A Fit-For-Purpose energy policy for the European Union

Dr Maria Carvalho, Grantham Research Institute on Climate Change & the Environment, London School of Economics & Political Science

This presentation assesses the scale and nature of the challenges both the Member States and the European Union will face in decarbonising the electricity sector to meet its climate and energy targets. As part of the 2030 Climate and Energy Framework (and reinforced in its Intended Nationally Determined Contribution in Paris), the European Union (EU) has binding targets to reduce 40% of greenhouse gas (GHG) emissions below 1990 levels, along with increasing the share of renewable energy to 27% of final energy consumption. With electricity accounting for about 25% of total greenhouse gas emissions in the EU, it still remains an important sector to focus on greenhouse gas (GHG) reduction policy. Furthermore the proposed plans of integrating the Member States' electricity markets into a single market as part of the Energy Union will have significant political-economy challenges. These challenges include:

- scaling up ambition
- affordability
- creating a level playing field
- enabling innovation
- building investor confidence
- energy security

The analysis in this presentation will be used in assessing the first five challenges, and will support research for a joint program between the Grantham Research Institute on Climate Change & the Environment and Statkraft on the policy challenges that Member States and the EU will face in meeting their 2030 targets.

The ability of the EU as a whole to scale up ambition in decarbonising the electricity sector from its 2020 to 2030 targets is based in part by the emissions profile of individual Member States. 10 countries account for 81% of total EU emissions in electricity in 2013, with the Germany, UK and Poland together accounting for 55% of the EU total. These 10 countries also have carbon intensities that are above the EU median – with Estonia, Poland and Greece's electricity sector having twice the carbon intensity of the EU median. The EU as a whole would have to reduce the carbon intensity of the electricity sector by 35% from its 2013 levels to meet the 2030 target. With regards to the renewable energy targets, 7 countries accounted for 76% of final consumption of renewable electricity. Based on calculations from 2020 targets each Member State provided in their National Renewable Energy Action Plans, the EU as a whole would still need to increase its final consumption of renewable electricity by 41% from its 2014 level to meet the 2020 target, or by 65% to meet the 2030 target.

One of the main reasons it is difficult to scale ambition for 2030 targets is the affordability of Member States to undertake these targets. Affordability does not just refer to government spending to decarbonise electricity generation, but political economy challenges involved with households and industries facing increases in their electricity bills and/or taxes (depending on how policies are formulated). Therefore a key challenge for policy-makers will be to understand how to design policies to

be acceptable to its stakeholders – especially as the different industrial composition and income level of countries can affect its affordability to face increased compliance costs in electricity. Though academic literature widely agrees that carbon taxes would be the most economically efficient instruments, these are not necessarily the most politically acceptable to Member States' constituents. Drawing upon stylised facts from academic literature, it will be important to understand the political-economy factors that shape the choice and design of policy instruments (such as carbon taxes, renewable energy subsidies and regulations) to ensure the passage of necessary legislation in Member States to meet the 2030 targets.

An important avenue in managing these political economy challenges will be to create a level playing field in the amount of taxes levied on consumers across EU Member States. While large industrial electricity consumers in countries such as Germany, Italy, Denmark, Austria, Latvia and France pay double the median level of taxes in the EU28, other countries such as the UK, Sweden and several eastern EU countries pay less than half that level. The need for a level playing field is also identified as more mature renewable electricity generation become exempt from subsidy scheme mechanisms, making carbon taxes a more attractive option for both fossil fuel generators and mature renewable electricity generation.

Beyond the challenges, research by the Grantham Research Institute demonstrates that investing in green innovation for electricity can provide greater opportunities for technological spill overs and growth than its 'brown' counterpart. Nevertheless realising these opportunities will require greater research and development spending committed by the EU and Member State towards green innovation, and more comprehensive understanding of how to develop green industrial strategies to support the commercialisation of less mature technologies.

It is also widely acknowledged that the credibility of policies to meet the 2030 policies will be needed to boost investor confidence in investing in riskier, green technologies. The Grantham Research Institute has developed a methodology to assess the political credibility of meeting 2030 targets, based broadly on: the rules and procedures in place; the types of players and organisations involved with formulating and implementing climate legislation; the public support for taking action on climate change; and past performance in meeting targets and avoiding policy reversals. While the EU on the whole shows full support for meeting climate change targets, individual countries demonstrate varying track records for the different indicators. Ensuring and sustaining political and policy credibility to meet 2030 targets provides long-term confidence by investors to invest both in the innovation and commercialisation of low-carbon technologies, and developing innovative business models, in the electricity sector.

In undertaking this assessment of the EU challenges, the LSE-Statkraft program will focus for the next year on answering the following research questions that can help EU and Member States' policy-makers to address these challenges in the electricity sector including:

- What will the distributional incidence and impact on different electricity generators be with various policies (taxes, subsidies, and a mix of the two)?
- What design features can foster acceptability of more ambitious policies?
- What is needed to increase policy credibility and therefore investment?

The findings of these research questions will be released in September 2017.