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Renewable energies are the solution to problems related to energy supply security, climate protection and nuclear energy.

Ladies and gentlemen!

I am very grateful to the IPPNW for organising this important congress. The voice of the doctors is very important worldwide. It makes politicians and society take responsibility. This conference will make a major contribution towards addressing the increasing problems caused by the use of conventional energies. Harmful fossil energy sources - coal, oil, and natural gas, as well as nuclear energy from uranium – cover more than 80 percent of present day global energy requirements. Here, I would like to put it on record that nuclear energy makes up only 2.5% of global energy requirements. Statistics that put this figure at 7% are inaccurate because they include the amount of energy used in cooling towers or wasted by warming rivers. This tiny share of 2.5% of global energy requirements, however, is the cause of serious problems such as: nuclear weapons, nuclear waste, uranium mining, danger to safety, violations of human rights, radioactive contamination and much more.

But the use of coal, oil and gas is equally as destructive as nuclear energy: climate destruction, ‘wars for oil’ (and soon for gas too); the destruction of landscapes and the environment by mining and tanker accidents; diseases caused by polluted air and drinking water; social injustice through profit maximisation by a few large companies; the beginnings of economic crises created by resource shortages; the list could go on.

The problems caused by fossil and atomic energy are so serious that these systems have to be replaced completely. If this does not happen then humanity itself will be wiped out. But first of all, there will be a

worldwide decline into war and impoverishment, brought on by a global economic crisis sooner than anyone can imagine. However, the complete replacement of fossil and atomic energies by renewable energies is possible far earlier and cheaper than is being discussed today.

2nd slide

The global potential of renewable energies is many times greater than today's global energy requirements. Wind alone could cover today's global energy requirements many times over. The sun gives off 15,000 times more energy than is needed in the entire world today.

So what is the status of our fossil and atomic resources?

Let us first take a look at oil price development over the last few years.

3rd slide.

Economists are no longer in a position to predict oil prices for the coming year. In past years, oil price estimates have always been too low, as they were again this year, when an average price of 52 dollars a barrel was predicted. The price was not even close to this figure on any one single day in 2006. At the moment it is around 70 dollars. The results of these economist's false predictions are devastating for the global economy because the predicted growth-rates, tax revenues and expenditure cannot set in.

The reason for this is that economists ignore the true state of our fossil energy resources, instead putting their trust in placatory reports from international energy agencies and oil companies who all predict plentiful supplies of oil in the coming years.

4th slide

Today, petroleum geologists are able to make an exact evaluation of the future production of an oilfield, and thus of all the oilfields worldwide. Analyses from the petroleum geologists network, the Association for the Study of Peak Oil (ASPO), show clearly that the world is presently exceeding maximum oil production. Frantic searching for new sources cannot offset the decrease in oil production at the world's largest oilfields.

5th slide.

But at the same time, as shown by Chinese prognoses, there is a further increase in the demand for oil. However, China will never reach the targeted increase - from 7 in the present day to 13 mega

barrels per day in 2030 - because the world will never be able to deliver this amount of oil.

6th slide.

The world is at an historical turning point. During the next few years increased demand will, for the first time, be matched by a decrease in supply. The results will be further rapid price rises and an increase in the frequency of conflicts and 'wars for oil'. If we do not find an alternative soon, the world will come to the brink of an enormous economic crisis.

7th slide

Great hopes are being placed in the increasing use of natural gas. But gas will not be able to fill the looming oil production gap. Take Europe as an example: in large areas such as Great Britain, the Netherlands, Germany and Italy, natural gas production is already noticeably decreasing. Potential production increases in Norway, Russia and North Africa are not enough to offset decreases in other areas, mainly because Russia, in particular, aims to export more liquid gas to China and Japan as well as to the USA. In view of President Ahmadinejad's nuclear politics, I cannot share the hopes of importing natural gas from Iran, almost the only country besides Russia, and a few others, where increased production is still possible. Those who are now demanding new gas power plants, whether for climate protection or as an alternative to nuclear reactors, have no chance of success and, instead, they will provoke new conflicts. The Russian-Ukrainian gas crisis should have served as a first warning to us.

But you cannot fight wars over the rays of the sun or wind. Renewable energies are everywhere. So you see:

Solar programmes are peace programmes

8th slide

Increasing gas and oil supply problems lead to ever more new coal investments. This is a fatal development. Coal is the dirtiest energy source with the highest carbon dioxide emissions. The situation will become particularly bad if liquefied coal becomes widely accepted as a fuel replacement for gasoline. So-called CO₂-free coal-fired power stations and carbon sequestration and capture technologies are also not the solution, firstly, because they are not feasible and, secondly, because they will not solve the classical problems associated with coal-firing and coal production.

9th slide

The disastrous effects of the rapidly progressing climate changes alone, with increased damage from hurricanes, storms, droughts and forest fires, as well as the catastrophes that follow heavy snowfalls and melting glaciers, must lead to a rapid end to the use of oil gas and coal. The drastic increase in damage caused by climate change is shown in the statistics of the 'Münchner Rück', one of the worlds largest reinsurance companies. The hurricane Catrina alone caused 200 billion US dollars worth of damage when it destroyed New Orleans; this is equivalent to one third of the entire amount of climatic damage suffered in the 1990's.

10th slide

Climate protection can no longer be achieved simply by reducing emissions, as intended by the Kyoto protocol. Climate protection can only possibly succeed with a complete halt on emissions and a strategy aimed at removing the carbon from the atmosphere.

This is tantamount to simultaneously putting an end to the use of fossil resources not only for energy but also in the chemical industry.

11th slide

There is, as we know, a strengthening global debate on the use of nuclear energy as a means of protecting the climate. It is, however, completely absurd to want to use nuclear energy for any appreciable contribution to climate protection. If only 25% of the present carbon dioxide emissions were to be replaced by nuclear energy within the next 20 years, we would have to build 4,000 new nuclear power stations, i.e. as of this moment one new nuclear power station would have to be switched on every second day. Then, however, within the space of ten years all reactors worldwide would have to be switched off again because all the useable uranium reserves will have been exhausted.

A look into the past shows just how unrealistic ambitious nuclear expansion strategies can be. In the 1970's a benchmark of about 4,000 nuclear power plants was predicted for the year 2000, similar to the worldwide announcements being made now. Today, the actual total is a mere 440, whereby every single one is of course one too many. This almost complete failure of the nuclear industry is, however, paired with the highest amount of research funding.

12th slide

In the last 50 years, approximately 90% of all energy research funding has gone into nuclear energy, this has led to the provision of a mere 2.5% of global energy requirements. Nuclear research is the biggest research flop in the world. However, not one single government has learnt anything from this. The 7th EU Framework Research Program has just decided to budget 4 million Euros via EURATOM for nuclear research in the next 7 years, but less than 1 million Euros for renewable energies. This order of priorities is scandalous and irresponsible.

So because of the unrealistic future of energy supply with nuclear power we have to ask, why do so many countries want to promote a new nuclear strategy?

Most frequently, the real reason can be found in the desire to acquire nuclear weapons, or to get more material for nuclear weapons.

The most important example besides North Korea is Iran. The Iranian President says, that Iran needs nuclear power for development of the country. It is true, that Iran needs more electricity for development, especially in the rural regions.

But nuclear power cannot achieve this:

New nuclear power plants are too expensive, they cannot be constructed fast enough and they cannot supply rural areas, because there are grid problems.

But renewables could achieve this: They are cheaper, they can be constructed faster and also in a decentralised way without grids. So the governments of the world should supply Iran with a programme for renewable energies.

A SOLAR-PROGRAMME for Iran is the best way to avoid the Iranian nuclear bomb.

Perhaps you will find it hard to believe, that renewables are already cheaper than nuclear power. First, you have to compare the investment for new reactors with the investment in renewables. Look at the new Finnish reactor. Investment is only made profitable by a huge amount of public subsidy. So, for example, the Bavarian Landesbank gives a credit for 1 Billion EURO and only takes 2 % interest, subsidised by the Bavarian tax payers, like me. No wind park investor can get such a

cheap credit. Under normal investment conditions, nuclear power would have no realistic chance compared with wind power.

13th slide

Ladies and gentlemen!

Only one conclusion can be drawn from this devastating analysis of the fossil and nuclear energy systems: We have to focus on putting an immediate strategy into force that will affect a complete changeover to renewable energies. This basically means that, from now on, all energy investment should be in renewable energies.

The advantages of a solar energy system are plain to see; there would be no more fossil carbon dioxide emissions, the supply of energy would be secure, air and ground contamination would be largely eliminated, as would wars for resources and the energy supply would become affordable because the more we use renewable energy, the cheaper it will become. In addition, no new nuclear problems would be created. The conversion of the energy supply system could be accelerated if we were to use the high energy saving potential in all the many ways possible.

Germany has accepted this challenge. In the seven-year period of red-green parliamentary majority, a number of resolutions were passed, initiating successful strategies for the expansion of renewable energy supplies. These included not only legislation in support of renewable energies but also a phase-out of nuclear power and an ecology tax.

The most important laws for renewables are: the Renewable Energy Act (EEG), the tax exemption for biofuels, strengthening the research budget and others regulations.

14th slide

The Renewable Energies Act, which I personally drafted and the adoption of which I advocated, is already showing notably impressive results today. Thus, the market share of renewable energy power consumption in 2006 has risen to about 12%. When the act was passed in the year 2000, no one thought it possible that 12 % of the German power supply could be achieved even by 2010. This goes to prove that if the political framework is right then both society and industry are in a position to expand and to maintain high growth rates at the same time. The decisive factors are: the right laws, courageous private enterprise and knowledgeable activists.

The rate of expansion in the individual areas of renewable energy in Germany is breathtaking.

15th slide

Wind energy increased more than 6-fold between 1998 and 2005.

16th slide

Photovoltaic increased 28-fold in the same period.

17th slide

Small hydropower systems also regained impetus following years of stagnation.

18th slide

The installed biogas capacity has increased 15-fold. In the year 2005 alone, a capacity of 300 MW was added. This is equivalent to one quarter of the capacity of a large nuclear power station

19th slide

More than 10 large geothermal projects are already either under construction or in the concrete planning stage. In Germany alone, the basic load power generation of all the nuclear and coal-fired power stations could be entirely replaced by ground-source heat.

20th slide

Due to increased research funding for solar thermal power plants, it was recently possible to celebrate the laying of the foundation stone of the first European parabolic mirror power station in Spain.

21st, 22nd and 23rd slides

Similar support would also enable the utilization of new types of power such as:

Wave energy, tidal current energy or salinity power.

24th slide

Between 1998 and 2004, there was a 28-fold increase in the number of wood pellet heating systems being built.

25th slide

The consumption of bio diesel has increased by 24-fold to 2 million tonnes in 2005.

26th slide

At the same time, we could have long been driving emission-free cars had the motor industry developed the solar-powered car. You can see my solar-powered car here, in front of the newly inaugurated, world's largest photovoltaic plant near my hometown.

27th slide

However, it is not only important that legislation on renewable energy is passed; it also has to be appropriate and goal-oriented. It is important that potential investors in renewable energies are given an economic basis as well as an assumption on returns. Otherwise, you will have no chance in the energy sector because you are up against the profit-oriented nuclear, oil and coal industries. Great Britain is a good example of how this works.

Despite the fact that there is more wind there than in Germany, wind energy is considerably more expensive and there are hardly any wind parks. The reason for this is that corporate groups have succeeded in installing rules of tender and quota laws, which are practically useless, in contrast to the effective feed in laws that are in place in Germany and Spain.

28th slide:

At the same time, the often-criticized increased costs for renewable energy in Germany are minimal. Actually, consumers pay only 0.54 eurocent per kWh more for electricity. This is a small amount compared to the average price of 19.6 eurocent.

This increase of 0.54 eurocent per kWh in the price for consumers has already fallen in 2006 to 0.50 eurocent, because of the rising price for conventional electricity. Soon we will pay even less for renewables than for fossil and nuclear energy.

29th slide

In return, however, Germany has developed a new industry that is increasingly successful in exporting business and, above all, has created a lot of new employment. In 1998 only 30,000 people were employed in the renewable energy sector, by the end of 2005 the figure was 170,000, with a rapidly increasing upward-trend.

Ladies and gentlemen!

As you can see, not only in Germany, but also in Spain and other countries, the rapid transfer to renewable energies is possible. There is the hopeful beginnings of progress in China, in Greece, Italy, California, Brazil and others. At the same time we will gain true climate protection, affordable energy, energy supply security and a more peaceful world. The best way to render destructive nuclear energy superfluous is to replace it with renewable energies.

The introduction of renewables can come much faster than most people and politicians believe. But renewables present a strong

opposition to fossil and nuclear companies. They earn a huge amount of money today while destroying the climate and bringing nuclear problems. Renewables will take away these profits. Therefore the big energy companies fight against renewables.

But all of us should refuse to do business for the big companies.

I would like to see a strong force countering the profit-interests of the energy companies. I should also like to see it coming from this congress so that the path into a worldwide solar-age can be taken quickly.

30th slide

Thank you for giving me your attention.