

# Plan N

## Initial Declaration on the Launch of the Forum for the Integration of Renewable Energy

### **Aims of the Forum**

At the Forum for the Integration of Renewable Energy, participants are unified in their awareness of the growing risks of climate change and the necessity for new orientation in energy politics. The Forum therefore expressly supports the dynamic expansion of renewable energy.

The Forum for the Integration of Renewable Energy aims to make the necessary conversions in the power supply as tolerable as possible with the least amount of conflict for people and the natural environment. At the same time, it aims to create the conditions needed to enable an effective and affordable integration of renewable energy.

Participants in the Forum for the Integration of Renewable Energy want to promote a fair balance of interests and to present their findings to those politically responsible as joint Guidelines on the Integration of Renewable Energy. The guidelines will be published under the title Plan N at the end of the process. Their implementation is meant to encourage the broadest possible consensus within society – so that climate protection and a turnaround in energy policies are not doomed to failure due to questions related to grid infrastructure.

### **Initial situation**

Since the nineties Germany has within the international community of states claimed to be one of the leaders in the fight against climate change. From the turn of the millennium, many of its successes in climate protection have been due to its exemplary expansion of renewable energy.

The continuation of this dynamic development has been called into question just at a moment when political support for renewable energy is increasing. Progress achieved so far is severely under threat as is the boom in future technology, which has quickly become one of the central mainstays of Germany's economy, employing over 280,000 people. The delays in upgrading the grids to accommodate new power generation sources are in danger of becoming a bottleneck hindering the further expansion of renewable energy, and becoming an obstacle for climate protection in Germany.

New power generation sources have a higher volatility with regard to availability and provision. Production of electricity is, on the one hand decentralised and, on the other hand, no longer primarily close to the traditional main areas of consumption. Energy infrastructure upgrading and modernisation must therefore aim to keep pace with the challenges posed by the integration of a continually increasing share of renewable energy. This includes – also because of the legally set date for withdrawal from the nuclear energy programme - the provision of additional and, if necessary, innovative energy storage capacity and the building of easily regulated power stations.

### **Long planning times for new power transmission lines**

The conversion of the energy industry, in particular the electricity industry, got off to a strong start on the production side. Now the grid infrastructure must urgently follow suit. The upcoming changes should be fundamentally be oriented on the maxim “optimisation, enhancement, expansion”. Germany needs new transmission capability in order to integrate the further increasing share of renewable energy, to cope with the incremental and regional discontinuation of atomic power capacity and to facilitate more power commerce and competition.

At present complex planning and approval procedures are delaying new power supply lines. But not only that – other factors are resistance within society fed by varying and partly opposed interests. There are concerns about preserving an intact cultural and natural landscape, effective protection of rare and endangered species, protecting people from possible health risks due to electromagnetic fields, wanting a sustainable but economical power supply or quite simply suitable returns in the future. The interests of people living in rural locations, landowners and people working in agriculture in minimal intervention are a further consideration. All of these interests and concerns are legitimate. This has however led to a situation where it currently takes 10 to 15 years before new transmission lines are constructed, and therefore timescales for the fast adaptation of power grids to new production sources are too great.

The problem is coming to a head because according to the will of the great majority of the population and their representatives in parliament, the share of renewable energy in the grid should rise from 15 percent in 2008 to at least 30 percent in 2020 and then carry on rising. This is stated in the Renewable Energy Sources Act.

Some of these conflicts of interest are reducible by laying power cables either completely or partially underground. At high and extra high voltage levels, underground power cables could be an alternative to the usual present day overhead cables. In future, it will be about finding the best possible variant with the least possible conflict in each individual case. There must be recognition of the extra costs involved in underground power cables and reliable regulation put in place.

### **Necessary steps**

For suggestions to be adopted in the proposed Plan N they should have sufficiently defined recommendations for action. At all levels of renewable power integration and planning the Forum

for the Integration of Renewable Energy will seek to put forward a package of measures calculated to guarantee optimum grid upgrading either by conversion or, where necessary, expansion, and to reduce the length of time needed for planning and implementation as well as to increase acceptance. The importance and concurrent weightiness of the prospective suggestions lies in the fact that they are based on a compromise resulting from an initial conflict of interests and agreement between the people concerned and those parties involved in grid conversion and expansion.

In detail, the following points will be given particular consideration for Plan N in the forthcoming discussions at the Forum for the Integration of Renewable Energy:

- The construction of new power lines must be fundamentally oriented on future demand without blocking any future changes in the course of developments – for instance on the side of technology. It must however be kept to the required minimum. On the one hand, the grid must be able to take up increasingly higher amounts of energy from wind and sun. On the other hand, appropriate optimisation in production, distribution and demand can limit the proportion of new construction. Investment incentives may be significant here.
- In recent years, the growing spatial distance between production sites and the main consumer areas has become an actuality in the German energy sector. This is due to capacity development (in particular on shore wind) and concrete plans (in particular offshore wind). Electricity is increasingly produced in wind farms in northern Germany but will in the foreseeable future be mainly consumed in the south and west of the country. Therefore, new defined new transmission capacities at the 380 kV extra high voltage level are needed to transmit electricity in a north to south and in an east to west direction. Innovative power transmission technology such as multipoint-enabled high voltage direct current (HVDC) transmission lines may be a feasible option. In addition, ecologically compatible and economically useable decentralised potential, especially in southern Germany, could be exploited to reduce the imbalance of distance between production sites and main areas of consumption.
- The present and future expected increase in the capacities of wind energy, and prospectively solar energy, requires – in order to avoid structural bottlenecks – regional expansion at the distribution network level (110 kV and 20 kV) as well as expansion in the European grid and beyond. Photovoltaic capacity is by its very nature strongly decentralised and therefore the focus of future expansion will conceivably lie within the medium voltage range.
- Moreover, the integration of increasing amounts of renewable energy into the grid requires an expansion in the capacity of cross-border transfer capability and the creation of new links between the national grids within Europe to bring about a much-needed balance. This will further stimulate commerce and competition in the power market.
- The anticipated higher share of renewable energy will make the creation of new energy storage capacities even more urgent in order to ensure that fluctuating in-put is better adapted to a likewise fluctuating consumption. Initial approaches in new technologies are

also being developed with state funding. Power storage will – especially when economic viability is taken into account – not be limited to a national level. In addition, there are existing hydroelectric power stations at home and abroad which can be used for supplemental storage.

Participants in the Forum for the Integration of Renewable Energy will draw up Plan N. After publication in a suitable form, it will be presented to politicians at the end of 2010.

The Forum is supported by

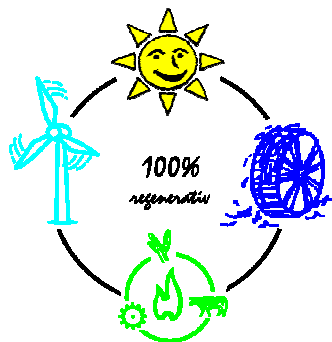




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