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15<sup>th</sup> IAEE European Conference 2017  
'HEADING TOWARDS SUSTAINABLE ENERGY SYSTEMS:  
EVOLUTION OR REVOLUTION?'

3<sup>rd</sup> to 6<sup>th</sup> September 2017, Hofburg Congress Center, Vienna,  
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The 15th IAEE European Conference takes place in Vienna, Austria, at the Hofburg Congress Center, 3rd to 6th September 2017. The main topic will be: "HEADING TOWARDS SUSTAINABLE ENERGY SYSTEMS: EVOLUTION OR REVOLUTION?".

In recent years, energy systems as well as Energy markets underwent remarkable changes, world-wide. Developments in oil, natural gas as well as electricity markets brought challenges of

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# ***BENCHMARKING OPTIONS FOR THE EFFECTIVE ACHIEVEMENT OF THE RENEWABLE ENERGY TARGET OF THE EU ENERGY STRATEGY BY 2030***

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## **Overview**

The "framework for climate and energy policy until 2030" was adopted by the European Council on 23/24. October 2014 [1]. The central framework conditions described therein are three binding targets for the reduction of greenhouse gas emissions, the share of renewable energies in gross final energy consumption and energy efficiency obligation. More specifically, a reduction of greenhouse gas emissions by 40% by 2030 compared to 1990, a share of renewable energies in gross energy consumption of 27% and an increase in energy efficiency compared to a business-as-usual projection of the future energy requirement by 27% are defined. In contrast to the 2020 policy framework, the target for the share of renewable energies of 27% of all EU Member States combined by 2030 is not regulated by legally binding national targets. Instead, the EU objective is to be achieved through clear, self-imposed obligations of each EU Member State. The self-imposed goals of the Member States should be accompanied by a sound governance framework as part of the Energy Union. The principle of governance is a new approach to the coordination of national energy and climate policies in Europe. The energy ministers of the Member States have envisaged that each EU Member State should develop an energy and climate plan for the period from 2021 to 2030. These plans are to be consulted with the EU Commission and the Member States and subjected to European monitoring.

This paper [2] deals with possible options for benchmarking the self-imposed objectives, or so-called pledges, for their planned share of renewable energies in the year 2030 of the EU Member States. This is the only way to allow a comparative analysis of the Member States' objectives with regard to the EU objective.

- What is the target for the share of renewable energies in the final energy consumption of different benchmark options for individual EU Member States to ensure the achievement of the 27% target of the EU?
- What possible bandwidths for the share of renewable energies in gross energy consumption are given by the different benchmark options?

## **Methods**

In this work, various benchmark options for achieving the EU's renewable target by 2030 will be presented. The different approaches allow different economic and energy systemic criteria to be included in the benchmark options. This takes account of factors such as the economic strength, the energy intensity and the possible availability of renewable resources and the associated costs of the individual EU Member States. The following is a brief explanation of the methods used to calculate the benchmark options.

- Flat rate benchmark: A pure flat-rate benchmark means that all Member States should aim for a similar (net) increase in renewable energies over the 2021 to 2030 period.
- The 2020 allocation methodology: The allocation method for the 2020 target combined a lump-sum increase with the economic strength of a Member State, measured by GDP per capita.
- GDP-based benchmark: This approach should take account of the economic strength of the Member States. This approach allocated 50% of the necessary additional share of renewable energies in the allocation method for the overall European renewable target for the year 2020.

- Modified GDP-based benchmark: As the above-mentioned GDP-based benchmark does not lead to the desired result under all circumstances, a further GDP approach was calculated. This includes the GDP per head indicator more into the calculation.
- Potential-based benchmark: In the discussions on the adoption of the past renewable directive (2009/28 / EC), it has sometimes been criticized that the potential availability of renewable resources and the costs associated with an expansion are not covered by a flat-rate and / or GDP approach For setting national targets. As an alternative, this variant aims to take into account the availability of resources and the costs associated with expansion.

## Results and Conclusions

The application of different benchmarks leads to a differentiated view of the self-imposed objectives of the member states. Possible bandwidths for the share of renewable energies in gross energy consumption are given by the different options. This will facilitate discussion at EU level on the fairness of the individual objectives of the Member States and contribute to consensus-building.

## References

- [1] EUCO 169/14, European Council (23 and 24 October 2014), Conclusions on 2030 Climate and Energy Policy Framework, Brussels, 24 October 2014.
- [2] Christoph Zehetner, Lukas Liebmann, Gustav Resch, Fabio Genoese, Mario Ragwitz (2015) EU 2030 Framework for renewables – effective effort sharing through public benchmarks, Issue Paper No. 4 of the European IEE project towards2030-dialogue, Wien, Österreich.