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**Three Points for a Cost-efficient Energy  
Transition**

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Check against delivery.

Germany is now in its second year of the energy transition – time to draw a balance! I warmly welcome you to the Siemens tent. As you can see, we are working at high speed on finding solutions for the energy systems of the future. Siemens stands fully behind the energy transition. We are convinced of its feasibility – and continue to see it as a major opportunity! The unprecedented awakening that took place after the catastrophe of Fukushima can inspire innovations and give us a competitive advantage. Good money can be earned with these innovative technologies – in Germany and worldwide.

### **Energy transition at a critical point**

But in its second year of the energy transition, Germany is unfortunately also a country with costly contradictions: The levies for renewable energies through the EEG will reach a new record high of around €16 billion in 2013. The electricity prices are rising uncontrollably. And yet we are getting no closer to reaching our goal of reducing CO<sub>2</sub> emissions. Because coal-fired power plants have to compensate for the fluctuations of the renewable sources. To get these contradictions under control, I propose a Three-Point Plan that I will explain in a moment.

Two key points in advance: We should exclusively concentrate on one climate target and desist from unchecked expansion of renewables – in particular those that in Germany generate electricity less efficiently! The climate target can be reached by 2030 with fewer renewables at far lower costs! An energy mix with 40 percent green energy – rather than the planned 50 percent by 2030 – makes sense both ecologically as well as economically. And we have a proposal as to how we can achieve the energy transition at a far lower price. By 2030, we can save €150 billion.

### **Most energy transition targets probably won't be reached**

Let's look at the details. On the positive side of the energy transition at the moment is only the fact that we will reach our target of developing renewables set in the energy transition act. This means that we will most probably increase the share of renewables in our gross power consumption to 50 percent by the year 2030. However, we will miss all other targets of the energy transition if we continue with "business as usual." The Energy Transition Act aims at reducing Germany's carbon dioxide emissions by 55 percent by 2030, measured against the reference year 1990. Based on

the current status, we will not succeed here. In fact, Germany's CO<sub>2</sub> emissions even climbed again by 2 percent in 2012! In addition, by 2020, power consumption in Germany should decline by 10 percent, measured against the reference year 2008. But in fact it has remained constant or even increased slightly.

### **High electricity prices**

Private consumers and industrial customers today pay twice as much per kilowatt-hour than in 2000. And in international comparison as well, electricity in Germany is truly expensive. For private consumers, the price of electricity in 2012 was around 40 percent higher than the EU average. If the energy transition continues in this direction, the electricity bill for a 4-member family will be €400 a year higher by 2020! And for private and industrial users electricity in Germany is three times more expensive than in the USA.

The German economy can currently depend on a strong industrial sector – the manufacturing industry generates around 22 percent of the country's gross national product (source: IHS Global Insight). That is top in an international comparison! Not least thanks to this strong industrial base, we mastered the recent economic and financial crisis better than many other countries. High energy prices can undermine this solid foundation. That's why I want to stress: Flaws in the energy transition threaten the competitiveness of German industry – and thus jobs in Germany!

Germany is taking the most expensive path imaginable toward an energy transition: We are supporting renewable energies – and photovoltaics in particular – with absolutely no reservations. We are thus building up enormous parallel capacities to the still urgently necessary conventional power plants – and are driving electricity prices ever higher.

### **The example of the U.S.**

That there are other ways to do this can be seen in the example of the U.S. Since the country began shifting from coal-fired to gas-fired power plants, America's CO<sub>2</sub> emissions have been falling. And America has gained a competitive advantage over Germany through cheaper energy prices: Even energy-intensive companies are once again investing in the country. Right now, there are around 100 planned industry projects with a total volume of US\$100 billion. By 2020, up to 5 million new jobs could be created this way.

We are under pressure to take action. Germany's energy transition must not burden the country – neither its economy nor its energy supply. Expanding our renewable energies per se is not an acceptable goal for the energy transition. We must find a reasonable and viable overall economic and climate policy concept. And this means: We must change our course!

Many German companies share this view. We asked 250 of our top customers how they see the energy transition. Over 90 percent cited "affordability" and "security of supply" as the most important challenges. On the other hand, our customers consider the expansion of renewable energies to be less important.

### **€150 billion savings**

We therefore propose making the CO<sub>2</sub> target the central focus of the energy transition in the future. In short, we want to bank more on highly efficient combined cycle power plants because they can produce electricity cost-effectively, flexibly and with a low level of CO<sub>2</sub> emissions. And with the renewable energies, we should bank on wind energy above all. Germany has outstanding wind conditions in the north. In this region, wind energy can nearly compete today with conventional energy sources. And since offshore winds are constant, offshore power plants reliably produce electricity.

In the field of wind energy, German industry can again hold a pioneering role and prove its strength as innovation and technology leader. The export potential is enormous: Some 40 percent of the world's population lives in coastal cities. If we push this technology here in Germany, offshore wind power plants will be an export hit – like our efficient gas turbines already are today.

According to our calculations, an energy transition scenario focused on gas-fired power plants and wind energy would not only ensure that we reach Germany's climate targets. We could also achieve the energy transition at substantially lower cost. With the Siemens scenario, Germany could save €150 billion.

The savings would directly benefit electricity customers. The exploding costs would be stemmed: Electricity prices for private and industry customers would rise far less by 2030 than if we had continued as before. For a larger industrial location like the Siemens gas turbine factory in Berlin, this would mean savings of slightly over one

million euros over a twelve-month period. And a smaller industrial company would have to pay €10,000 to €12,000 less per year for electricity.

### **Three-Point Plan**

To help us move in this direction, I propose a Three-Point Plan to politics.

First: We should restructure the power market.

Second: We should stress energy efficiency.

Third: We need an energy transition with Europe-wide dimensions.

### **First point: Restructuring the power market**

The first point of our plan – restructuring the power market – would ensure greater investment security and market transparency with the help of five measures. The first two measures aim at a general revision of the Renewable Energy Sources Act (EEG). Renewable energies no longer need unconditional and unlimited support. And when they have reached appropriate market maturity, they must prevail in the power market without state subsidies. The regulations for plants that are already in operation would remain unchanged – because investment security and legal certainty are important values. But for the future, new market regulations should apply.

Measure Number 1 therefore states: Feed-in priority would be replaced by feed-in responsibility. In the future, providers of renewable energies would have to market their electricity just as reliably as all other suppliers. To guarantee their supply commitments, they must secure their capacity, when necessary, with flexible power plants – or in the future also with storage.

Measure Number 2 aims at supporting renewable technologies, but on a competitive basis. We recommend a more targeted awarding of renewable energies, such as through auctions. For example: The investor offering the lowest feed-in tariff would be awarded the contract to build a new wind farm. Countries like Denmark and the Netherlands show us how that functions – and we can learn from their experience! We believe technologies like photovoltaics can already get by completely without subsidies.

Measure Number 3: We need a European regulation for the reduction of CO<sub>2</sub> emissions. We must further strengthen trading in European CO<sub>2</sub> emission certificates. Moreover, a fleet regulation for power plant fleets modeled after the automobile industry would be a possible effective measure. Utilities with a fleet of aging power plants would then be forced to improve their CO<sub>2</sub> balance step-by-step.

As fourth measure, we propose a fixed-cost levy. We want the consumer to pay a fixed levy corresponding to their connection to the public grid – regardless of the amount of electricity they use from the grid. This would ensure a more just distribution of the energy system costs. Right now, those who have no system for generating electricity from renewable sources are at a disadvantage – because they paid a large share of the infrastructure costs for small green power producers.

The fifth and last measure aims at maintaining the winter reserve. This means that Germany's Federal Network Agency and grid operators would annually define a specific amount of electricity to be maintained as reserve capacity for peak demand. Electricity deliveries from this emergency reserve would then command higher prices – so the power plants would also pay off for their operators. This would reduce the danger of a major blackout. In the medium term, however, it must be decided politically whether Germany introduces a capacity mechanism like other countries in order to compensate for the provision of power plants. This covers Point 1 of our plan.

### **Second point: Increasing energy efficiency**

Point 2 is about energy efficiency. A successful energy transition also depends to a great extent on energy saving. We therefore advocate a speedy implementation of the European Energy Efficiency Directive in Germany. In order to reduce our consumption, we need more regulatory pressure. Investments in energy efficiency initially sound like additional costs. But with smart financing models, much can be achieved. At Siemens, we have developed so-called energy saving contracting. In Berlin – a city that likes to call itself “poor but sexy” – we have carried out or are working on energy overhauls on around 200 public buildings. In each case, Siemens advances the required investment and the city refinances this through their energy savings.

As a supplement to energy efficiency measures, we recommend systems for regulating consumption. In simple terms, this means that consumers voluntarily disconnect themselves from the grid when the grid reaches its peak capacity – and are rewarded with special payments. Refrigerated storage facilities, for example, can easily shut down their power units for a few minutes in peak-load times without problems. In the U.S., such systems are already successfully in use. We can profit from the experiences in other countries for our energy transition. This afternoon we presented a study conducted by McKinsey that treats this subject. The study showcases 20 solutions in other countries that could be adapted for Germany with minimal effort. Along with the regulation of consumption, it also covers the previously mentioned auctioning of wind farms.

### **Third point: European coordination of the energy transition**

I'd now like to turn to my third and final point: We need a European energy transition. Let me give you a brief example of why things can't continue as in the past. In Rotterdam, Siemens completed a combined cycle power plant around two years ago. Last year, the plant operated for only 690 hours. Why? The surplus of Germany's green power not infrequently also results in an oversupply of electricity for our neighbors. The operator was forced to shut down the state-of-the-art power plant. This example makes it clear: Regional and national unilateral efforts for the energy transition are expensive! And expensive means they endanger the competitiveness of Germany and Europe.

We don't need a Bavarian, Brandenburg or Berlin energy transition. Nor do we need an exclusively German energy transition – but rather one for all of Europe. At the moment, Europe's energy policies are drifting apart. Poland's grid operator PSE, for example, is seriously thinking of blocking surplus green energy from Germany with the help of phase shifters. We must change the current course and network the energy transition Europe-wide. In the literal sense through power lines that connect power generation centers with consumer centers. And in the figurative sense as well – through close political coordination with our neighbors.

### **Adjustment of the energy transition policy required**

We face similarly major challenges today with the energy transition as we did with our labor market reforms ten years ago. Our goal is to create a sustainable energy system with reliable supplies and affordable electricity prices. A failed energy transi-

tion policy may not immediately lead to a mass exodus of German industry. But it would lead to a creeping loss of the country's economic strength. And that could cost jobs.

The initial orientation of the energy transition about two years ago needs to be reviewed and revised. Regardless of the results of the upcoming federal elections, the next federal government must make this a priority on its agenda. In the end, only an economically successful energy transition can serve as a model for other countries and be an export hit.

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