Long term energy policy vs. dynamic public preferences? A review of German energy policy 2008-2023

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Overview

The current energy crisis imposes even greater challenges to the on-going efforts to decarbonize the energy sector. Until only recently, Germany's strategy towards a secure, affordable, and environmentally sustainable energy system was highly reliant on efficient natural gas-fired power plants to support volatile power generation from renewable energies (German Federal Government, 2021). These plans included the gradual phase-out of coal power plants until 2038 the latest (with the coalition agreement aiming for 2030) and of nuclear power plants until the end of 2022. However, due to an increased scarcity and high prices for natural gas leading to sharp increases of electricity prices, calls within the German population demanding the extension of the operating life of coal and nuclear power plants are increasing.

This development would not be the first rapid change in energy policy under pressure from the population and thus the electorate. For example, in 2011 the nuclear phase-out was decided – after the nuclear power plants were actually extended in 2010 – based on strong protests after the nuclear accident in Fukushima and in 2020 the first coal phase-out law was passed after the Friday for Future movements with support of large parts of the population put pressure on the government. Fundamental for these rapid changes seem to be the changing preferences in society towards the three energy policy targets – security of supply, environmental sustainability and affordability. Against this backdrop, we ask:

Is long term energy policy possible if it is highly dependent on public preferences?

Methods

To analyze this, we look at past long-term scenarios from 2008 onward and compare them with the preferences towards the energy policy targets at that time. For the goals of long-term energy policy we have reviewed long term studies and laws by the government such as the lead scenario 2009 of the German government (Nitsch & Wenzel, 2009), the prolongation of nuclear power plants (German Federal Government, 2010), and the nuclear (German Federal Government, 2011) as well as the coal phase-out act (BGBI., 2020). To investigate preferences we reviewed existing surveys regarding the preferences towards the goals of the energy policy target triangle at the time. For example Praktiknjo (2013) conducted a discrete choice experiment weeks after the nuclear accident in Fukushima in March 2011. In order to classify the current energy policy changes regarding the preferences of the population, we conduct another discrete choice experiment like this and we compare the assumptions of the scenarios with today's actual values in terms of environmental sustainability, security of supply and affordability.

Results

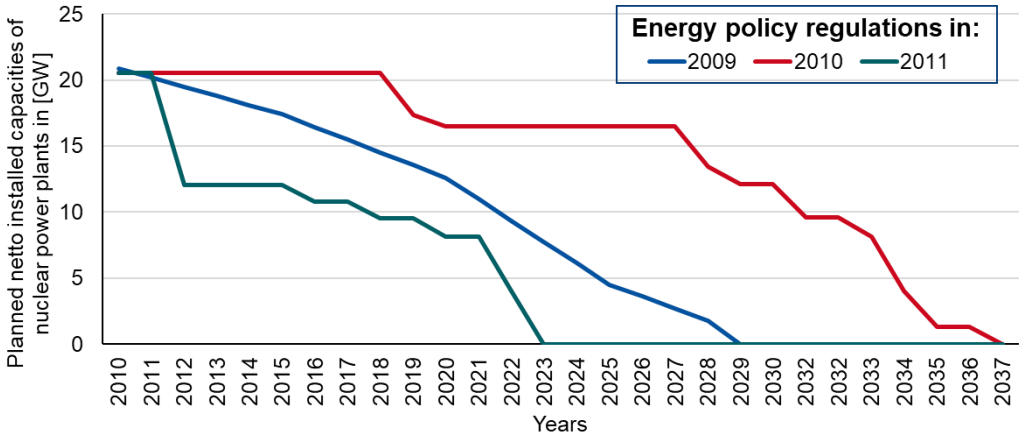

Figure 1: Planned installed netto capacities of nuclear power plants based on the energy policy regulations in 2009 (Nitsch & Wenzel, 2009), 2010 (German Federal Government, 2010) and 2011 (German Federal Government, 2011)

As an example of the rapid changes in German energy policy, Figure 1 shows the planned installed capacity for nuclear power plants based on the laws of 2009, 2010 and 2011. Comparing it to the surveyed preferences by Praktiknjo (2013) of the German population shortly after the nuclear accident in Fukushima in 2011, shows the influence of public preferences on long term energy policy clearly. The strong preference for phasing out nuclear power compared to security of supply as shown in Figure 2 is accompanied by a significant reduction in future planned nuclear power plants even though most nuclear power plants were just prolongated in 2010.

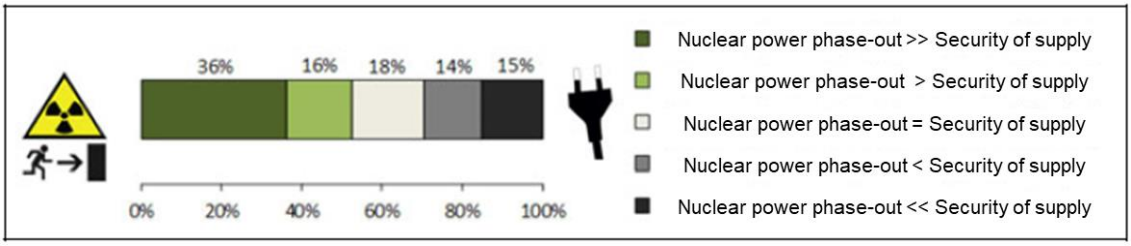

Figure 2: Preferences of the German population shortly after the nuclear accident in Fukushima in 2011 from Praktiknjo (2013)

Conclusions

We take a retrospective look at the preferences of the population in Germany with regard to the energy policy target triangle and the scenarios for energy policy developed from it. This analysis could help to understand the weighing of energy policy target preferences and how German energy policy depends on the view of the electorate. This is relevant because energy policy requires measures and regulations that are durable, especially due to the long-term nature of the energy system and its components. Knowing how people form preferences can therefore help to make both short-term and long-term policies more effective. At the same time, it can serve as a basis for implementing measures based on the preferences of the population that benefit the people but also lead to a sustainable transformation to a fossil-free power system.

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