

# European Energy Pathways: For decision makers on energy production

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Filip Johnsson, professor at the  
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There is an overall ambition in society to move towards a sustainable and economic conversion to renewable fuels. The EU Commission has expressed the ambitions to reduce greenhouse-gas emissions by 80-95 per cent by 2050. Sweden has placed fossil fuel independence at the top the agenda for a more sustainable society by 2030, and other countries are following. Fulfilling these ambitions will inevitably lead to significant impact in all parts of the European energy markets as for the electricity-supply system where zero emission technologies will be replacing many of the existing electric energy production plants. What will such an electricity system look like, how will it work and what are the possibilities and the obstacles in such a development? These are some of the fundamental questions addressed by the current energy systems research carried out in the Pathways project.

*“Based on the current research some of the more important findings are that existing technology and fossil fuels will continue to play a decisive role for at least 20-30 years”* Filip Johnsson, professor at the department of Energy and Environment, confidently states and he continues *“The share of renewables in electricity generation is constantly increased and may reach 50 percent in the EU by 2050, but at*

*the same time, efforts to develop low-carbon technologies are needed and Carbon Capture and Storage seems to be a key technology.”*

## **Builds on the existing**

To be able to draw such conclusions, Filip Johnsson and his research team has built up a database containing detailed description of the stationary energy system (power and heat plants) in Europe. The database is one of its kinds, and together with models about environmental, economic and infrastructural constraints the team has the ability to put forward pathways for how the present system can be developed in order to reach a sustainable European Energy Systems. Filip Johnsson’s research focus at the moment on how and where new wind power electricity production plants can be integrated in the existing grids without the need of expensive power transmission expansion.

The Pathways project aims to support decision makers in energy, oil and gas industry, governmental organisations, the European Commission and EU-Member State governments. *“From an impact perspective, isn’t it hard to reach these stakeholders?”* I ask. Filip Johnsson tells me how they work in collaboration with the European Commission’s in-house science service; the Joint Research Centre, and he adds *“But we can’t do more than being in the right place at the right time”*.

For more information about the Pathway project, please visit: [www.energy-pathways.org](http://www.energy-pathways.org)

Text: Niklas Fernqvist

## Making Science Useful

**Roles:** Seven types of roles are identified in relation to making science useful. The roles are developed from different activities for diffusion and utilisation, carried out by one or a group of researchers, or by an entire part of the organisation. The roles are; researcher, educator, advisor, debater, entrepreneur, infrastructure developer and networker. These roles are in general intuitive but develop differently, based on personal characteristics, area of research, the recipients of results within the area, and by different local traditions of how to work with utilisation.

**More information:** This framework is developed by Staffan Jacobsson, Eugenia Perez Vico, Chalmers University of Technology, Hans Hellsmark, SP Technical Research Institute of Sweden and Merle Jacob, Lund University. For more detailed information, please contact Eugenia Perez Vico ([eugenia.perez@chalmers.se](mailto:eugenia.perez@chalmers.se)) or Hans Hellsmark ([hans.hellsmark@sp.se](mailto:hans.hellsmark@sp.se)).

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