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INES Cooperates with Renewable Energy Federation on Electricity Market Design

INES collaborated on a study on the electricity market design for the energy transition that was presented by the German Renewable Energy Federation BEE today. The study intensified a cooperation between INES and renewable energy federations that was started in 2017. It takes a closer look at how the energy transition in the electricity sector can be managed by providing flexibilities through batteries and stored biogas. Large studies presented so far (“Big Five”)¹ indicate a more extensive usage of hydrogen in power plants. INES is convinced that the market should decide about the preferable option.

The German Renewable Energy Federation BEE presented its study on a “new electricity market design” on 14 December 2021. The study was conducted by Fraunhofer ISE and IEE as well as Becker Büttner Held (BBH) throughout the year 2021. As a member of the study’s advisory board, INES collaborated on developing the study.

Sebastian Bleschke, Management Director at INES, explains: *“This year’s cooperation with central representatives of renewable energies was very informative for us. In 2017, we had already presented a study in collaboration with the German Wind Energy Association. The current project deepened this collaboration. I am convinced that the energy transition works out better with cooperations like this one.”*

The central result of the BEE study is a reform scenario for the electricity sector in an energy transition that achieves GHG neutrality based on the taken assumptions. To achieve the reform scenario, political measures are specified from the perspective of extensively described base scenario. GHG neutrality will be reached under the following conditions:

1. Security of supply,
2. Financial means for renewable energies, and
3. Implementation of sector coupling.

The study resumes that flexibility is of fundamental importance for all three dimensions and therefore for the energy transition. The BEE describes an alternative

picture to reach the necessary flexibilities when compared to other studies („Big Five“)¹ on the implementation of the energy transition presented this year.

The “Big Five” indicate that leveling the electricity system by large amounts of hydrogen in power plants is economically advantageous. The BEE study takes other assumptions. It assumes that biogas in combination with gas storage and batteries as flexibility technologies play a vital role in the future electricity system. The base assumptions are:

- An installed capacity of 17 GW_{el} (base scenario) resp. 25 GW_{el} (reform scenario) is predefined.
- Home batteries for photovoltaic electricity for own usage optimization include a predefined installed capacity of 39 GW_{el} (base and reform scenario).

Following these assumptions, producing electricity from hydrogen is therefore barely part of the base scenario (about 10 GW_{el} hydrogen powerplants) and plays no role whatsoever in the reform scenario (about 0,1 GW_{el} hydrogen powerplants).

Sebastian Bleschke comments the results: *“The multitude of perspectives is the most exciting aspect of interdisciplinary teams. With the assumptions about power production from biogas that is flexibly provided by gas storage facilities and battery storage, the BEE takes a different approach towards GHG neutrality. INES considers this approach as an interesting complement for the flexible power production based on hydrogen. Biogas is useful to avoid the extinction of flexibilities from gas storage facilities that cannot store hydrogen. Looking at the current landscape of scientific studies, the results also remind us of staying mentally flexible. Eventually, the market will decide upon flexibility usage as all flexibilities have to be economically advantageous. We urge all responsible political stakeholders to work for a level playing field and to avoid preliminary decisions upon technologies. The right legislative framework will ensure that gas and hydrogen storage system operators can follow up on the leads set by politicians and accordingly adapt to the requirements.”*

¹ Langfristszenarien für die Transformation des Energiesystems in Deutschland (German Federal Ministry for Economy and Energy); Deutschland auf dem Weg zur Klimaneutralität 2045 (Ariadne); Leitstudie Aufbruch Klimaneutralität (dena – German Energy Agency); Klimaneutrales Deutschland 2045 (Agora Energiewende); Klimapfade 2.0 (BDI – German Industry Association)

BACKGROUND

INES is the association of gas and hydrogen storage system operators in Germany. INES' members represent over 90 per cent of German gas storage capacities and account for about 25 per cent of gas storage capacities in the European Union. INES' member companies also push the development of underground hydrogen storage in numerous projects and thereby form pioneers in this important technology field for the energy transition.

The members of INES are astora GmbH, bayernugs GmbH, Enovos Storage GmbH, Erdgasspeicher Peissen GmbH, Etzel-Kavernenbetriebsgesellschaft mbH & Co. KG, EWE Gasspeicher GmbH, OMV Gas Storage Germany GmbH, RWE Gas Storage West, NAFTA Speicher GmbH & Co. KG, STORAG Etzel GmbH, Storengy Deutschland GmbH, Trianel Gasspeicher Epe GmbH & Co. KG, Uniper Energy Storage GmbH and VNG Gasspeicher GmbH.

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