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**100% Renewables is the most important and effective contribution to climate protection, energy security and economic recovery.**

Ladies and Gentlemen,

It is a great honor and pleasure to present to you today the great success of a new industrial revolution of renewable energies in Germany. Thank you very much for inviting me to this important conference. I moreover hope that the American-German friendship will be further deepened. And I give you best Greetings from Berlin, the Twin town of Los Angeles.

Renewable energies in Germany have gone through an astonishing industrial expansion in the past 10 years that has been surprising too many analysts. The basis for this new industrial revolution is in addition to various other political laws the Renewable Energy Sources Act (EEG).

At its center stands the principle of primacy of renewable energies and feed in tariffs. Moreover that the tariff is designed in a way, that it provides certainty to investors. These points were crucial to me by drafting the Feed in Tariff law in 1999, which was then adopted in 2000 by the German Bundestag.

### **(Folie 2: Share of Renewables in the Gross Electricity)**

One can see the industrial growth momentum by looking at the targets. In 2000, a set growth target by the law of the share of electricity from 6.3 % in 2000 to 12.5% in 2010 was considered to be unrealistic and unattainable. However, in 2009 already 16 % of this share has been reached. Therefore much more was possible in less time.

While maintaining the current growth rates, in 2020 Germany can create already about 50% of it's electricity from renewable energy sources. By 2030, electricity made of 100% from renewable energy sources is possible!

### **(Folie 3: Avoided Costs due to Renewable Energies)**

At the same time, the expansion of renewable energies increased the energy security of Germany by reducing the purchase of scarcer and increasingly more expensive fossil and nuclear resources. Furthermore, enormous costs for the national economy have been saved. The additional costs for the marginal higher electricity prices of 3.2 billion Euros were outweighed by the avoided costs of importing oil, gas and coal worth 7.8 billion Euros. Moreover, the prevention of external costs for environmental damage in 2008 already amounted 9.2 billion Euros.

### **(Folie 4: Average electricity costs)**

Furthermore, the higher electricity costs for a typical 3-person household are rather low with about 1,60 € per month.

### **(Folie 5: Job engine renewable energies)**

Furthermore, these additional costs stand opposite to a rapid development towards a new industry branch. In 1998 only 30 000 people were employed in the renewable energy sector while already in 2010 the number rose to almost 300 000. The renewable energy sector has become the most important pillar of the German economy during the current financial and economic crisis, which was also determined by the high oil price of \$ 150 per Barrel in 2008.

### **(Folie 6: Comparing Climate protection tools)**

The share of renewable energies are a key to climate protection in Germany with an annual reduction of 120 million tons CO<sub>2</sub> in total and 57 million tons through the Renewable Energy

Sources Act. In comparison, 850 million tons of CO<sub>2</sub> were issued in Germany in 2008. The targeted emissions' trading, however, has contributed much less with an annual reduction of only 8.2 million tons with much higher costs of 8.6 billion Euros.

Ladies and Gentlemen,

Our experience in Germany demonstrates that protecting the climate by using renewable energies is not a burden but a stimulus to the economy as well as a cost-effective way of reaching energy security with domestic and sustainable energy sources. In addition, national or international struggles over resources are preventable.

### **(Folie 7: A Path to Sustainable Energy by 2030)**

The Californian researchers Jacobsen and Delucchi from the Universities of Stanford and Davis have recently unveiled a plan to switch entirely to renewable energies by 2030. The focal point of this plan is to use the energy of sun, wind and water. The target of a full coverage by renewable energies is under the right political framework technologically feasible, economically reasonable and quickly doable.

A full supply by renewable energies would be the most decisive contribution to global climate protection. Not a conference on

climate change with UN resolutions is needed for such a strategy but national leadership. This is a great opportunity for the pioneering countries for an industrial leadership perspective alongside with many employment prospects in the export sector. With a growing mass production, the technologies of renewable energy will also become cheaper and cheaper. With the exception of bioenergy, renewable energies do not contain fuel costs which will make them cheaper with no competition to oil, natural gas, coal and uranium in the coming years. By contrast, the costs of conventional fuels will raise in the next few years due to the scarcity of resources which will bring along serious problems.

### **(Folie 8: Oil production world summary)**

Scientists of the Energy Watch Group (EWG) and others have already proved that the peak of oil in the world has by now passed. With a 3% annual decline in the coming years, global oil production will decline to about 50% of today's production. Even the conservative International Energy Agency (IEA) in

Paris has warned that the world is facing serious economic problems due to the increasing shortage of the availability of oil. Since natural gas, coal and uranium resources are of limited availability, they do not stand a chance to balance the decline of oil. At the same time nuclear security risk is rising. Germany has already recognized this, and a nuclear phase-out law was adopted in 2002. By now, no political party in Germany supports the construction of new nuclear reactors. But all parties support renewable energies.

Moreover, using renewable energies can prevent various nuclear threats such as nuclear waste disposal, terrorist threats and proliferation. For instance, an offer made to Iran to extend its electronic power supply with renewable energies could be an opportunity to dissuade Iran from its nuclear plans.

## **(Folie 9: Climate problems two strategies)**

Ladies and Gentlemen,

Climate change requires not only the conversion to renewable energies but a further strategy. The switch towards renewable energies would indeed mean that no more CO<sub>2</sub> would be issued into the atmosphere, but the concentration of 385 ppm CO<sub>2</sub> in the atmosphere is already too high and has led to unexpected problems and risks. It is therefore necessary, to create a second strategy to clean the atmosphere with a target of 350 ppm. Again, this is achievable with new technologies such as the hydrothermal carbonization. Both the conversion to renewable energies, as well as the purification of the atmosphere provides significant economic and commercial opportunities. After the failure of the World Climate Conference in Copenhagen, the financial sector in the world could protect the global climate with this technological revolution.

Right now, I am developing such a new climate change strategy and I am seeking allies in the financial sector, in companies and politics. If you are interested in supporting such a climate

change strategy, I would appreciate it if we can establish contact. There is a great chance to implement this policy if different voices push for laws and other policy frameworks.

However, highly important for the implementation process are the correct details of such laws so that they can operate efficiently and effectively to enable private investments.

I published and introduced these details of the Renewable Energy Sources Act in April 2009 in Washington D.C..

Please feel free to download this paper from my Homepage or request it directly from my office.

It would be great if the big targets in California with 33% renewable energies by 2020 can be achieved or even be exceeded. This goal is possible with a clear change in energy and transport system. Electric cars, emission free high speed trains are very important. Germany companies are very interested to come in contact with California to invest in

Renewable energies as well as in fast speed trains. This all is possible with clear political objectives, like feed in tariffs.

The entire United States can act on climate protection without a burden on the economy maybe using the example of Germany for renewable energies.

If we put together a political framework on 100% renewable energy in Europe, China and the USA, we can reach climate protection, energy security, prevention of conflicts about oil, lower or stop nuclear proliferation and create a rapid economic development with many new employment opportunities.

With renewable energies, the world can look forward to a positive future.