

Climate Recon 2050: Dialogues on Pathways and Policy

France
Yves Marignac, Association négaWatt

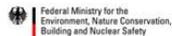
Towards an ambitious European energy transition strategy?

A tentative approach to bringing
a net-zero MS scenario to a EU level

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Climate Recon 2050 project is financed by EUKI, a project financing instrument by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMUB). Its implementation is supported by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). It is the overarching goal of the EUKI to foster climate cooperation within the European Union in order to mitigate greenhouse gas emissions. It does so through strengthening a cross-border dialogue and cooperation as well as exchange of knowledge and experience.

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1. Our experience: the French négaWatt scenario

- The 4th **négaWatt scenario (2017)**: the first (and still only) 2050 zero-carbon scenario for France
- A systematic application to France of a 3-steps systemic sustainability approach:
 - **sufficiency** (individually and collectively optimising energy services)
 - **efficiency** (fulfilling services in the most effective way)
 - **substitution** (phasing out stock-based energies, shifting to flow-based ones)
- A bottom-up, detailed description of required and possible changes:
 - based on a physical model (end uses > final demand > energy carriers > primary supply)
 - realistic and cautious about technology and economics
 - addressing carbon neutrality in a synergic way with other sustainability issues
 - providing a clear, year by year trajectory bridging today with a long term vision
- An inspirational work, influential in the national energy and climate debate (e.g. to establish the approach and long term objectives of the 2015 Energy Transition Law)
- A powerful tool to elaborate, assess, discuss and build stakeholders' support to policies and measures aiming for the relevant scope, range and pace of action

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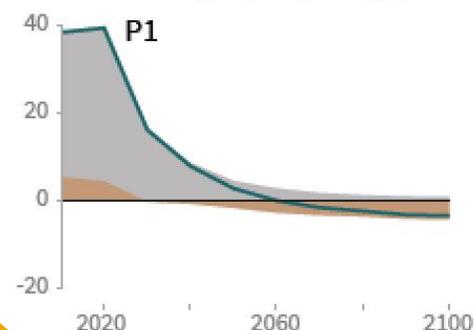
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- An approach to net-zero that would minimize risks (overshoot, technical failure) and non-climatic impacts

Breakdown of contributions to global net CO₂ emissions in four illustrative model pathways

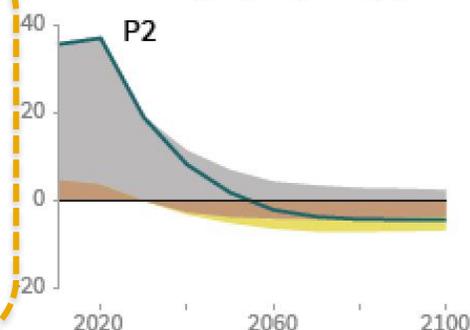
● Fossil fuel and industry ● AFOLU ● BECCS

Billion tonnes CO₂ per year (GtCO₂/yr)



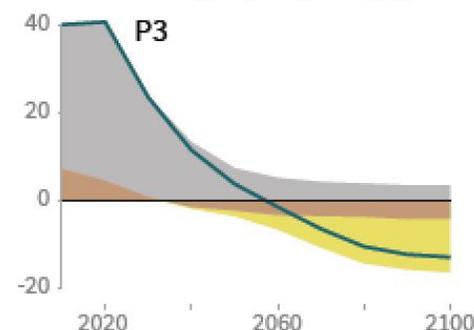
P1: A scenario in which social, business, and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A down-sized energy system enables rapid decarbonisation of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

Billion tonnes CO₂ per year (GtCO₂/yr)



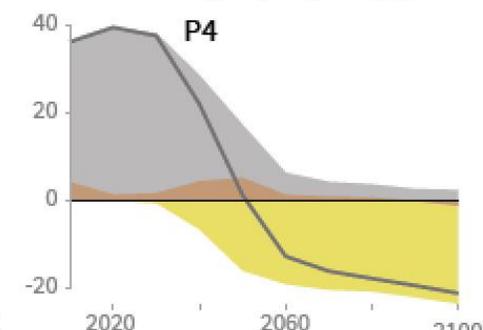
P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

Billion tonnes CO₂ per year (GtCO₂/yr)



P3: A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

Billion tonnes CO₂ per year (GtCO₂/yr)



P4: A resource and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

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2. Our challenge: scaling up on a European level

- The kind of approach the négaWatt scenario brought to the French energy and climate debate is largely missing on a European level.
- The implementation of a bottom up, systemic, energy services based approach is by nature very sensitive to the specificities of the system it is applied to, e.g.
 - sufficiency / actual level of services, social preferences
 - mix of energy carriers / existing uses, change potential, infrastructures
 - renewables / existing natural resources
 - agriculture, forestry, land use constraints / geography, population density
 - other industrial, regulatory, social, historical factors...
- Expanding a négaWatt scenario to the EU scale will not better catch these national specificities than developing a top-down modelling approach on EU level
- Conversely, the addition of national systemic ambitious would not appropriately address:
 - optimisation through mutualisation of potentials and constraints (e.g. electric system, land use...)
 - harmonisation of efforts, benefits, living standards, etc.
 - leverage potential of policies at European level (e.g. industrial strategy, trade...)

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3. Our approach: bottom-up, integrated and collaborative

- Develop an ambitious, systemic vision of energy transition towards **net-zero emissions for Europe**, based on a “bottom-up” approach that encompasses national specificities
- Establish a **network of partners**, i.e. organisations that develop or want to develop ambitious national scenarios in their country and share our global ambition and systemic mindset
- Start with a “critical mass” of representative MS, then gradually extend the network / deepen the vision
- Develop a methodology to allow for an holistic and comparative **interfacing of national scenarios**:
 - sharing a detailed segmentation of the energy system by sectors, sufficiency / efficiency / substitution leverages per sector, and corresponding indicators to measure the level of action,
 - identifying the way to implicitly or explicitly address them in the various models used by the partners, to reach an harmonized level of systemic comprehensiveness,
 - discussing the potential for further action in each national scenario, the need for mutualisation, the potential for optimisation at European level, etc. to develop an integrated vision
- **Collaborative, learning-by-doing** approach, prefiguration phase until end of first term in 2019

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