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Political Aspects:
The German Renewable Energy Act – a success story for geothermal Power

...., ladies and gentlemen,

It gives me great pleasure to speak to you today on the key issue of renewable resources especially geothermal. This conference is especially important in the context of efforts to protect the global climate and the environment but also in its potential impact on the quest for a new energy system which can function without the increasingly scarce resources of crude oil.
Renewable resources are highly innovative; they create new products, and hence new jobs, in agriculture, in mechanical engineering and in the European energy industry.

For more than six years I have been working hard in the German Bundestag to promote the introduction of renewable resources into the energy and chemical industries. Numerous products based on renewables have been developed in Germany, and some of them are already on the market.
The need to replace mineral oil with renewable resources is becoming ever more obvious.
Although many oil corporations, along with the International Energy Agency (IEA) in Paris, steadfastly maintain that no supply shortages will occur in the coming decades, their reassurances seem just as unfounded as the inaccurate oil-price forecasts of recent years. The fact is that real global oil prices over the last six years have exceeded the analysts' forecasts by an average of some 50%.
(Slide 1: oil-price forecasts)
Scientific studies, such as those from the Association for the Study of Peak Oil and Gas (ASPO) - a global scientists' network dedicated to the study of oil and gas depletion - or from the Office of Technology Assessment, a scientific advisory body of the German Bundestag, paint a worrying picture. In a few years' time, they conclude, global oil extraction will have passed its peak.
(Slide 2: ASPO forecasts)
The ASPO analysts predict that the extraction of crude oil will reach its physical peak in the coming years. New oil finds are far from able to make up for the declining output of existing fields.
At the same time, demand for crude oil is rising dramatically. Particularly in countries such as China, India, Thailand and Indonesia but also in the United States, the past few years have seen almost explosive increases in oil consumption.
If political risks, such as strikes, wars and state intervention, as in the Yukos case, are included in the equation, supply shortages and further dramatic price rises start to appear very likely.
The today´s oil price, the highest in the history of oil market, speaks for itself.
In the same time where the oil is beginning running out of the world, even natural gas will occur the same. The sudden and unexpected shortage of natural gas in north America beginning in 2000 should be a serious sign for the whole world, that even

natural gas is a limited resource, that cannot replace the shortage of oil. Uranium is the most limited resource. Nuclear power is unable to replace any worth mentioning amount of fossil energy resource. And coal is the most dirtiest resource, we should avoid it very soon.

But the substitution of oil is also overdue because of its environmental impact. Mineral oil is the main source of carbon-dioxide emissions and is thus the chief contributor to destructive climate change; tanker accidents, leaking oil pipelines and oil rigs pollute sizeable tracts of land; pollutants from oil combustion damage the health of many people, as do toxic petrochemical products.

But can we actually afford to abandon the use of crude oil, natural gas, coal and uranium?
After all, oil is the raw material for around 40 per cent of the entire global supply of energy and a large percentage of global chemical production. Oil and other fossil fuels, indeed, are the bedrock of the global economy. Would the abandonment of crude oil not shake the world's economic foundations?

There is a straight answer to that question. Precisely because the global economy is so fundamentally dependent on oil, it must develop another resource base very quickly. Otherwise the increasing depletion of oil resources, the drastic rise in oil prices and the simultaneous exacerbation of the global environmental crisis will precipitate an unprecedented world-wide economic crisis.

It is possible to effect a total switch away from crude oil. The natural supply of renewable sources of energy – solar, wind, hydroelectric and geothermal power, bioenergy and ocean energies - offer many thousand times the world's entire annual energy requirement.
(Slide 3: Supply of renewable energy; figure provided by the German Solar Power Research Association (FVS))

Important factors will be the maximum use of solar, wind, hydroelectric, geothermal and ocean energies for energy production as well as energy savings which ensure that enough renewable resources remain available to feed the world and supply the chemical industry.

As a result the most important world politic issue is, to replace oil, coal, natural gas and uranium consumption with renewable energy sources. If this is not done, the problems with world economy, oil wars and climate change will increase very rapidly.

Germany has accepted this challenge. Apart from the Renewable Energy Law there are an abundance of other measures to aid renewable energy to reach market penetration; As well as to create new technologies by means of a research offensive. There is also support for the heating market, for example, support for solar collectors ore geothermal. Developments are also advancing for new fuels made from Biomass.

In electricity sector, sometimes combined with heat market with co-generation, the Renewable Energy Law is the most important and most successful law in the world for renewable Energies.

Like my poster shows, European countries with other laws, like quota systems certificate systems ore others where not successful.
(Slide 4: Minimum Price system compared with quota system)

By the way, United Kingdom and Italy did not reach the installed wind capacity like Germany and Spain.

But a successful law needs furthermore important details.
The feed in tariff must be paid for a long period, like 20 years. This gives the investment the security.
The feed in tariff must be high enough. So high, that a profitable investment is possible.

The introduction of the REL in Germany was and is even at the moment not undisputed. However substantial counter-arguments were either inadequate or long disproved. It was often argued that the REL only about subsidies, which do not fit into a liberalised electricity market. It was similarly argued that the costs which all electricity consumers share equally are too high and would be too heavy a burden on the economy.

All counter-arguments are not really sound. Costs will fall in the next years; Thereby allowing them to be carried by the production economy.

Similarly the law does not concern subsidies, because tax funds are not at all involved. The entire financing of the REL is through private capital, without public funds. The state only specifies the framework for how investments in renewables are able to become economically profitable. The market alone covers the remainder. Thus no subsidies are paid for through the REL. On the contrary fossil and atomic energy is still highly subsidised world-wide and are only cheaply available on the market due to this subsidisation.

The state sets basic conditions through the renewable energy law. These conditions finally give environmental protection a chance to become generally accepted on the energy market, in line with European law.

The renewable Energy Law is the most important law to fulfil the political targets in EU and Germany. You can see the targets on my slide.

(Slide 5: political targets)

The German Government wants to cover 50% of the whole energy demand by renewable Energies until 2050. In electricity sector until 2010 12,5% and 2020 20%.

Germany is on the best way to fulfil the EU and national targets.

In the last years the share of renewable electricity increased rapidly.

(Slide 6: Renewable Energy share electricity in Germany)

In 2004 Germany reached nearly 10% of renewable electricity. This is much more, than even in 2000 the most optimistic studies forecasted.

The most contribution to this rise comes from wind power, followed by bioenergy, hydropower and photovoltaic.

At the moment we have a big discussion because of the inconstant contribution of wind power to the electricity market. This discussion is not really honest. Because know one says, that only wind power should share the whole consumption of electricity in the future. We have enough other renewables and storage to add on the inconstant wind and solar energy. The most important are Bioenergy and Geothermal. Both are like a natural storage.
The very important Office of Technology Assessment, the scientific advisory body of the German Bundestag, reported, that the geothermal power even in Germany is enough to replace all basic electricity coming from nuclear and coal.

Because of admitting the Geothermal into Renewable Energy Law in 2000 there began a very busy increasing of geothermal activities. In 2003 the first geothermal electricity production went into grid in Neustadt Glewe in the north of Germany. It shows, that geothermal electricity production in Germany from deep underground is possible. Some utilities in Germany, like E.On, believed that it would not be possible. This success came, because of the feed in tariff of Renewable energy Law and the subsidies given by German Government.
The feed in tariff for geothermal electricity began in 2000. In August 2004 the amendment of the Renewable Energy Law raised the feed in tariff on a higher level. So a lot of new projects can now come to a profitable investment.
(Slide 7: Feed-in tariffs for geothermal power)

It was also very important, that the German parliament decided to give money for research for geothermal. This began 2000 with the greens and social democrats in the parliament, after under the old Government the whole research money was completely cancelled, even any other subsidies.

Now the enormous political support from the red-green parliament and government lead to an increasingly economic both, in heat and electricity. A lot of new projects are going on, some already successful in drilling the holes, like in Unterhaching ore Groß-Schönebeck.
Others in creating new business, like the famous tunnel drilling company Herrenknecht. I visited some weeks ago and was very appreciated that Herrenknecht will produce new drilling machines, that you can use in cities with low noise and saving space.
There are some more needs to support anymore Geothermal energy in Germany. By the way to take the of one drilling and to spread it like a security to more shoulders. The environmental Ministry in Germany works hard to offer such a help.
We need also an offensive to use surface geothermal for heating the houses. But we should pay attention that the electricity for heat pumps should come from renewable energies. Otherwise it will support climate change.

We need also an offensive for more research support and innovation policy for geothermal.

Because the high financial outlay for research and development and for the creation of new production technology is preventing many businesses from investing in these innovations. On the other hand, we cannot wait until the price of oil is so high that many innovations made from renewable resources become competitive by default. There is too great a danger that the development of such products will come too late

and that the substitute products will simply not be there when they are needed. The result would be major economic losses.

It is therefore imperative that initiatives in this domain receive adequate political support in terms of the creation of a favourable climate and the development of joint strategies with the energy industry and mechanical engineering industry.

It is the task of politicians to point the way, together with the companies, towards oil-free and renewable energies.
One of the main priorities of this joint effort must be the provision of adequate support for research and development.

In the decisions taken at the Lisbon summit in the year 2000, the European Union set itself the target of making Europe the world's most competitive region. One of the ways in which it seeks to achieve this target is by increasing total EU expenditure on research and development to three per cent of GDP.
The analyses presented last year in Wim Kok's report on progress towards this goal make very sobering reading. Wim Kok stated emphatically that the EU must considerably intensify its efforts to promote R&D through financial contributions from the EU budget, from national budgets and from European companies.
At the same time, the report recommended that Europe play to its strengths in order to raise its standing in global competition. One of the strengths it identified was environmental technology, a domain in which renewable forms of energy and renewable resources play a prominent role.
These, however, still receive too small a share of European expenditure on research and development; for example, in the present sixth EU framework programme for R&D, considerably less funding is allocated to all sources of renewable energy, renewable resources and sustainable chemistry put together than to nuclear energy – this in spite of the fact that, for no less than fifty years, some 80% of global public funding for energy research has been poured into work on nuclear technology, which, after all this assistance, now meets a pitiful five per cent of the world's energy requirement.
(Slide 8: Expenses for R&D on Energy)

It is therefore imperative that the seventh framework programme for research and development, which is currently being compiled, should attach due priority to renewable energy and resources and allocate far more funding to them than was earmarked in the sixth R&D programme.
Today, at the moment the Research Commissioner Mr. Potocnik from Slovenia presents his proposal for 7. FRP. For all we hear at the moment there will not enough support for all renewable energies especially for geothermal. The most support will the Commission give to nuclear power. That is frightening, because nuclear power, especially nuclear fusion will not bring new jobs an will not bring enough energy for the declining oil and gas supply.
It is now up to you, to lobby the Parliamentarians in the EU parliament and the governments to change the Commission proposal less nuclear and more renewables, especially geothermal.

The best way of achieving this aim is to reallocate resources appropriately. For example, we are proposing cuts in the funding of EURATOM, so that the savings can be diverted to research in the field of renewable resources.

Reallocating resources within the research budget, however, will not be enough to satisfy the great need for research and development. As envisaged in the Lisbon strategy, a substantial increase is needed in R&D expenditure. Potocnik and the Commission will double the financing. But this will became very heavy.
At the present time, important choices are being made in this respect with the preparation of the European Union's medium-term financial plans. There are, however, powerful forces in favour of maintaining the existing financial architecture. If it were maintained, large sums of money would be earmarked for the subsidisation of conventional agriculture ore other old subsidies.

National governments must also intensify their financial efforts considerably. Since the change of government in 1998, Germany has steadily increased the R&D budget for renewable resources and, despite all the present financial difficulties.

Besides the need to top up the resources devoted to research and development, however, other political groundwork is required. Companies will not make the necessary investments in new products unless they see a sufficiently lucrative market for them. In Germany, various political instruments to promote the introduction of renewables into the energy market have proved beneficial.
The system of legally guaranteed payments for renewable energy fed into the grid, which are so high that they enable investors to conduct economically viable operations, is helping the generation of electricity from biogas, geothermal, solar and other renewables to break through into the mainstream economy. A support programme for energy from renewable sources is opening the heating market to heat generated by biomass and geothermal.

State aid alone, however, cannot effect the necessary changes. Industry, and especially the financial sector, must play their part. This can be supported by an increase in venture capital for investment in 'clean-tech.' products. The German Bundestag has been pressing for measures to bolster this market. Over the next few years, a total of 500 million € in public funding will be available for this purpose. Together with the European Investment Fund (EIF), the German Government is helping to increase the supply of venture capital. This capital, provided through various funds, is also expressly available for energy innovations based on renewable resources.

Ladies and gentlemen the excellent success of the new red-green policy for renewable Energies will not hold on by itself. A big campaign against renewables done from big electricity utilities ore some magazines like Spiegel is a big danger. The CDU/CSU and FDP fraction decided to cancel the renewable Energy Law in 2007. This would be a big disaster for renewables and for Geothermal. I will appellate to create a whole consensus for Renewable Energy law, for more Research money and for subsidies over all political Parties. Everyone who can work on this target should do this. It would the very best strategy to go on increasingly with renewable Energies.
This promoting is not only important in Germany, but also in all European countries. To follow German, Spain and Austria to promote a renewable Energy Law. Other countries will do this. China decided already, Taiwan and California will follow, I hope soon.

Ladies and gentlemen, I hope that this congress will generate additional impetus for the creation of appropriate European and national support schemes and legislation to develop the use of renewable resources and especially geothermal for heating and electricity. Protecting the global climate, the environment and public health, enabling EU-based companies to innovate and compete in the global marketplace and creating new jobs – the prospect of achieving these aims should be enough of an incentive for us.
At the same time, such a strategy would lay the foundations for the preservation of prosperity and of a functioning economy, which would otherwise be a forlorn hope in view of the impending depletion of oil resources.

Thank you for your attention.