

DEVELOPMENT OF ELECTRICITY PRODUCTION IN EUROPE

Josef Timmerberg, *Jade University of Applied Sciences, Wilhelmshaven, Germany*

Adriana Foanene, *“Constantin Brâncuși” University of Târgu Jiu, Romania*

Folker Renken, *Jade University of Applied Sciences, Wilhelmshaven, Germany*

Daniela Cîrțină, *“Constantin Brâncuși” University of Târgu Jiu, Romania*

Georgi Tsonev Velez, *Technical University of Gabrovo, Bulgaria*

Krasimir Marinov Ivanov, *Technical University of Gabrovo, Bulgaria*

ABSTRACT: *The number of studies expected on the development of electricity consumption and the use of various technologies based on primary energy sources and energy has become difficult to manage in recent years.*

However, what is missing is a common perspective of electricity producers. This perspective on the development of electricity production in Europe is based on a study by experts and takes into account for the EU 27 between 2007 and 2030th.

Based on the Kyoto process and amortifying the European Union's greenhouse gas emission reduction targets and European and national renewable energy plans, it necessarily requires restructuring in Europe. An abrupt withdrawal of certain energy sources or primary energy technologies would be economically and ecologically harmful.

KEY WORDS: development, energy, technologies, electricity, renewable energy.

INTRODUCTION

This point makes it clear that all available energy sources and technologies are still needed to meet the demand for electricity and meet the climate change targets in Europe. Even if it is adopted in the context of the current economic and financial-economic crisis, the increase in gross electricity generation will be lower than before the crisis, all electricity generation options have to be used in the long term.

Europe can not miss any single source of energy when its own energy and environmental goals are at the same time is to ensure an adequate supply. The energy mix is necessary, but it will change significantly.

The development of renewable energy is characterized by the closest, essentially wind energy. Here was also considered that in the next decade wind first generation energy plants has reached the end of life and will play, in addition to the construction of new wind capacities of the replacement demand, the so-called repowering a a growing role. In the second half, so that in the years 2020 to 2030, a significant increase in solar energy is expected in both photovoltaic and thermal power plants. In 2030, European demand for electricity at about 48% of renewable energy to 33% is covered by fossil fuels and about 19% of nuclear energy.

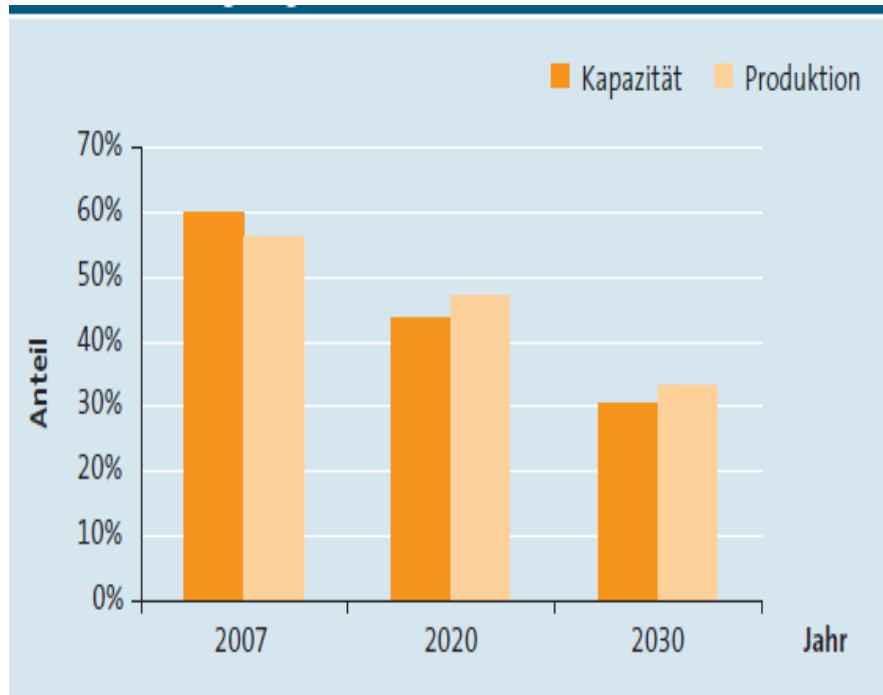


Figure 1 Capacity and production until 2030

The trend towards decentralized energy conversion systems will continue. This will allow extra flexibility, but also provide new network infrastructure requirements. This perspective shows that much of the expansion of renewable energies can be made. At the same time, the European objectives for the development of renewable energy are both taking into account the capacity of the producer and - as far as predictable today - achievable given the capital market when the Framework Policy conditions are set correctly.

DEVELOPING THE DEMAND FOR ELECTRICITY IN EUROPE

By 2030, energy needs will grow by 13%. 2020 with an average annual growth of 0.8% of electricity demand in Europe is only slightly increasing over the next

decade. Annual growth is only here at 0.15%[2].

In the coming years, a more profound restructuring of the power generation capacity will take place. This restructuring is largely influenced by the considerable expansion of energy from renewable sources across Europe, mainly driven by the growth of wind energy. Both developmental costs on components and constant expansion in sunny regions in Europe will lead to a growing share of solar energy.

In 2030 this will include a significant component of the solar thermal power plants, but it is not a contribution of the so-called desert-flow on the net equitable North Africa. But we also learn that in 2030 more than half of the electricity demand will be provided by conventional power plants. Therefore, primary energy sources such as coal, gas and nuclear power continue to play a significant role.

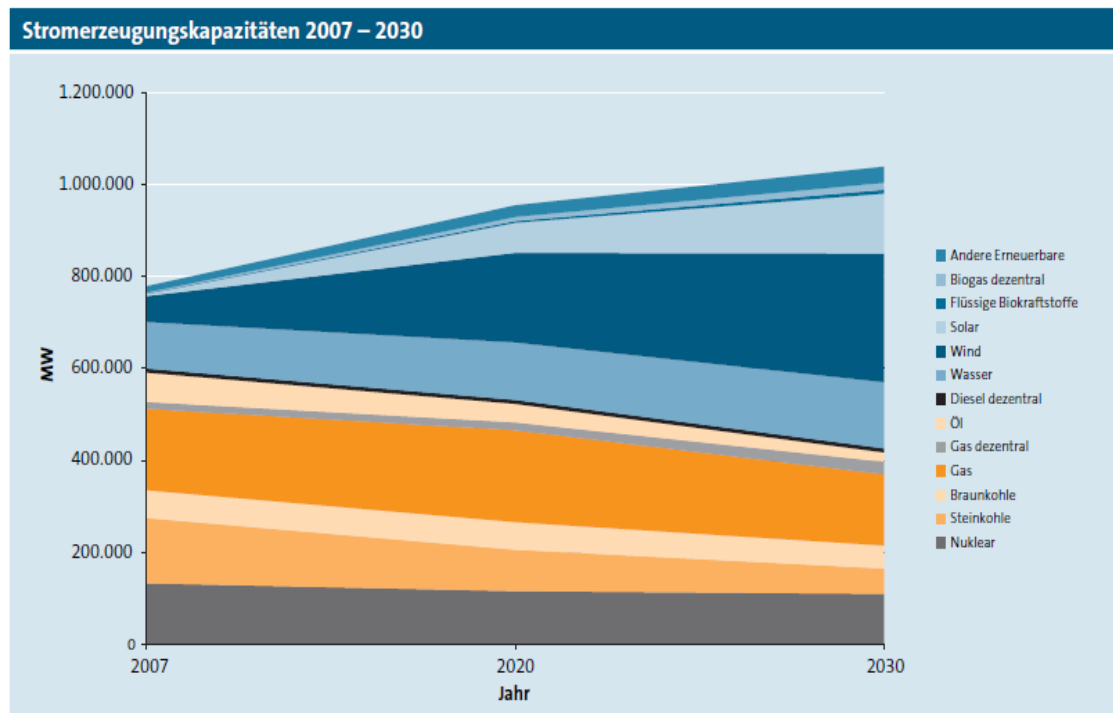


Figure 2 Energetic mix 2007-2030

Approximately 800 GW of generation capacity are observed 23 years (2008 - 2030) have to be built. Its substantial proportion will be renewable energy technologies. But about one-third of the newly built capacity is represented by conventional power plants.

Transforming and upgrading power plants will require significant investment. Although cost trends over the period are limited to predicting that the volume of investments will significantly exceed new 1,000 billion euros. In addition, significant investment in infrastructure is needed. Maintenance costs and upgrading of power plant economies, including through fossil or unnecessary. CO₂ costs Certificates will improve the balance sheet in the coming years.

Conversion of brown coal in light of ready availability and low cost of fuel, but also efforts to protect the climate of beer-action. The use of brown coal after 2020 will therefore be closely related to the use of carbon capture and storage (CCS) technology.

ACTIONS IN ELECTRICITY AND ELECTRICITY GENERATION

Actions in electricity and electricity generation were generating capacities essentially determined as follows:

- For 2020 and 2030 and taking into account the effects of the current economic crisis and national energy efficiency co-member states of the EU plans, a development of the determined energy demand. Moreover, an estimate of the additional electricity demand by increasing electric vehicles has been made.
- Determining the production of each energy source for the EUROPROG [1] ratio in Eurelectric and the self-consumption determined by the association and the industrial part of the respective types of power plants.
- Taking into account already foreseeable changes in generating electricity generation in (2007 to 2020 and 2020-2030). Initially, an estimate of capacity output was made. The assumptions for the operating time of power plants have been made[6]. In addition, already established or in the framework of some construction power plants were quantitated by association and herself instructions.

Pumped storage plants are not included but have been included as part of the storage capacity.

- Based on past steps and taking into account the available data on the site of the production and growth capacity of the potential manufacturer an ambitious but also realistic renew energy feasible expansion was taken as the basis. Here, too, the economic and political conditions in the EU's main outlets have been enlightened. The politically influenced investment climate in renewable energy was supposed to be stable. Based on this, on the conventional power generation capacity, a realistic estimate of the required circumference.

- Secured and maximum examination required power, a guaranteed power assumption for the integration of all forms of electricity generation from renewable sources in 2020 (25%) and in 2030 (35%) was taking account from renewable sources[3]. The capability of back-up capacity was determined on a conventional basis of a comparison with the expected peak power value.

- Emission Consideration: Based on predicted mix of power generation in 2020 and 2030, CO₂ was calculated as Emissions[4]. Significant on humans were realistic efficiency gains and the use of CCS technology for a third of 2020 from the thousand capacity of coal-fired power plants.

CONCLUSION

Manufacturers of all energy technologies considered in this perspective have been involved in development. Hypotheses were discussed with individual operators. All primary energy sources were considered. These were classified according to the electricity generation technologies in the following electricity generation technologies were grouped for better illustration:

- nuclear power plants;
- fossil power plants;
- renewable power plants.

The examination of the role of the centralized and decentralized generation has been granted from a qualitative point of view, since a clear delimitation was not possible due to the lack of a uniform definition and a very different role, especially in terms of controlling and approaching consumers of different types of investments.

The outlook builds on the real electricity generation figures in Europe in 2007 and predicts the electricity mix for 2020 and 2030[5]. The statistics were supplemented by information on producers and associations, especially on renewable energies and energy generation decentralized.

When developing scenarios, the emphasis was put on a realistic vision, including the effects of the economic crisis, in this process, they became Europeans objectives for the development of renewable energies and CO₂ emissions as well as production capacity for the construction of new power plants based on conventional and renewable energy sources.

The forecasts for capacity development of different power generation technologies have been taken into account in the lifetime of the types of power plants concerned.

The basis for examination is the current European law. The effects of implementing the EU's climate change objectives in the context of burden-sharing on the respective national production structures were so poorly predicted as the possible outcomes of the post-Copenhagen process.

Gross electricity production was estimated based on projected electricity demand. The basis for this hypothesis is to compensate for declining domestic consumption due to increased efficiency and increased share of renewable energy through its own consumption as a result of 2020 CCS technologies and relevant energy demand for additional storage space.

The forecast for "peak peaks" is based on the forecast of electricity demand and was made in proportion to the 2007 peak load.

Guaranteed performance of European power plants based on renewable energies is expected to increase strongly over the period under review. First, there is an increase in offshore wind turbines and thermal solar systems with full load hours and, secondly, intelligent renewable energy and other technological developments. to stabilize production.

- The perspective, as an essential constraint, involves the necessary extension of the European network infrastructure for planned plant mixes.

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