

EU 2020 Renewable Energy Goals Insufficient

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by Claire Dupont

The EU has recognised the potential of renewable energy to achieve several long-term energy benefits – including moving away from dependence on climate-damaging fossil fuels, and improving energy security. With the adoption of the Renewable Energy Directive in 2009, the EU put in place a legislative framework to achieve an overall 20% share in renewable energy in the EU's final energy consumption by 2020. How effective is such a target in helping us achieve the long-term goals of reducing GHG emissions by 80 to 95% by 2050 and ensuring global temperature rise does not exceed 2°C?

While several studies have outlined alternative pathways for the EU to meet this 2050 target, all agree that the power sector needs drastic transformation, and it is in this sector that the greatest potential for GHG emission reduction lies. There are differences of opinion in how far the power sector can or should change, however. Eurelectric, an association representing the interests of the European electricity industry, on one end of the spectrum, argues for a 40% share of renewables in power generation by 2050 (Eurelectric, 2010), while, at the other end of the spectrum, the European Renewable Energy Council and Greenpeace demonstrate the feasibility of a 97% share of renewables by 2050 (European Renewable Energy Council & Greenpeace, 2010). The European Climate Foundation outlined several alternative scenarios with 40%, 60%, 80% or 100% share of renewables by 2050, and argued for an 80% share as the most cost-effective option (European Climate Foundation, 2010). The scenarios also indicate an expected increased role for electricity in both transport (e.g. through vehicle electrification) and heating. This means that generation of electricity will cover much of the energy sector activity into the future. The 2050 energy mix outlined in these scenarios also varies, with many showing a continued use of nuclear power and the roll-out of carbon capture and storage (CCS) technology for future fossil-fuel plants.

Summary

It is clear that any action to combat climate change must involve extensive efforts in reducing the greenhouse gas (GHG) emissions from the energy sector. In the EU, nearly 80% of total GHG emissions come from the energy sector (European Commission, 2011, p. 21). Any credible action within the EU on combating climate change therefore requires deep shifts in the way we produce and use our energy. This paper highlights that renewable energy policies to 2020 are insufficient to meet the EU's long-term climate policy objectives of reducing GHG emissions by between 80 and 95% by 2050, and thereby aiming to avoid an increase in global temperatures of more than 2°C. Such an ambition would likely require a very high share of renewable energy (in the range of 80 to 100%) in the overall energy mix of the EU, given current uncertainties about the feasibility of potential technological developments (e.g. carbon capture and storage technology).

With nuclear power facing ever-increasing opposition since the 2011 Fukushima disaster, and CCS still an economically unviable technology, I argue instead here for emphasis on rolling out renewable energies to combat climate change, on rolling out renewable energies to combat climate change and assess current policies on the basis of achieving either an 80 or a 100% share of renewable energies by 2050.

In 2005, the share of renewable energy (RE) in the EU's final energy consumption was 8.6%. On a linear trajectory from 2005 to 2050, achieving 100% share of RE implies an increase by about

10.1 percentage points every five years. Such a trajectory requires achieving approximately 39% share of RE in the EU 27 by 2020: 19 percentage points higher than the current policy goal. However, taking the 80% target as an ideal goal for 2050, implies a linear increase from 2005 by approximately 7.93 percentage points every five years. This means ensuring a 32.4% share of RE in the EU by 2020 on a linear trajectory: 12.4 percentage points more than current policy goals.

Clearly, any linear trajectory can be criticised for simplicity. Arguments have outlined the fact that such an assessment cannot take into consideration current high investment costs for renewable energy, and that, as these costs fall in the future, the deployment of renewable energy technology is expected to speed up. Counterarguments point to the extreme urgency of the climate problem, and the fact that GHG emissions ought to peak between 2015 and 2020 and then decrease if we are to achieve the 2°C target. Such a viewpoint supports the idea of taking more action now in preparation for the future.

Additionally, taking action early in the energy sector, with its long time-span for investment, is crucial, as decisions to invest in certain energy sources can result in a lock-in to that type of energy generation for 35-40 years or more. Our current energy set-up presents a particular opportunity for improving the share of renewable energy in the overall energy mix. With the backlash against nuclear energy in many EU member states in the wake of the Fukushima disaster, many ageing nuclear power plants are scheduled for closure or have already been closed (for example, seven nuclear plants have now been closed in Germany, and Belgium has pledged to close its remaining nuclear power plants by 2025). In addition, many of

the older coal-fired power plants, especially in the newer member states from Central and Eastern Europe, will need to be replaced, or upgraded, in the next number of years. While the ageing power plants of Europe are coming the end of their natural life, the opportunity arises to replace these plants with renewable sources of energy, rather than with more fossil fuel or nuclear plants. Furthermore, achieving our ambitions for 2050 requires investment now, if we are to avoid fossil fuel lock-in. Investment in renewable energy needs to take place sooner rather than later. However, the linear analysis presented here passes no judgement on when the investment ought to take place.

What can be learned from this analysis is that, whether the aim is for renewable energy to make up an 80 or a 100% share of the power generation mix by 2050, current policies are insufficient to meet our climate objectives. Action must be taken, not only to strengthen policy for the short- and medium-term, but also to ensure a clear policy framework beyond 2020 to encourage a stable investment environment, especially considering the long investment cycles in the energy industry.

Selected references

- Eurelectric (2010). *Power choices. Pathways to Carbon-Neutral Electricity in Europe by 2050*. Brussels.
- European Climate Foundation (2010). *Roadmap 2050. A practical guide to a prosperous, low carbon Europe*. Brussels: European Climate Foundation.
- European Commission (2011). *Impact Assessment. Accompanying document to the communication from the Commission. A Roadmap for moving to a competitive low carbon economy in 2050*. SEC(2011) 288.
- European Renewable Energy Council, & Greenpeace (2010). *Energy [r]evolution. Towards a fully renewable energy supply in the EU 27*. Brussels: Greenpeace International and EREC.



About the author

Claire Dupont joined the environmental and sustainable development cluster at the IES

in 2008, after receiving a first class honours Master's degree in International Studies at the University of Limerick, and after spending a year volunteering in the development sector in Tanzania.

Her research focuses on the climate policies of the European Union. The title of her PhD thesis is *Climate Policy*

Integration in the EU and it aims to examine the extent to which climate policy objectives are incorporated into energy policies in the EU. Some of her past research work includes examining the leadership role of the EU in international climate policy, assessing the role of the European Council and the Council of Ministers in promoting this leadership role for the EU, and analysing the interaction between the international climate and international ozone regimes in the area of fluorinated gases.

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www.ies.be

Pleinlaan 5
B-1050 Brussels
T +32 2 614 80 01
F +32 2 614 80 10
ies@vub.ac.be