write my first book “Advance to solar age”, published 1993.

I was honored 1993 by the EUREKA world innovation fair in Brussels with the “Merite de l’Invention” and 1994 in Brussels with the “European order of merit”.

2001 was the Styria (part of Austria) country exhibition about energy. The first GEMINI inhabited solar power plant was the main attraction there.

In 1991, I envisaged millions of houses producing more electric power than their own consumption by 2001, but there were only very few. Why was the progress so slow?

In 2004, the political part of PEGE.org started. The western political and economic system is only for some decades more stable than the Eastern Bloc which crushed in 1989. Both systems had very low taxes on resources and high taxes and dues on human work. All problems, social problems, unemployment problems, environment problems up to the climate-change can be solved by changing the tax system towards taxes only on resources, human work should be free of taxes and dues.

The task of PEGE then was to prove all the technical possibilities for the change towards renewable-energy and electric mobility and demand a fast political change. I visited many fairs and projects. I wrote a lot. In 2008, I wrote, “The storage demand of renewable-energy” as the big overview, and I initiated a house project “Building standards 2020” as a concrete example. Most difficult is to make something more simple. The “GEMINI structural village” from 1992

was simplified to the “Land for Energy” concept 2011. Maximal possible solar yield, combined with a comfortable settlement. Since September 2006, I tested personal electric scooters to prove how useful they are.

My online publication of www.PEGE.org was awarded 2008 with the Eurosolar Austria prize.

But with the tax reform, I was running 6 years against the wall of silence in Austria and Germany. In July 2010 a big surprise, a government invitation from China. September 1st 2010 at the “World Emerging Industries Summit” in Changchun I gave a keynote about the “PEGE Tax Transition Concept” to increase the growth of the emerging industries, mainly renewable-energy and electric mobility.

In 2011, the second government invitation from China. For the first-time, I proposed an “International Organization for the Oil Exit” in June 2008, on my website and in my regular newsletter. Now I had the opportunity to bring a keynote about this theme at the “Global Economic Leaders Summit” September 5th in Changchun, China, the center of all the “oil replacing industry”.

During the preparation of my keynote, I realized several severe omissions in the commonly used economic models. Omitting leeway and ocean currents at the navigation of a ship can lead straight to a reef. Omitting several economic effects can lead straight to the current situation of USA+EU.

My first book “Advance to solar age” 1993 was to show that the whole mankind can have a high standard of living by using renewable-energy. Now it’s the right time for my second book to expose the obstacles on the way to solar age and to describe the failures causing all the problems in USA+EU.

5-minutes video

My most important task during my 2 month preparation for the award ceremony was to create a 5 minutes video about my work.

From 0:00 to 0:12

I never liked these calculations
that it's cheaper to succumb than to survive
that it's cheaper to destroy than to maintain.

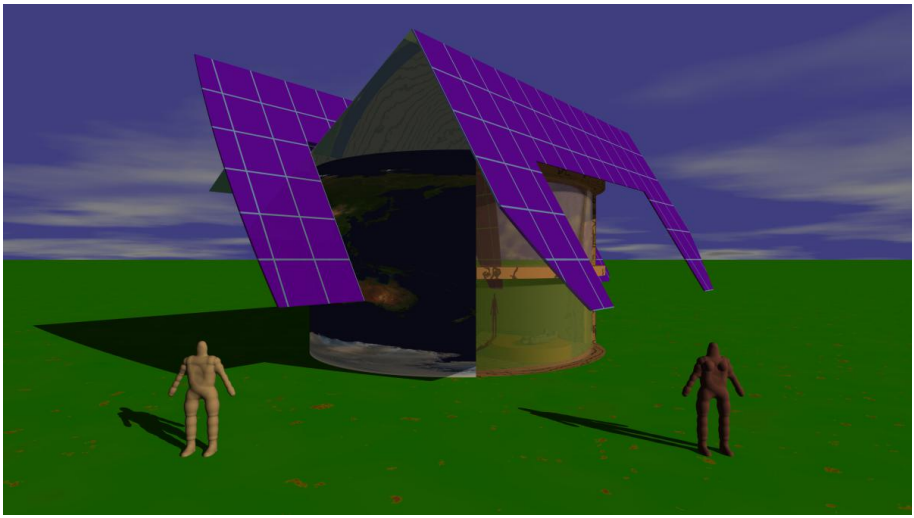
The making of

This is one from three scenes purchased at Shutterstock.com. All other scenes with two exceptions are created with the raytracing software from POVRAY.org.

With small corrections, the scenes created 1994 worked well with the newest POVRAY version V3.6.

Six computers were used. Two notebooks at home, one computer in a computer shop and two computers at distant located friends, where we worked connected by the Internet,

As one day before the ceremony a small failure in a scene was discovered, even my wife's old Acer Travelmate 800 from 2003 was used.



From 0:12 to 0:32

1991 GEMINI inhabited solar power plant
no better solar power plant
no better house
possible on the same ground.
Far more than just extreme solar architecture.

1994 in TV “With the power of the sun”

The scene was created September 1994 for the Austrian TV broadcast “Mit der Kraft der Sonne” (with the power of the sun). 500 pictures 768x576 used 500 hours on my ESCOM Paradigma notebook 486 DX2 66. 21 days time to produce the scene. The notebook was used 24h a day for the production.

My current ASUS UL30A used only nine hours for 600 pictures 1280x720, showing about a 200 times increase in speed, but with much less power usage, as it’s an Ultra Low Volt processor.

From 0:32 to 0:56

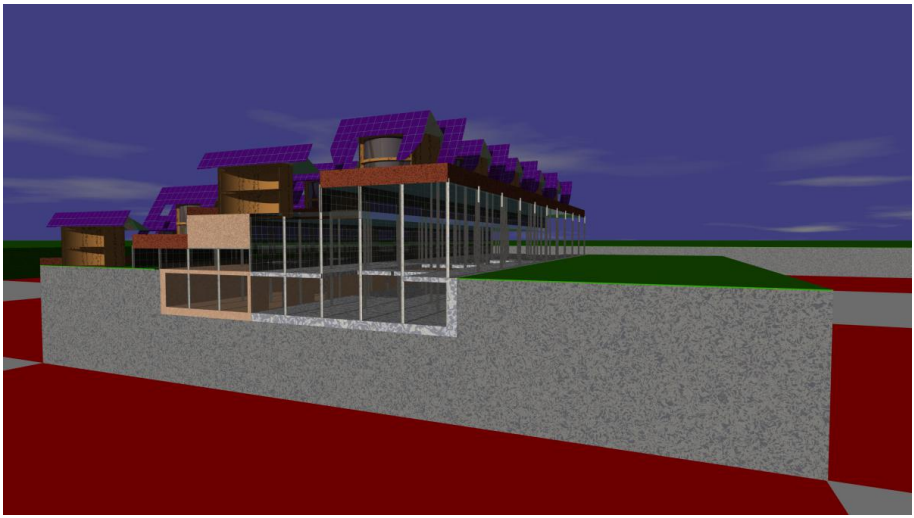
a civilization in trouble
but help is underway.
Planetary Engineering Group Intergalactic proudly presents:
Service is now available for your home planet Earth.

Planetary Engineering Group Intergalactic

Scene created December 1994 as an all-out expression what PEGE stands for. Can we be alone in this big big universe? Could other civilizations have similar trouble when they grow up?

Are this maybe common mistakes in a time of fast development? Humanity will find this out, when all the current trouble is only the distant history of the “dark fossil age”.

Now I am here, the founder of “Planetary Engineering Group Earth” and do my best; that humanity really can look back in the future to the turmoil of the “dark fossil age” as a grievous episode in a long history.



From 0:56 to 1:25

GEMINI structure village
Challenge Germany:
a dense populated industrial country
more than 48 degrees north
Even there can solar energy be the main energy source.
Even with a prognosticated increase of electric power demand
15 thousand kWh per inhabitant and year.

Combine living in the green with high density

It's not enough, that a few people have inhabited solar power plants, even when each can produce 30,000 kWh a year. A large part of the population should live in inhabited solar power plants.

The GEMINI structure village is the first design to meet this demand.

This scene was created November 1994. New camera movement and some small errors corrected in October 2011. It's an interesting experience to correct own program code written 17 years ago.

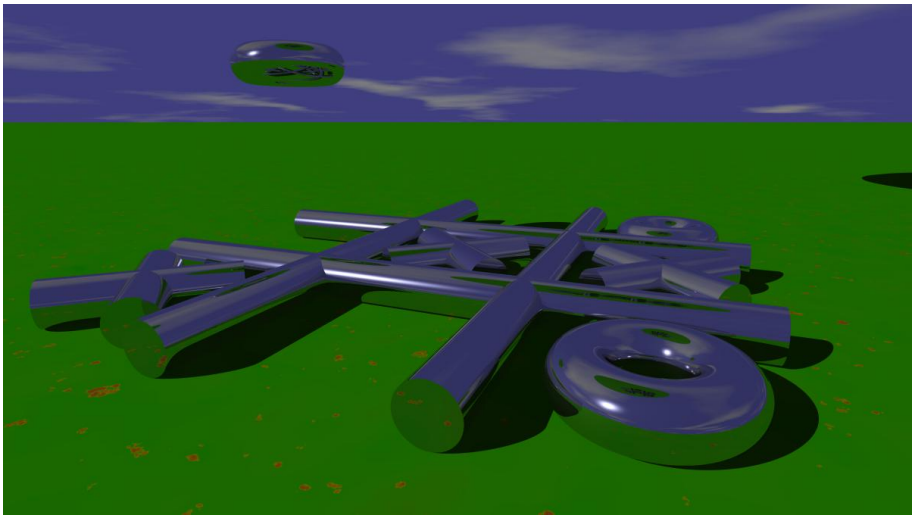
From 1:25 to 2:15

1993 I published my first book “advance to solar age”.
EUREKA world innovation fair in Brussels,
Merite de’l Invention,
1994 European parliament
European Order of Merit,
Accademia Universale Guglielmo Marconi
for solar energy
and for construction.
But what brings all this honor when they still calculate,
that it’s cheaper to succumb than to survive?
1996 my next approach to lead to the solar age.

The panorama-photos on the houses

The GEMINI house was supposed to have only windows towards the sun. How to design the rest of the wall? Maybe big wall paintings? I already asked on a construction fair 1994 how to do this.

This is expressed in this scene by eight different wall paintings on the GEMINI houses.



From 2:15 to 2:34

What is the task of humanity?
I try to find it out by the games theory,
a part of mathematical science,
to analyze the most simple games
to the most complicated game,
the game of life.

Encounters with the enemies of mankind

With the GEMINI project; I had a solution for the energy and climate-change problem. I assumed environmentalists would be my natural confederates. I had to find out the hard way, that they are my worst enemies.

Some of these encounters with the enemies of humanity are on page 233, 234 of my first book “Advance to solar age”. You find it in my review page 122 to page 125.

“Healthy planets have no humans” is the central point of this death philosophy. These people will fight everything, what could extend the existence of mankind.

From 2:34 to 2:48

Dinosaurs, they survived on Earth for 170 million years.

Enemies of mankind continued

There is the old-style industry preferring cheap fossil energy. Their propaganda is “Without fossil energy; we would fall back to Stone Age” and there are all these environmentalists promoting “Narrow down, renounce. Voluntarily back to the Stone Age.”

You would assume old-style industry, and environmentalists should be enemies. But the opposite is true. They are allies stopping mankind on the way to solar age. They make both the same evil propaganda: “No fossil energy means to fall back to the Stone Age.”

Best example for this behavior are electric scooters. The German company Simson introduced 1994 the SR Gamma E, 10 years technically ahead of China. But no support from politicians or environmentalists. Simson went bankrupt; I heard only in 2009 about Simson.

Now are 200 million electric scooters in China. They produce 30 million per year. Nearly only for the Chinese market. See page 117 “To hide the escape”.

From 2:48 to 3:02

They never looked up to study the sky.
They never created a civilization.
They never developed science.

They did not develop ethics

First central concept of ethics: Knowledge is a prerequisite for ethics. It can take 170 million years until the absence of ethics hits hard. No civilization, no science, no study of the sky, no starships ready to change the direction of the deadly meteorite.

Mankind could be also a victim after a very short time of not developing ethics. Mankind just right now is in an all-out war against the own future.

Dinosaurs did not develop ethics and survived 170 million years. Mankind is under the deadly influence of economic science promoting the behavior of a cancer tumor as best possible behavior.

Even the absence of ethics brings a better survival, than this total anti-ethics.

From 3:02 to 3:15

Extinguished by the force
of more than 10 billion Hiroshima bombs.

The meteorite impact

The impactor had an estimated diameter of 10 km (6.2 mi) and delivered an estimated 96 teratons of TNT (4.0×10^23 J). By contrast, the most powerful man-made explosive device ever detonated, the Tsar Bomba, had a yield of only 50 megatons of TNT (2.1×10^17 J), making the Chicxulub impact 2 million times more powerful. Even the most energetic known volcanic eruption, which released approximately 240 gigatons of TNT (1.0×10^21 J) and created the La Garita Caldera, was substantially less powerful than the Chicxulub impact.

The impact would have caused some of the largest megatsunamis in Earth's history, reaching thousands of meters high. A cloud of superheated dust, ash and steam would have spread from the crater, as the impactor burrowed underground in less than a second. (Wikipedia)

From 3:15 to 3:26

The task for humanity:
Create a durable civilization,
able to protect life on planet Earth.

Powerful starships required

How to change direction of something heading straight to you with 30 km/sec and 1,000,000,000,000 tons weight? When you blow it up to one billion pieces with thousand tons each, it's still deadly.

It requires a high-tech civilization able to build powerful starships to deal with such a threat. A meteorite interception mission has energy and speed requirements far beyond the possibility of chemical stored energy.

The video shows four spherical starships with 200 m diameter moving with 6 km/sec towards the camera positioned 1/2 million kms away from Earth.

A propulsion system able to bring such a starship to 1000 km/sec can change the speed of this meteorite only by 1 m/sec.

From 3:26 to 3:34

As long as the sun shines like today,
for the next 5 billion years.

The timescale of our existence

Central concept one of ethics: Knowledge is a prerequisite for ethics. Only the 20th century brought humanity the knowledge about the timescale of their own sun.

Chemistry brought no explanation for the obvious long lifetime of the sun. Einstein's $E=mc^2$ and the discovery of nuclear fusion brought mankind the knowledge how long the sun will shine similar like today, what changes will come later.

After five billion years, sun will become a red giant. We have some time left to find a solution for life on planet Earth.

This is the timescale physics sets to our civilization. Central concept two of ethics: Knowledge changes what ethical decisions are.

This new knowledge only discovered in the 20th century forces us to design our civilization for a five billion years lifespan.

From 3:34 to 3:56

Opening of the GEMINI house in Weiz.
But why is it only one house?

Too little too late

I envisaged millions of plus-energy-houses, each producing 30,000 kWh electric power per year. May 10th 2001 was the opening of the one and only GEMINI house in Weiz.

Instead of 150 m² photovoltaic with 23 kW peak able to produce this 30,000 kWh per year, the yearly yield is only designed for 8500 kWh.

Since the first design 1991, there had been always the question: “Why should a house produce so much electric power?”

Because industrial production needs very much energy. Because we will and have to change most of our energy consumption to electric power.

Even our food production consumes much energy, also this has to be changed from fossil energy to renewable-energy. There is a very good reason for 30,000 kWh per house, you have to understand this.

From 3:56 to 4:30

There has to be a reason,
that humanity does not move faster,
to solve the energy and climate challenge.

Calculation ERROR!

Game Lost!

Is our current situation
only a huge Calculation ERROR?

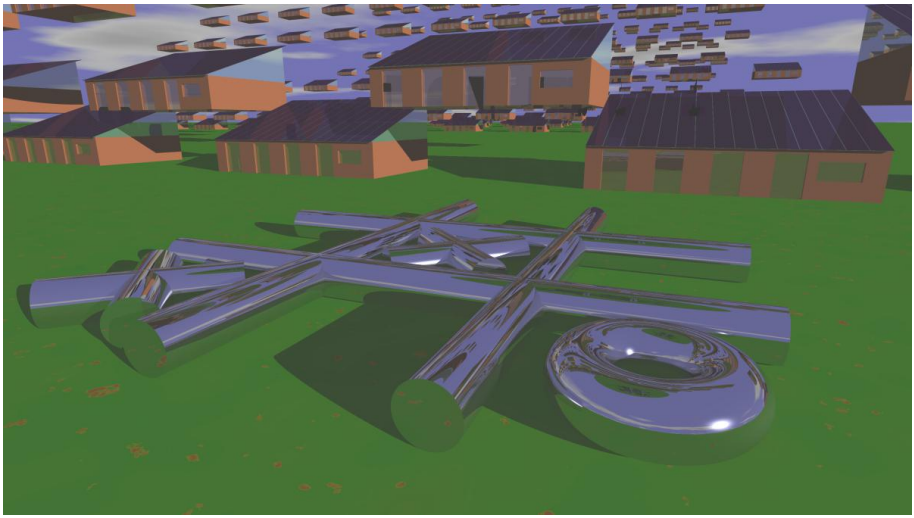
The recognition of this Calculation ERROR

Can it really be?

Half-century of unbelievable technical progress and USA + EU have a declining living standard, have a huge debt crisis?

How can so much progress and higher productivity lead to such a situation? Imagine you could go back in time and talk to a worker 1960 about all the technical progress ahead.

With all this progress can be only paradise, not all the desperate people just trying to survive in a declining society.



From 4:30 to 5:05

will be the dawn of solar age.

Decades lost for a gentle change

The timescale for changing a civilization are decades. 1973 should have been the peak-oil discussion together with the climate-change discussion.

The current worldwide production of photovoltaic, wind power plants and electric vehicles should have been reached 1990. With electric vehicles production, I mean special the 30 million electric scooters per year in China.

Current energy-efficiency standards for new buildings in Austria and special in Salzburg should have been established worldwide in 1990.

We have lost decades for performing a gentle change towards the solar age. Now mankind is in a hurry.

This is expressed by the quick drop of solar-energy houses from the sky. The scene shows the “Land for Energy” concept. Each house with 158 m² roof and 23 kW photovoltaic,

Message to the Philippine's people

November 18th 2011, I arrive with my wife on Manila´s airport. Leaving the airport building, tropical heat welcomes us. We go 50m to the office of the Peninsula Hotel. I open the door, and a freeze shock awaits me. From 38 degree Celsius tropical heat to 21 degree Celsius.

I immediately check all the windows and find the main problem for the development of the Philippines: They separate tropical heat from a preferred room temperature of 21 degree Celsius with a single glass window.

38 - 21 = 17. In the other direction, 21 - 17 = 4. That's the common inside temperature in a refrigerator. That's a common temperature in cold Austrian winter.

Separating this only by a single glass window creates insane high electric bills for the air-condition, only the rich people can effort.

The typical house of a rich family: 200 m² villa and 4 home employees happy for US$ 50 a month, including living and eating. Great job compared to a saleswoman with US$ 90 a month, but 5 of them have to share a US$ 200 per month apartment to be able to effort the rent.

So all 4 home employees together cost about US$ 200 a month, a bargain compared to the US$ 600 electric bill. Electric power is cheap on the Philippines, only US$ 0.18 per kWh.

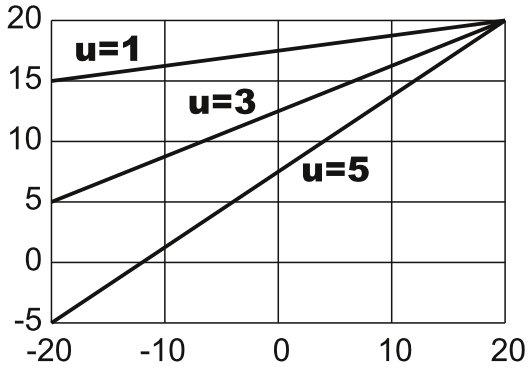
Sisyphean work

Old Greek mythology, Sísyphus was a king punished by being compelled to roll an immense boulder up a hill, only to watch it roll back down, and to repeat this throughout eternity. Sísyphus stands for endless and unavailing work. The daughters of Danaus had to fill a barrel with holes.

The rich people on the Philippines have to cool houses equipped with one glass windows. I assume the walls have worse thermal insulation than modern windows in Austria.

November 18th 2011 11:00 am: The problems of the Philippines are discovered. Single glass to separate tropical heat from room temperature.

The problem to heat a house in cold Austrian winter or to cool a house on the Philippines all the year is the same order of magnitude.



This is a diagram about inside air temperature is 20 degree Celsius, outside air temperature on the x axis.
The inside of the wall or window has a surface temperature shown on the y axis depending on the quality of the insulation.

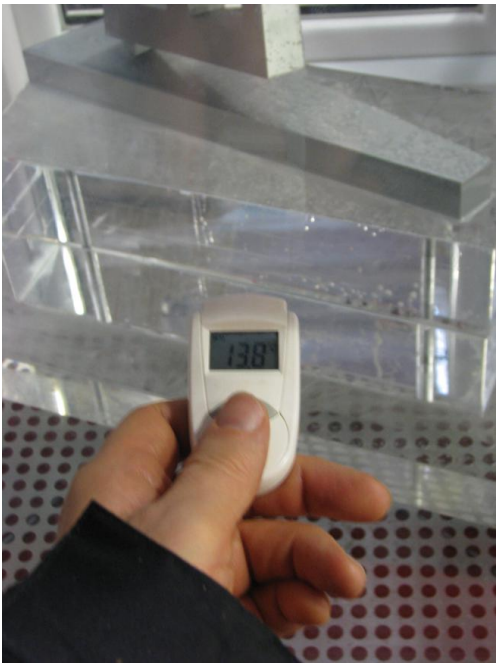
Let's now see the consequences

Construction fair Munich 2009:

A practical demonstration of 4 different windows at Internorm.

Inside it's very cold, an ice block.

Now I compare the surface temperature of the best and the worst window.



The simplest
two glass window
which was usual
in Austria, some
decades ago:

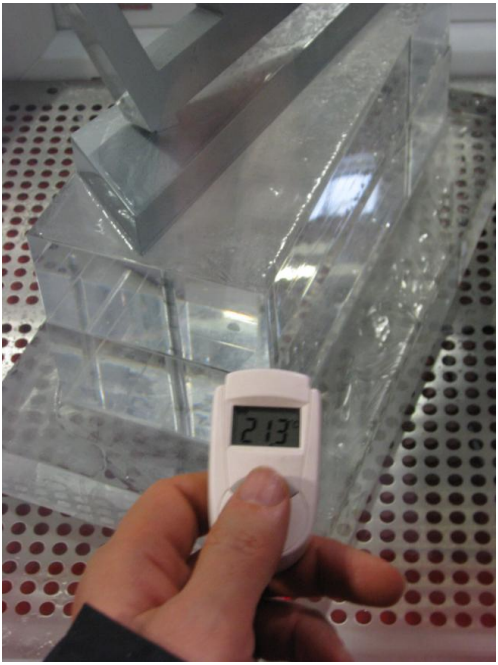
u=2.3 (r=2.5)

Surface
13.8 degree Celsius

Single glass has

u=5 (r=1.1)

and would have
a much colder
surface.



The most advanced
thermal insulation
glass:

u=0.7 (r=8.1)

Surface
21.3 degree Celsius

u value means watts
of heat transfer
per square meter and
Celsius.

r is the not metric
inverse US value.

Just only 5 m² window with single glass

21°

28°

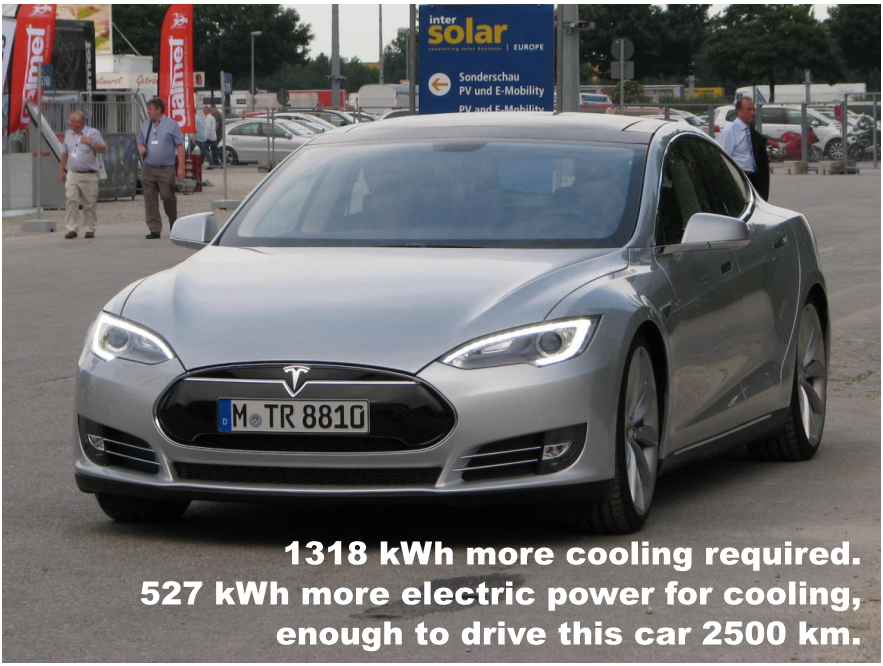
1533 kWh per year

Just only 5 m² window with three glass heat insulation

21°

28°

215 kWh per year



Out of the window out of the country

Most energy on the Philippines is imported.

The most simple borderline between rich and poor on the Philippines is the air-condition.

Through the windows and out of the country.
At one of the rich people goes several times the earnings of one of the poor people through the windows.

Money lost for developing local economy.

All the industry for increasing energy-efficiency can be local on the Philippines.

Key concept 1 for a high living standard:

High energy-efficiency can bring to much more people
a high living standard with the same amount of energy.

But this energy has still to be imported.
Imports can only be paid by exports.

Exports are most times the
most difficult earned money.

Key concept 2 for a high living standard:

Produce most of the energy locally by sun and wind.

**The greatest challenge for 100%
electric power from sun and wind:**

**The time of energy production
and energy consumption are different.**

Storage of energy is required.

**The special conditions on the Philippines
make this challenge much easier
compared to other countries.**

Sisyphean work continued

A society wasting resources into Sisyphean work cannot develop, regardless it's putting water in a barrel with holes or cooling houses with one glass windows.

The electric power production per inhabitant on the Philippines is only 1/10 of Germany or Austria. But from this small electric power production, much is wasted for the sisyphean work of very extreme inefficient cooling from a few rich people.

To have an imagination about this crazy energy wasting, investment in energy-efficiency could save several times more electric energy than to change all the mobility on the Philippines to electric power.

Usual I explain to people how many kms driving an electric car is possible by saved energy in the household. This is usual like this: "A better refrigerator would save as much electric power as 2,000 kms driving an electric car per year" or "This old stereo equipment has such a high stand-by power usage, switching off when not used would save as much electric power as 1,200 kms driving an electric car per year". In the most extreme European cases, I explained how to save in the household electric energy for 10,000 kms electric car driving.

The same dialog would be on the Philippines: "Replacing all the windows with u=0.9 (USA r=6.3) thermal insulation glass and an u=0.2 (USA r=28.4) thermal insulation for all the walls would save electric power for 200,000 kms a year, 5 times around Earth."

There are about 3.5 million cars on the Philippines. They would use all electric about 9 TWh electric power. Several times more could be saved by using thermal insulation and modern u=0.9 (USA r=6.3) windows to reduce the power consumption of cooling.

Review 2013: Vacuum glass

Vacuum glass is just entering the market and is a very interesting new option to solve the thermal insulation problems at windows.

Sunny day

Use solar electric power direct

Recharge batteries

Air-condition by electric power

Make ice for later usage

Cloudy day

Use solar electric power direct

Recharge batteries

Air-condition by electric power

Very cloudy day

Use solar electric power direct

Recharge batteries

Air-condition by ice

Night-time

Use electric power from the batteries

Air-condition by ice

Here we come to an old spell:

> Give them a fish and they have to eat for one day,
> teach them fishing, and they have to eat
> for their whole life.

We modify now this spell for modern times:

> Import oil and they have energy for one day,
> import a photovoltaic factory, and they have energy
> for their whole life.

The photovoltaic factory stands here as a symbol for all the industry to increase energy-efficiency, to produce energy by sun and wind and to change to electric mobility.

Reach independence!

There is no country in the world, what would have it easier than the Philippines to reach independence from most energy imports.

Think on the central principle of this decade:

2020 will be photovoltaic as cheap as oil was 1990.
2020 will be oil as expensive as photovoltaic was 1990.

Speech at the press conference

This is my speech at the press conference November 22nd 2011:

Mabuhy!

Much thanks to ambassador Gusi and the Gusi foundation

It's a big boost in my attempts
to lead humanity towards the solar age.

My great honor to be here is the result of 20 years
trying my best to lead humanity to the solar age.

There had been never enough fossil energy to give
all mankind a high standard of living.

Only a small part of mankind and only for a very short time
can have a high living standard by fossil energy.

The solar age stands for peace, because you have not to make
war to conquer energy resources,
when just the sun on the roof of
your own house delivers enough energy.

My adventure started 1991.
The project GEMINI inhabited solar power plant.

To proof that even an industrial nation
with a high energy consumption for industrial production like
Germany, 48 to 55 degrees north can use solar energy
as the main energy source.

5% of my time to overcome the technical problems

95% of my time to overcome political and economical
doubt that the way to solar age is the only way towards a
stable durable civilization.

We have already the technology for a lasting paradise on Earth, but a tax system to make the hell out of it.

A tax system has 2 tasks:

1.) The money to finance all the tasks of the government

2.) To steer the society in the right direction

All the political discussion is only about the first task of the tax system. More or less taxes.

The second task is neglected in the political discussion. Steering society towards a safe future, towards solar age.

Imagine this nightmare:

Where is the control stick? Our politicians are as helpless as this pilots in the current crisis. Economics taught them only to use the handle for more or less thrust. They have even no idea, that there are different directions, that it's necessary to steer in the right direction.

You are the pilot of an airplane.
400 passengers behind you expecting a safe journey.

There is only a handle for more or less thrust.
There is no control stick to steer the airplane
towards the destination airport.

No chance for a safe landing.
No chance to avoid a deadly crash.
That's the nightmare of today's politicians.

My work since 2004 is to give them the control stick
to steer the society towards a stable and durable future.

The PEGE Tax Transition Concept introduced
at the World Emerging Industries Summit.

The PEGE Manifesto outlining the political
change in the 21st century.

Change from taxes and dues on human work
towards taxes on the usage of resources.

That's the control stick to steer our society in the right direction.

But besides a control stick, there is also a navigation system
necessary for a safe journey.

What is the name of the science,

integrating and evaluating all the knowledge
from all sciences for the best possible survival of humanity?

Can it really be, that this science is not already established?

How would you name this science?
Maybe "science of survival"?

I call it ethics, the science of survival.

This is the newest part of my work since summer 2011.

The navigation system for the best possible way
towards a stable and durable future of humanity.

The status of civilization on planet Earth

How to express the status of our civilization and my mission in a two-minutes speech? This task awaits me November 24th 2012 at the award ceremony in the Philippine International Convention Center.

Humanity is in a civilization jump since two centuries.

Before the civilization jump was only renewable-energy,
mainly biomass.

After the civilization jump will be only renewable-energy,
mainly sun and wind.

To start the civilization jump,
by using fossil energy to boost the development
was right, a necessary development.

Half-century ago, humanity reached space,
reached the technology level -
to fulfill the civilization jump.

Phase out fossil energy -
Phase in renewable-energy,

to have a high-tech civilization -
for the next some billion years.

But there is a deadly calculation error -
The death calculation,

that it's cheaper to succumb than to survive,
that it's cheaper to destroy than to maintain.

Instead of reaching solar age,
mankind is in an all-out war against the own future.

To correct this calculation error is my mission.
The Gusi peace prize is a huge boost -
helping me to end
this all-out war against the own future,

to bring humanity on the right way - the way to solar age,
to fulfill my mission - Mission Earth.

GAWAD GUSI PARA SA KAPAYAPAAN

GUSI PEACE PRIZE

MAYNILA, PILIPINAS
MANILA, PHILIPPINES
2011

Ang gawad para sa kapayapaang pandaigdigan na ito ay ipinagkakaloob kay
This international peace award is hereby given to

Ginoong Roland Mösl
Mr. Roland Mösl

Tagapagtatag ng PEGE (Planetary Engineering Group Earth)
Dakilang Mamamayan ng Austria
Founder of PEGE (Planetary Engineering Group Earth) of Austria

para sa kanyang natatanging tagumpay sa larangan ng
for his exemplary achievements in the field of

IMBENSIYONG PANG-AGHAM
SCIENTIFIC INVENTION

na lubos na nakatutulong sa pag-angat ng kalagayan ng tao
at sa pagpapalaganap ng kapayapaan sa sandaigdigan na pinagtibay sa ilalim ng
Proklamasyon ng Pangulo Bilang 1476, na nagtatakda ng ika-apat na Miyerkules ng
bawat Nobyembre bilang "ARAW NG GAWAD GUSI PARA SA KAPAYAPAAN
AT PANDAIGDIGANG PAKIKIPAGKAIBIGAN".
that have greatly contributed to the amelioration of people's lives
and to the promotion of peace in the world as mandated under Presidential
Proclamation No. 1476, declaring every fourth Wednesday of November as the
"GUSI PEACE PRIZE INTERNATIONAL FRIENDSHIP DAY".

Iginawad sa ika-24 araw ng Nobyembre 2011 sa Maynila, Pilipinas.
Given on the 24th day of November 2011 in Manila, Philippines.

GINOONG STEVEN JOHN A. RADONICH
Pangulo
Mr. Steven John A. Radonich
President

KAGALANG-GALANG BARRY S. GUSI
Tagapangulo ng Lupon
The Honourable Barry S. Gusi
Chairman of the Board

ANG KANYANG KADAKILAANG GINOONG SIMEON C. AQUINO III
Pangulo ng Republika ng Pilipinas
His Excellency Benigno Simeon C. Aquino III
President of the Republic of the Philippines

Gusi Peace Prize certificate for Roland Mösl

The Wall

The draft on page 20 with a car driving with high speed against the end of a traffic jam was created 1992 for my book “Advance to solar age”. It should express how unable politicians deal with the current situation.

The phrase “Driving full throttle against the wall” is also used many times on my website PEGE.org. For example:

> **2009: Next oil crisis**
>
> Forecast on the next oil crisis where politics and economy in unique incomprehensible decisions go full throttle straight against the wall.
>
> **2010: again full throttle towards the wall**
>
> August 3rd 2009, the dramatic oil prognosis of IEA, December the failed climate conference. World economy continues to drive full throttle towards the wall - peak-oil.

But how does this wall look like? We aren’t driving in a real car into a real existing wall. Only our economic situation and our living standard will be after the crash as different as a car looks like before and after the crash into a real wall.

Real walls consist of stones, wood or another sort of stable material. This sort of wall consists of merit order effects. Merit order means a sequence of using resources, the cheapest and easiest resource at first, the most difficult and expensive resource at last and only when it’s impossible to avoid it.

Being forced to use the most difficult and expensive resources feels like crushing in a wall. The costs go so straight up that it looks like a wall.

Here are some examples of cost explosions based on the merit order effect:

Merit Order at financing a house

A family wants to build a house. Different finance resources are used to gather the money required for the house. At higher and higher costs, more and more expensive finance resources are used. A typical case of the merit order effect.

The first calculation of the cost is US$ 180,000 in total. US$ 50,000 saved money, US$ 50,000 cheap government credit for building an own house. US$ 50,000 building society lending, both with 25-years loan maturity. For the last US$ 30,000 consumer credit with only 10-years loan maturity. It sums up to a monthly rate of US$ 871.24 per month for the first 10 years, after this 15 years with only US$ 522.92 per month.

A great idea to save money, because the house replaces an apartment rented for US$ 1000 a month.

Money resource	Loan maturity	Credit Interest:	Monthly cost per $ 1000	Total cost per $ 1000
Own saved money	none	1%	$ 0.94	$ 282
Government credit	25	2%	$ 4.24	$ 1,272
Building s. lending	25	4%	$ 5.28	$ 1,584
Consumer Credit	10	7%	$ 11.61	$ 1,393
Overdraft	5	14%	$ 23.27	$ 1,396
Usurer	2	35%	$ 58.52	$ 1,404

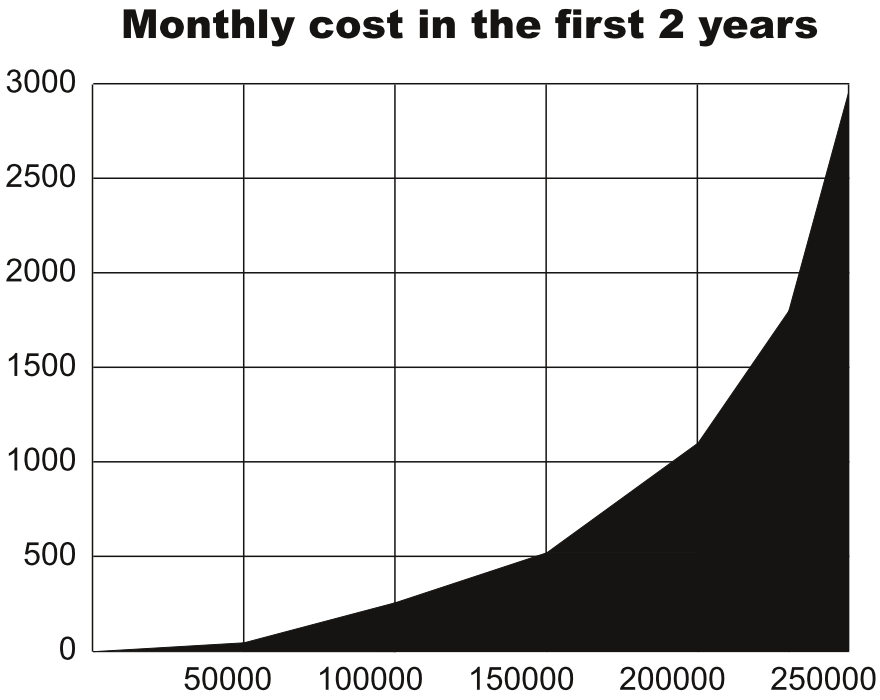
Bad news: just some weeks before the purchase of the ground, an important company announces to open a new research center in this area. The price for their 1000 m² ground goes up from US$ 20,000 to US$ 50,000. How to handle this situation? The bank increases the consumer credit to US$ 50,000 and allows an overdraft of the account

for the next five years. The house project is saved, only the first five years are hard with US$ 1336.14 per month.

Next bad news: the construction company wants US$ 200,000 instead of US$ 160,000 for the construction. Agree or terminate the contract. It seems all the construction companies in the area did the same price increase.

The bank allows the 5-years overdraft to increase to US$ 30,000. No chance for more, still US$ 20,000 missing. A desperate situation for the family, which already purchased the ground. They look in the newspaper for moneylenders. They only find a usurer. 35% interest and two years pay back time.

This feels like crushing into a wall. For two years paying US$ 2,971.88 every month. Then another 3 very hard years with the payback of the five-years limited overdraft, US$ 1,801.25 per month.



We need to save money

It's a hard time for this family. The son wants ice cream at the Sunday walk, NO! We have to save money; we have to save more money!

The wife wants to visit a theater. NO! We have to save money; we have to save more money! Vacation trip? NO! Weekend with skiing? NO! Ballet school for the daughter? Canceled! Comprehensive insurance for the car? Canceled!

Has this some similarities with the behavior of the governments in USA and EU?

EEX - European Energy Exchange

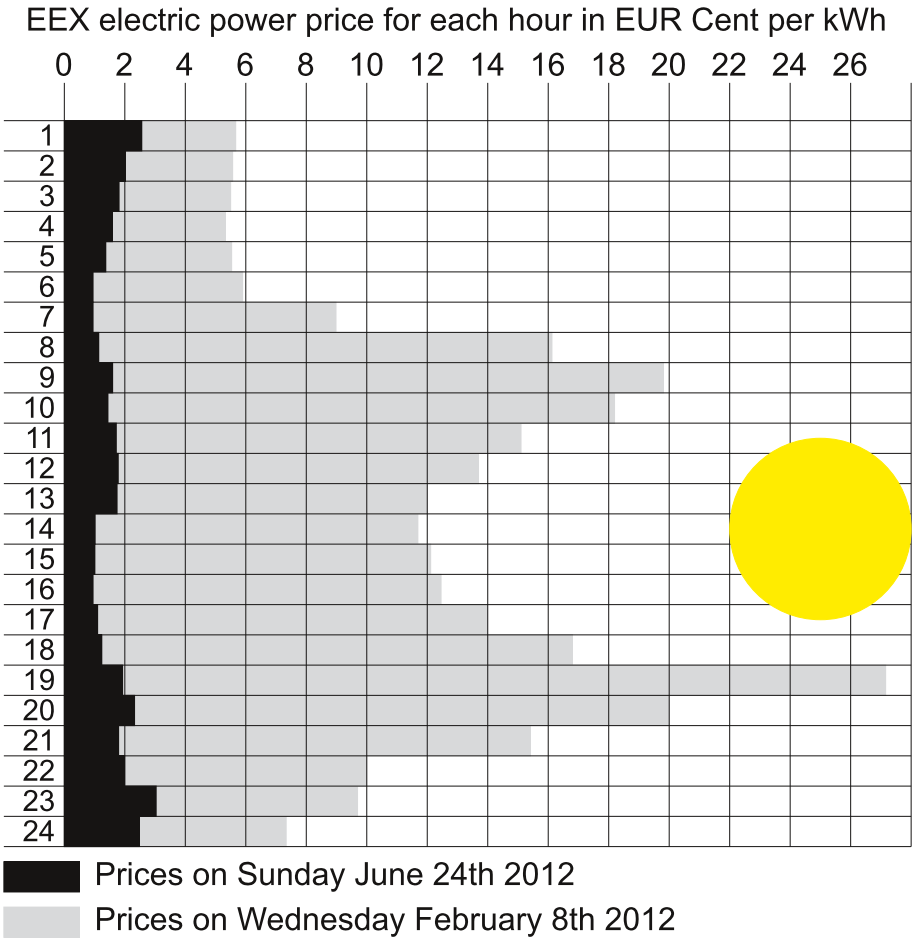
Offer and demand determine the price. You can watch this on a daily base for each hour of the day at the EEX. The demand changes between midday of workdays and 4:00 am of Sunday. The price depends on weather conditions (more or less sun and wind energy) which have to be sold at any price.

Merit order means to start the cheapest power plant first. If this is not enough to fulfill the demand, the next, higher priced power plant has to start working.

Sunday, June 24th 2012 was a sunny day with low power demand. So it was only necessary to use power plants delivering for 0.0095 EUR/kWh in the cheapest hours of the day and 0.03037 EUR/kWh in the most expensive hour. Up to 15 GW solar electric power decreased the price at daytime.

Wednesday, February 8th 2012 also was a sunny day, but a very cold winter day; so electric power demand was very high. Therefore, it was necessary to use more and more expensive power plants until the offer was big enough to fulfill the demand at 0.27157 EUR/kWh. Up to 7 GW solar electric power decreased the price at daytime.

Similar to the family needing money to build a house, we have an 1:30 range between the cheapest and most expensive resource.



Oil industry: from 21m to the Arctic Sea

10 to 15 liter oil per day have been coming out of the ground near Titusville. Drilling a 21.2 m deep hole increased the yield to 4000 liter a day. This was August 27th 1859 the beginning of the oil age.

Nowadays they have to drill 2400m below the sea level and additional through 1800 m solid rock down to the oil. Today they even have to start towards drilling in the Arctic Sea.

How the export business changed

After financing a house, electric power market and oil market, let's look at the export industry. Paying imports by the earnings from exports is a challenge which most countries are not able to fulfill.

It's 1860; all the world builds new railways, and you have a factory to produce steam-locomotives. Export is a wonderful, easy business. Time changed. Now a 21.2 m deep drill is not enough to start an oil business and the export business also became much more difficult.

When the oil price rises, all the oil consuming countries have to pay more for the oil imports. Imports can only be paid by exports. So they are in a desperate race to increase the earnings from the exports. Nobody can win this race; it's the race full throttle against the wall.

Looking at the trade balance of all the countries with heavy debt problems shows, that the trade deficit is higher than oil imports. This means every liter of imported oil is paid by debts.

How much national economic effort is necessary to have 1000 EUR more earnings from exports? This question is against the dogma of the "perfect market" and is therefore, unexplored.

Maybe the national economic effort to have 1000 EUR more earnings from export started with 100 EUR to 300 EUR. Maybe some countries are now in the range of 3000 EUR to 5000 EUR to increase export earnings by 1000 EUR.

What happens to a company selling something for 1 EUR where the own production costs are 3 EUR? Yes, they go bankrupt!

The merit order effect at "We need more earnings from exports to be able to pay the more and more expensive energy imports" is destructive for most countries. It's like the usurer at financing a house, like 27 Cents per kWh when the normal range ends at 7 Cents, like drilling for oil in the Arctic Sea.

Gradients at the merit order effect

Task	Most easy	Most difficult
Money for financing a house	All on the own bank book	Lent from a usurer
Electric power price at the EEX 2012	Less than 1 Cent / kWh	More than 27 Cents / kWh
Investments in the oil business	Drill a 21.2 m deep hole	Drill in the Arcitc Sea or deep sea
How easy or difficult is the export business	It's 1860; we make steam-locomotives for the whole world	We have to export more, regardless of the costs

"Export more" is the deadly advice of economists for all the indebted countries. That's the wrong treatment. "Import less" is the correct solution. But what should be imported less? There are goods with decreasing prices, there are goods with stable prices. There is oil that has reached a 1990 unimaginably high price level.

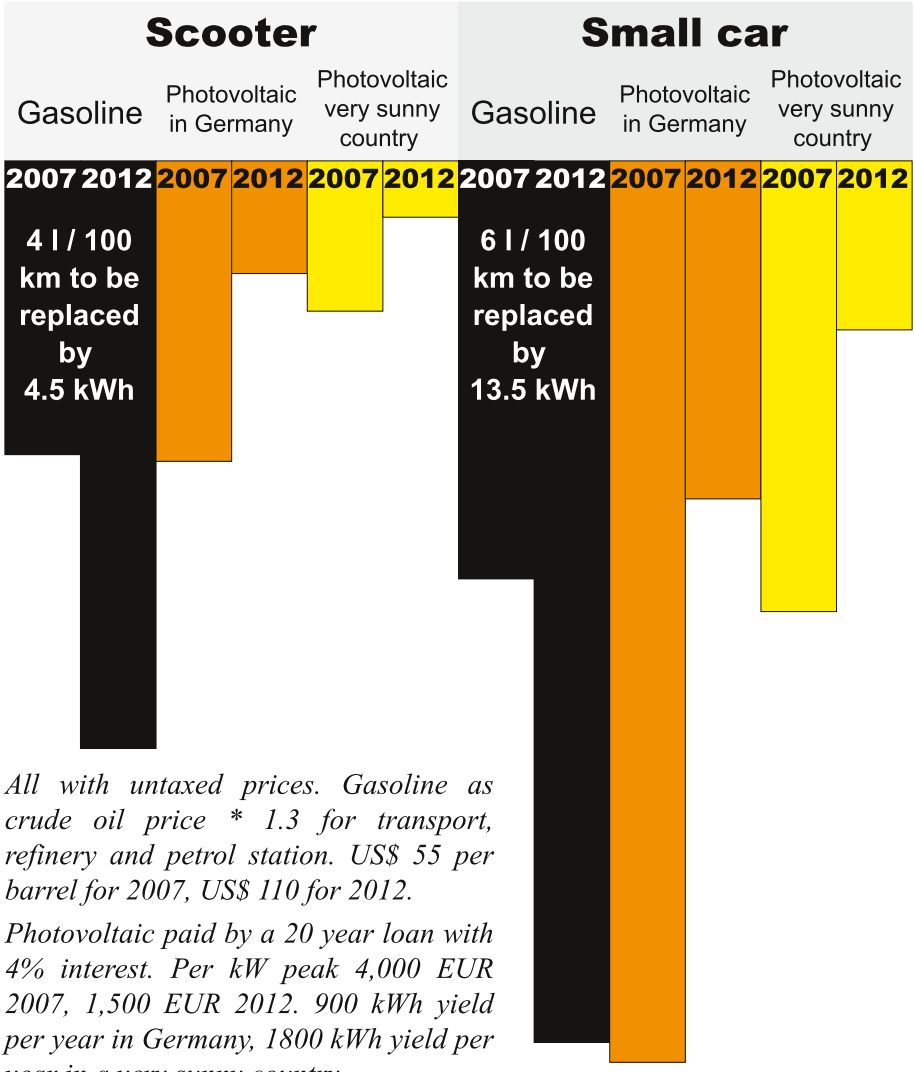
The next question is the replacement of the reduced imports. For example, we replace 75,000 liter heating oil in the next 25 years by a thermal renovation of the house and a heat pump using 75,000 kWh electric power mostly produced in the own country.

How much is the national economic effort to pay this 75,000 liter by export earnings? How much is the national economic effort to replace this by house renovation, heat pump and electric power?

Maybe the national economic efforts for the export earnings are 10 times higher than at the replacement. But it's not allowed to ask this question in economics. Everything is given a perfect matching price by the "perfect market". No economist researches such "illegal" questions.

Fuel price change from 2007 to 2012

Ignorance, huge ignorance, total ignorance can destroy big empires. Point 3 in the foreword: How do we switch from one supply chain to another before a shortage hits the economy?



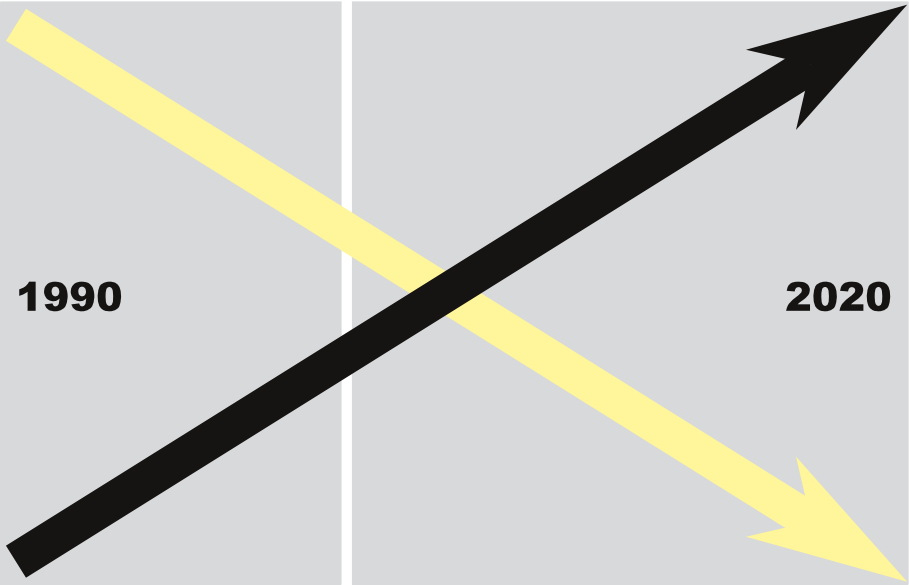
*All with untaxed prices. Gasoline as crude oil price * 1.3 for transport, refinery and petrol station. US$ 55 per barrel for 2007, US$ 110 for 2012.*

Photovoltaic paid by a 20 year loan with 4% interest. Per kW peak 4,000 EUR 2007, 1,500 EUR 2012. 900 kWh yield per year in Germany, 1800 kWh yield per year in a very sunny country.

This is only the change from the last five years. The oil price in 2012 is in a stable high range during a recession. We soon will see a rising oil price even in a recession. So all the mass media should be full about the oil exit. How much ignorance is necessary, that "oil exit" is not to find in politics and mass media every day?

2020 will be photovoltaic as cheap as oil was 1990
2020 will be oil as expensive as photovoltaic was 1990

Who wants to bet against this? USA+EU politicians just right now bet the whole economic existence of their countries against this.



Viewing only one quarter, using outdated data, comparing the data in a wrong way. Most important: it has everything to remain like it is, nothing has to be changed beyond PR actions with the size of a fig leave.

1 million electric cars until 2020 in Germany is such a fig leave.

Photovoltaic should have been a fig leave, but as the industry has grown unexpected fast beyond the size of a fig leave, big thanks to China, German fossil lobby tries everything to stop this development.

A high living standard for each human

The main obstacle for a high living standard for each human is the destructive cult "economics". They have taken over the governments in the West Bloc.

The method of the silent putsch was: "Dear politician, you are much too stupid to understand the perfect market. All you can do is to disturb the gigantic potential of the perfect market. Don't be stupid and don't disturb, just lie back and enjoy watching how the perfect market solves all the problems."

Has anybody a better description of the political system in the West Bloc? They created a big fear from ruling in each politician. Every some years is show time for politicians. They make some statements in the election campaign, nice to hear, but no reforms and no change.

Remember my 10 points election program for Germany 2009 from page 220. A wall of silence at the politicians. It was like I would have talked with some servants instead with the landlord.

The three major problems of the West Bloc:

1.) Delaying the oil exit. Mobility is becoming a luxury.
2.) Dwelling is becoming a luxury.
3.) The throwaway society: repairing is a luxury at many products.

The "PEGE Tax Transition Concept", "We need an International Organization for the Oil Exit" and "Land for Energy" addresses all these problems, but we need real politicians to realize this. The servants are even afraid to talk about it.

Greece is leading the race against the wall

Country for country of the West Bloc will be like Greece. What to do when so many people do not pay taxes? Blame the tax system and not the people. Change the tax system instead of ruining the country.

The trade deficit is greater than the oil imports. Economists are even unable to see that this is a problem. Base the complete tax system

on taxes for oil, natural gas, coal. Greece has to import most of this. So abolish all the taxes, most people do not pay and use the full force of the tax system to get the money necessary to run the country and to decrease fossil energy imports.

Promote an international equalization payments system to reward countries reducing their oil consumption. Use as much money as possible to build up a domestic oil replacing industry.

In Romania fuel was much cheaper than in Hungary in 1993. Only 0.16 EUR for one liter Diesel. So I had to pay at the border the price difference for the whole tank of my car. This will be also necessary for Greece when fuel prices will be much higher than in the neighbor countries.

A lecture from the mayfly

The naiad stage of a mayfly is from several months to several years. After this follows the final days as an adult insect without organs to eat and to digest. So life expectancy of the adult mayfly is very short and has only one purpose: To create the next generation. When the stored energy is used up, the life of the mayfly ends.

A civilization starting to use much fossil energy is like a mayfly changing from naiad stage to an adult insect. This change has also only one purpose: Reach the next civilization level.

When the stored energy is used up before the new more efficient renewable-energy system is established, the civilization crashes.

Refusing to do a fast change to renewable-energy from sun and wind is like a mayfly refusing to create the next generation, is like a mayfly flying around just for fun.

So even the mayfly has a lecture for the two enemies of mankind. The enemy insisting to use up fossil energy until nothing is left and the enemy dreaming to return to the “naiad stage” of our civilization, this means only one billion humans like at the beginning of the 19th century.

Magnitude for a high living standard

When there are more than 7 billion humans involved, numbers are too big to imagine. So I break down the numbers to a single human, so it's far easier to imagine.

It depends also from the currently unknown planet renovation costs. Planet renovation can require to reduce fossil CO2 emissions below 0. This means to take out CO2 from the atmosphere until a reasonable CO2 level is reestablished. It can happen, that only the direct technical approach of filtering and splitting CO2 out of the atmosphere works like desired. This would be phase 4b of CO2 reduction described on page 249.

CO2 Emission	0 t	-1 t	-2 t	-3 t	-4 t
Photovoltaic	5 kW	10 kW	15 kW	20 kW	25 kW
Buffer batteries	20 kWh for all scenarios				
Electric scooters	1/2 - so each second has one				
Electric cars	1/3 - so each third has one				
Yield of carbon	0 kg	273 kg	545 kg	818 kg	1091 kg

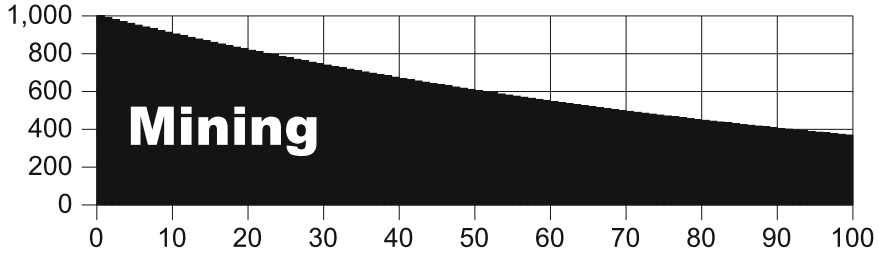
At last worldwide photovoltaic production is in 2012 at 4% of the requirements for the 0t CO2 scenario or 0.8% of the -4t CO2 scenario. At last, electric scooter production is at 20% assuming 15-year service life. For both achievements, we have to thank China.

Available raw material

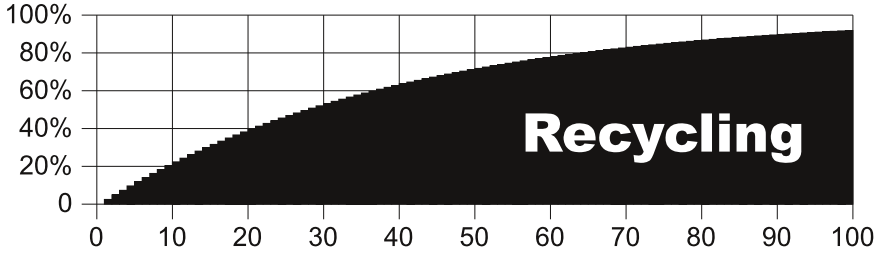
Resources are limited, but humanity needs each year more! That has been the horror message in "The Limits to Growth". The calculation was that it's necessary to mine each year some percent more.

But what counts is to have each year more available until the saturation of the market, not to mine each year more. To mine more and to have more are two complete different things.

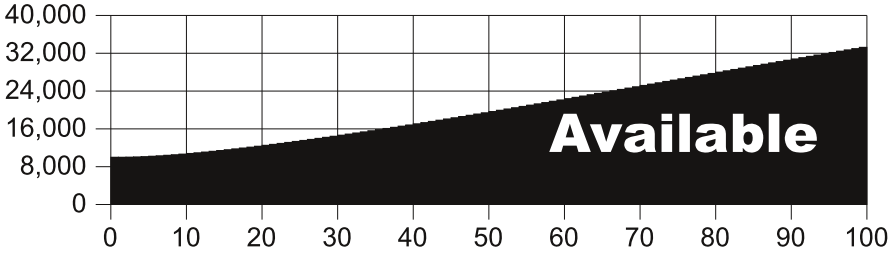
Mining capacity starts with 1,000 units and decreases 1% per year. 100 years later, only 370 units of mining remain.



Recycling quote starts with 0%. Each year, 2.5% of the not recycled material is more recycled. 100 years later, the recycling quote reaches 92%. The average service life of the products where the raw material is used starts with 10 years and is increased by 1% per year, reaching 37 years at the end.



Recycling and longer service life compensate the reduced mining. At the beginning are 10,000 units available. 100 years later 33,255.



100% renewable energy for Germany

Near the equator, it's easy. High demand for cooling allows using ice as a balance between sunny and cloudy weather periods, see Example Philippines page 372 to 373 From 30 degrees away from the equator, electric power to methane conversion becomes more and more necessary for the summer / winter balancing. Germany extends from the 47th up to 55th northern latitudes degree.

In 1992, I wrote, in the transition to renewable energy, the electricity demand will double, see page 82 to 88 Now where it becomes apparent that for the summer / winter balancing the required storage is only possible with electricity to methane and CCPP, this statement must be added: The electric power demand will double, the electric power production will increase 2.5 times. 300 TWh, half of the current electric power production, will be lost at the summer/winter balancing at power to methane and back by CCPP.

At a sunny summer day will 1200 GW photovoltaic produce up to 9 TWh electricity. Three times the daily requirement. Two-thirds of them go into the production of methane, 24 hours run 300 GW of power to methane equipment, producing 450 million cubic meters.

4000 GWh batteries directly at the photovoltaic systems to provide a uniform all day delivery of electricity to the electric power to methane plants. These are preferably directly at one of the approximately 200 combined cycle power plants with 150 GW. From there it goes to one of the underground gas storage facilities whose capacity should be expanded from 20 to 30 billion cubic meters. This storage capacity is sufficient to generate 180 TWh electric power.

On a day with only 1/3 of the electricity yield of a very sunny summer day, sun and the wind is still sufficient for immediate needs. This can be a cloudy summer day, a sunny winter day, but also a cloudy winter day with lots of wind.

Only on a very cloudy windless winter day electricity production runs almost exclusively on the combined cycle power plants, which costs a little more methane than is produced on a sunny summer day.

The cost of energy imports in 2012 were 93 billion EUR. Then there are the costs for the mining of lignite and other non-renewable energy in Germany. Since 1990, the cost of energy imports doubled every decade.

Never mind, Germany is almost export champion and can afford that? Where should Germany export if other countries already are in the death zone of the economy: trade deficit larger oil imports? USA, Greece, India and other countries.

Not only oil and gas will become more expensive, bu also the problems to increase export earnings to pay for these imports may be greater. Calculated correctly, this list of investments to 100% renewable energy a bargain in comparison to increase the export earnings to compensate for a further price doubling of oil and gas imports.

With all the action as PEGE Tax Transition Concept, land for energy, the 10 points program, the wall on which we race towards, can be mitigated to a gentle hill.

What to do with 1200 GW photovoltaic in Germany? There's even extreme solar architecture too little. Thereto Professor Adolf Goetzberger has the answer: Agro Photovoltaics - Agriculture under photovoltaic systems: light shading increased crop yields.

	Installation	Yield/year	Price
Photovoltaic	1200 GW	1100 TWh	1000 G-EUR
Wind energy	150 GW	300 TWh	200 G-EUR
Other renewables		100 TWh	100 G-EUR
Battery storage	4 TWh		800 G-EUR
Electricity to methane	300 GW		150 G-EUR
Gas storage	300 TWh		25 G-EUR
CCPP power plants	150 GW		100 G-EUR

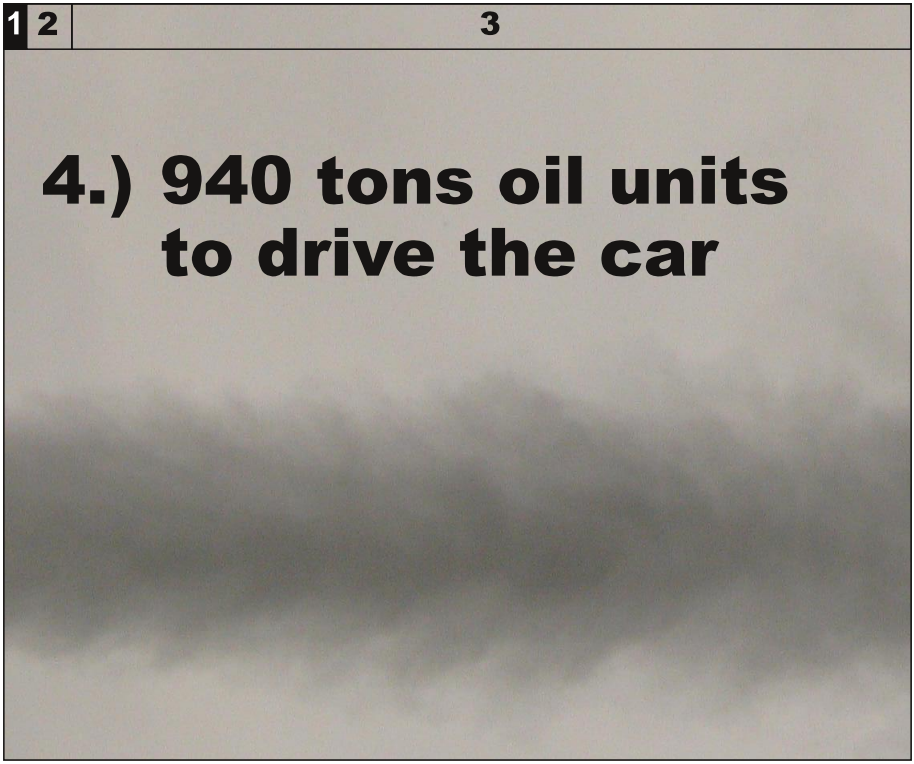
Only thousand years of car driving

What does it need for 1000 years car driving with internal-combustion engine and a production based on fossil energy?

1.) 1.5 tons raw material to produce the car

2.) 3 tons oil units to change the raw materials to a car

3.) 55.5 tons oil units to recycle the car every 20 to 30 years



1000 tons of raw material for 1000 years car driving. Only 1.5 tons are used for the car. 99.85% of the used raw material is fossil energy increasing the CO2 concentration in the atmosphere.

With strange imaginations like this, our living standard is impossible to continue.

Five billion years of electric car driving

What does it need to drive an electric car for the next 5 billion years? All the production and recycling done by electric power from sun and wind.

1.) 3 tons raw material for the car, the batteries and the photovoltaic.

1 ← That's all!

Every some decades, the car is recycled; the batteries are recycled; the photovoltaic is recycled.

The predictions in "The Limits to Growth" are based on throw away energy. Buy it, burn it and it's thrown away into the atmosphere. But even fossil energy can be recycled. Filter and split the CO2 out of the atmosphere, split water into oxygen and hydrogen. Combine both to any desired hydrocarbon.

Today we say, a 10,000 km airplane flight needs 300 liter kerosene per passenger. We will say in the future a 10,000 km airplane flight needs 6,000 kWh electric power to produce the fuel for the airplane.

Could we also make this with an internal-combustion engine car? 100 kWh electric power to produce 5 liter Diesel while an electric car of this size uses only 15 kWh is uneconomic, but at the airplane there is no other choice.

Plants can also make hydrocarbons from air and water, but this has a very low efficiency. One square meter photovoltaic can produce in a sunny desert 15 liter per year.

My flight from Munich Germany to Chagchun China and back will be in this future only one-year yield of 40 sqm photovoltaic in the desert.

Helpless as an abandoned baby in the woods

What is the life expectancy of a baby abandoned in the woods? Thirst, starve, drown in a 5 cm deep water paints, freeze to death or eaten by predators. It is a matter of days.

What is the life expectancy of a civilization? Look at the numbers for "L = the expected lifetime of such a civilization for the period that it can communicate across interstellar space" in the Drake equation. For example, Michael Shermer means some hundred years. Seems the baby is surrounded by some hungry wolves. What created this extreme pessimism? Two different lines of the same destructive cult are responsible for all this "no future" desperation.

The established main line of economics tells: "We need economic growth for ever". An economist established 1972 a new slant of economy for all who did not like the main line of economics: "After some more growth will be the crash of our civilization."

The economist and coauthor of "The Limits to Growth" Dennis Meadows was invited 2011 to the German parliament. He prognosed many disasters and explained his own preparation for the crisis: An emergency generator with a 500 liter tank. This book shaped all the environment groups and the green parties. I wrote many examples, that the fossil industry and the environmentalists look like allies. This is because they both believe in different slants of the same destructive cult. Economics shaped the cultural opinion about the life expectancy of our civilization. We must free our thoughts from these spiritual hazardous waste.

How was it possible, that so many did not protest against all this madness? They blinded themselves, they preached blindness to all their followers for everything beyond an extreme short sighted view of the economy.

The ethics diagram has 15 fields. People who refuse to think ahead use at last 6 from the 15 fields, see on page 312. Only economics reduced the ethics diagram to only one field.

	Short-term	Middle-term	Long-term
Self	Blind	Blind	Blind
Family	Blind	Blind	Blind
Economy		Blind	Blind
Mankind	Blind	Blind	Blind
All living beings	Blind	Blind	Blind

Did an economist ever consider things, listed here as "blind"?

The first civilization jump

A civilization reached different skill levels to master increasingly difficult challenges of survival. It begins at level 0: A civilization with the same ability to survive as did the dinosaurs. The abilities of a level 0 civilization are defined as "helpless as a baby".

No one knew at the beginning of the industrial revolution what would come out. The science of the 20th Century enabled to reconstruct the fate of Earth in the last few billion years and to predict the future of our sun.

There were only a total failure: What will be the career of our civilization? Charlatans were active as merchants of fear. Misanthropists enjoyed to spread doom fantasies. Desperate people began to look at the last occurrences of fossil energy like a sort of last meal. The whole climate skeptics say: "Let us enjoy our last meal, the end is inevitable."

Is a more comprehensive violation of the human right of future even conceivable?

Fossil energy was to start the first civilization jump the right way. A coal fire to operate a steam engine is just a lot easier than to build a photovoltaic, electric power storage and an electric motor. There is nothing wrong to use fossil energy for 100 or 150 years to accelerate development. But then, a civilization has to become aware about the uniqueness of the situation, understand the process of the civilization jump and to start the completion.

Scientific progress since 1800 is enormous. But why has nobody researched the current status and the future development of our civilization?

Level 1: Able to ward off immediate threats

As an immediate threat, you can see everything, that has caused in the past billion years mass extinctions. Part of this is also to prevent a catastrophic climate change.

The irony of fate, the die-hard fossils wanted us believe that photovoltaics is unfit for power supply. But we will at the climate renovation require 8 kWh solar electric power to filter and split from the atmosphere the CO2 from 1 kWh coal-fired electricity. By thawing permafrost may be considerably more. 250,000 TWh of electricity to neutralize only the CO2 emission from fossil emissions in 2012. What with so enormously much carbon do? BMW is developing the i3, an electric car with a carbon fiber body. Carbon could replace iron in many areas because of the changed parameters.

What happens when the climate renovation is complete? In the case of -4 t CO2 per person per year scenario, then 25 kW peak photovoltaic and 35,000 kWh annual power generation per person.

A pole shift is imminent, an artificial magnetic field for this time would be very useful and requires only 500 GW. In a severe solar storm, we should protect our technology better. Maybe with a reinforcement of the magnetic field with 5000 GW.

The Toba catastrophe, a volcanic eruption of magnitude 8, erased humanity almost 73,880 years ago. In the future, timely relief blastings have to reduce the pressure, so an extreme volcanic eruption remains a local event and has no chance to change the world's climate.

Meteorites up to what size should be blocked? This is something like the question for what maximal damage should you conclude the liability insurance for your car. A million insured sum and then you make the most expensive of all the world's athletes to an invalid. A 10 km meteorite killed the dinosaurs. There is a theory that the mass extinction at the Permian-Triassic boundary was caused by the Wilkesland meteorite with up to 50 km in diameter.

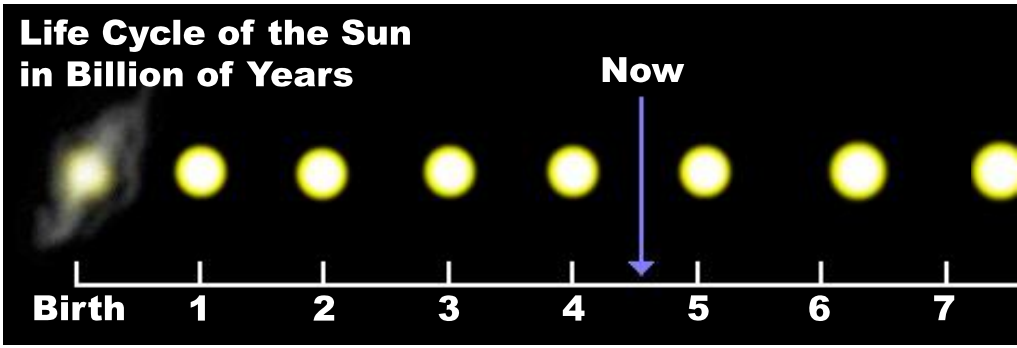
Level 2: Moving around planets

In addition to immediate threats to survival, there are also long-term threats. The United States has 1942 to 1945 invested up to 38% GNP to ward off an imminent threat. What has the U.S. invested up to 2013 to solve the climate change? Depending on the perception of time an immediate threat or a long-term threat. But this is only an in few decades striking threat.

What is with a threat striking only in some hundred million years? Can humanity invest 38% GNP to ward of such a threat? No! For this is our civilization today much too poor.

The first civilization jump is something in which a civilization completely unconscious stumbles into and it takes a long to become aware of the scope of the development.

The second civilization jump is, however, a conscious decision. Survival starts with the procurement of food and water for immediate needs. Investing in granaries to survive a few bad harvests, as in ancient Egypt.



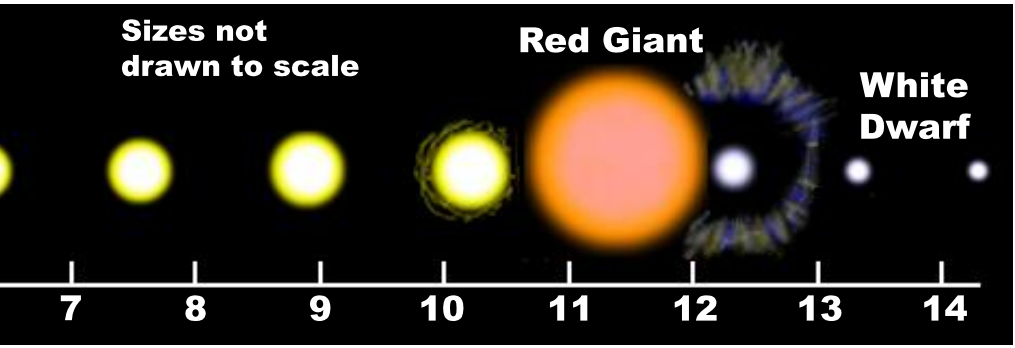
But if humanity successfully completes the first civilization jump, it is sometime before the decision: We want that in some hundred million years, the earth full of life and a flourishing civilization exists. We will adjust with a gigantic effort, the orbit of the Earth to the rising energy output of the sun.

"Subdue the earth", says a major world religion. A good ruler protects his subjects and sees this as his primary duty. "God created man in his own image", says a major world religion. Too stupid to survive is there probably the worst imaginable blasphemy.

In the next billion years the sun will shine only 8% stronger, which can be compensated by an expansion of the orbit to 155.4 million kilometers. 1000 times more electric power than is generated today and 100 times more electric power than in the time of the planet renovation is necessary for this. Many millions square kilometers of photovoltaics in space will provide the power, any other energy source, whether thorium or nuclear fusion is much too weak and unproductive for it. All for only 6 m orbital radius more per year.

Level 3: Survive wild changes of the sun

From a yellow main sequence star to a red giant and white dwarf. Shall our end look like this, or will we develop during the billion years as a level 2 civilization the technology to survive also this?



Surrender? We will then be a civilization that has moved their home planet almost to the present Martian orbit. 2.2 times more power of the sun require this.

Emigrate? Maybe, but there is also the pride of a billion year old civilization, not to let their home planet becoming an ocean of molten stones, hotter than Mercury, the ambition to solve technical challenges, to maintain the home planet.

Level 4: Beyond this universe

How will our universe end? Is the end of this universe the big bang of a new universe? Furthermore, there is no hard evidence today. Anyway, a Level 4 Civilization is one that survived the end of this universe.

Once you understand how limitless the future can be, then you will feel like in the clutches of a suicide sect, because nothing is done about climate change and peak oil-gas-coal-uranium.

I have no chance to leave Earth, I'm this suicide sect as helpless as the people around Jim Jones in Jonestown in 1978.

We have to snatch the fate of our civilization, our fate, out of the hands of this suicide sect, start with deprogramming and create for this a new global movement.

A new worldwide movement

This book is to establish a new worldwide movement. We have to end the all-out war against our own future. Be a part of this movement!

It's a fight for scientific leadership, ethics as the science of survival versus economics as the destructive cult responsible for the downfall of USA+EU.

It's a fight for public opinion leadership. This book is written against a multi billion EUR and US$ industry to produce the public opinion for the people paying for it. But luckily, high concentrated truth is a weapon of mass destruction against paid lies.

It's a fight for political leadership. Politicians have to be more than very well paid entertainers delivering a very bad show during an election campaign every some years. We have to teach them what is expected from a politician.

We have to make the industry our allies. We need a strong industry for a high living standard for all and for a maybe necessary planet renovation.

We have to make the 99% our allies. There are no better plans to help the "lost generation", all the other unemployed people, the "working poor" and the declining middle class.

We have to make the 1% our allies. Economics omitted to tell them, that the total change to renewable-energy and electric mobility is the biggest investment business in the 21st century. In the shortage of a big game where everybody wins, they invented casino capitalism and all the games to redistribute from poor to rich.

We have to make all car drivers our allies. Only the change to electric mobility will preserve affordable mobility.

We have to make all environmentalists our allies. They have been the best allies of the old fossil industry with their "renounce and reduce."

Please be part of the community on http://calculation-error.org ready for actions.

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Quotations

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Headwords

Critique of economic science, economics, economy

Tasks of politics, criticism neoliberalism, fiscal policy, economic policy

Tax system reform, ecological tax reform

Social critique, meritocracy, achievement society

Against high unemployment

Future research, development and levels of civilization, developmental stages, levels of development

Climate change, melting permafrost, planet renovation

Peak-oil, oil exit, exit from fossil energy

Energy policy, renewable energy, photovoltaic, solar power, solar age

Solar architecture, plus energy house, heat pump

Settlement planning, Plus energy settlement, land use, solar construction land, land for energy

Ethics, the science of survival

Electric car, electric cars, electric vehicle, electric vehicles, electric scooter, electric scooters, electric mobility

The Limits to Growth

Economic growth, growth objectives, targets for growth

Emissions trading, environmental certificate trading, CO2 trading

Joseph Stiglitz, Economist

contra Flassbeck Heiner, Keynesianism

IEA, International Energy Agency

Fatih Birol, chief economist of the IEA, oil crisis warning

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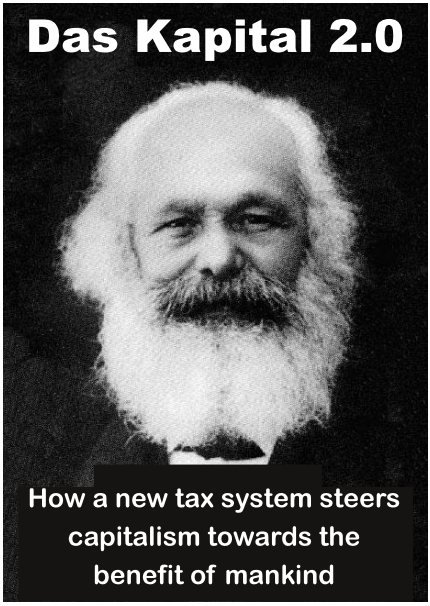

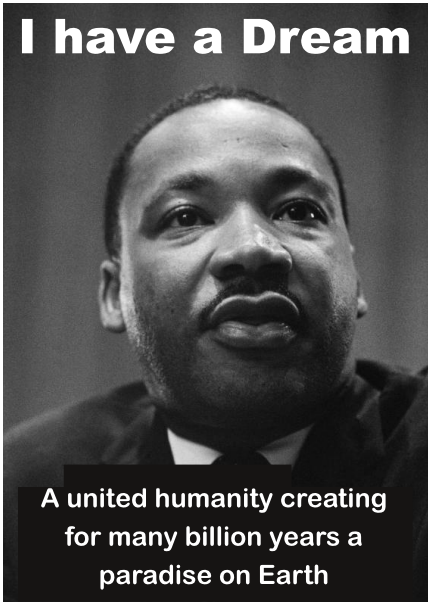

Denny Meltus

The Targets of Growth

A report of the Salzburg Club about the future of mankind

How uncontrolled tumor-like growth has to be converted to a purposeful growth to achieve a new durable civilization level

Thimo Sarhawin

Mankind terminates itself

How do we put our future at stake

Planetary Engineering Group Earth - future instead of self destruction

This is my speech at the Gusi Peace Prize ceremony 2011:

Humanity is in a civilization jump since two centuries.

Before the civilization jump was only renewable-energy,
mainly biomass.

After the civilization jump will be only renewable-energy,
mainly sun and wind.

To start the civilization jump,
by using fossil energy to boost the development
was right, a necessary development.

Half-century ago, humanity reached space,
reached the technology level - to fulfill the civilization jump.

Phase out fossil energy - Phase in renewable-energy,
to have a high-tech civilization - for the next some billion years.

But there is a deadly calculation error - The death calculation,

that it's cheaper to succumb than to survive,
that it's cheaper to destroy than to maintain.

Instead of reaching solar age,
mankind is in an all-out war against the own future.

To correct this calculation error is my mission.
The Gusi peace prize is a huge boost - helping me to end
this all-out war against the own future,

to bring humanity on the right way - the way to solar age,
to fulfill my mission - Mission Earth.

This is my book to expose this deadly calculation ERROR