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## **Getting Ready for Zero Emissions and 100% Renewable Energy: Plans and Scenarios to Pave the Way for the Transition**

**10 December, 2015 - 11:15-12:45 - Room 2**

**Side event to the UNFCCC COP21, Climate Generation Area,  
Paris, France**

### **Energy Policy: the négaWatt Scenario for France by *Yves Marignac* *NegaWatt, France***



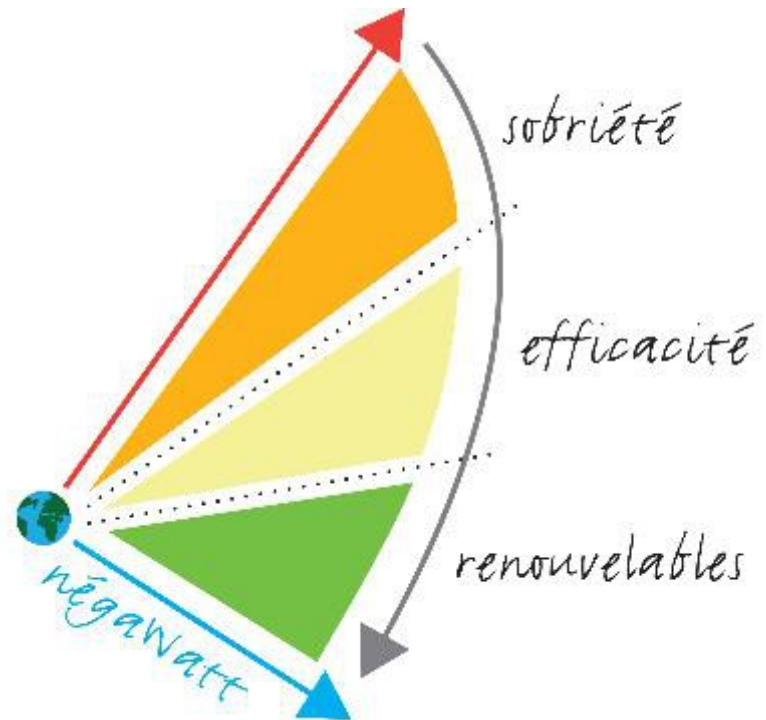
*The event was organised by Nordic Folkecenter for Renewable Energy (Denmark) & NegaWatt (France) in cooperation with INFORSE, Track 0, Centre for Alternative Technology –CAT (UK).*

The event was part of the “Climate Generation Area” Conference organised by the French Government parallel to the UNFCCC COP21 - [www.cop21.gouv.fr/en/les-espaces-generations-climat/](http://www.cop21.gouv.fr/en/les-espaces-generations-climat/)

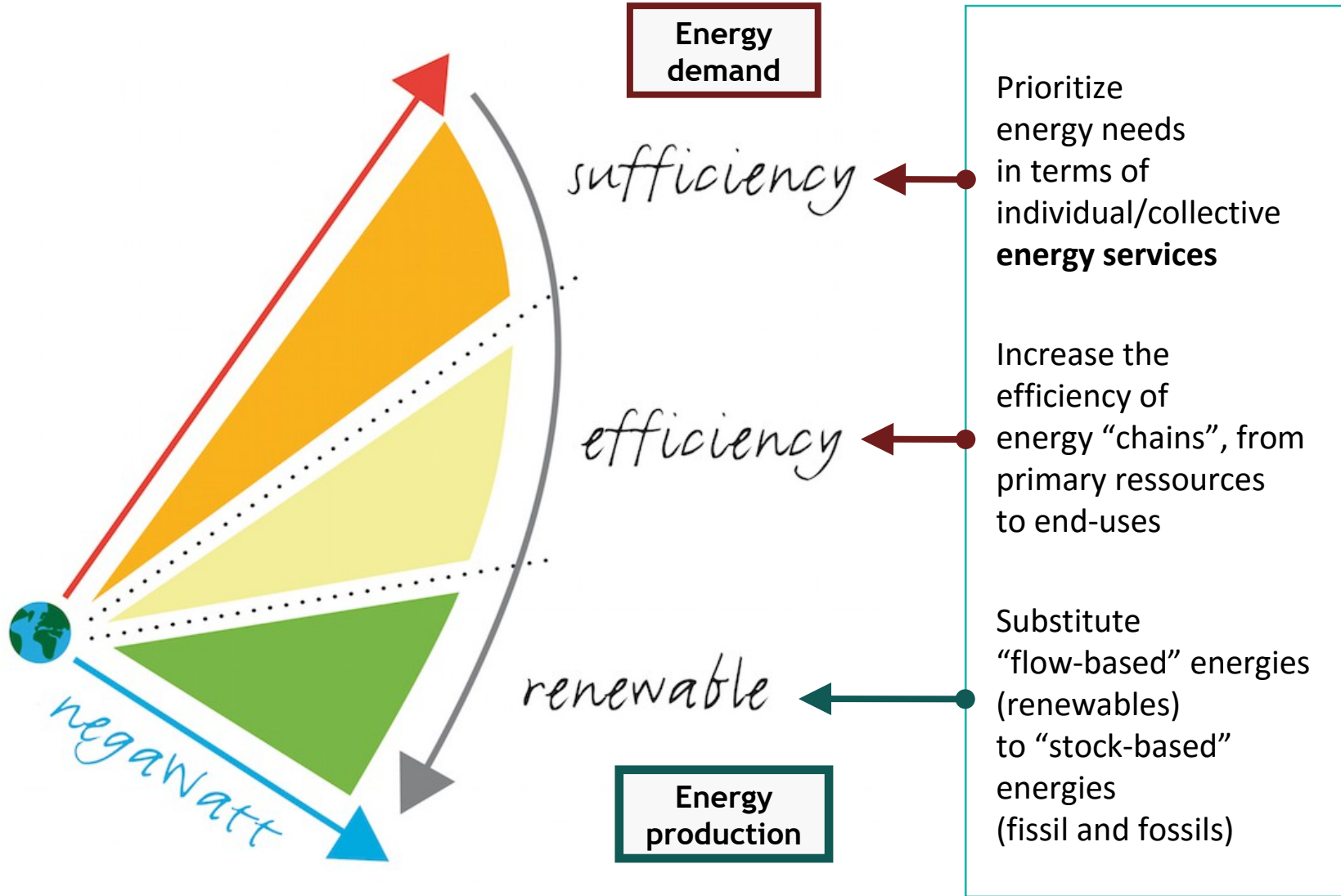
## Energy policy: the négaWatt scenario

*Yves Marignac*

*COP 21 – Paris Le Bourget  
10 December 2015*



# The négaWatt approach to energy



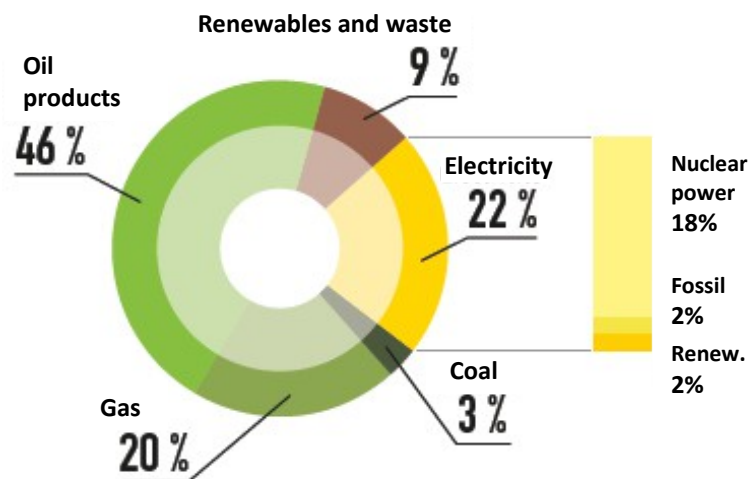
## French energy situation

- Dependency on fossil fuels remains high (70%)
- GHG emissions considered 4-fold higher than sustainable
- Strong dependency on nuclear power for electricity (80%)
- Low development of renewables

## Fundamentals of the négaWatt scenario

- Provide a sustainable pathway towards low-carbon, 100% renewables
- Build a long term strategy (2050) to guide decisions in the short term
- Use existing solutions instead of betting on hypothetical breakthroughs
- Develop a physical model of uses and resources to discuss the economics

France's final energy consumption, share by energy source (2011)



Source: bilan de l'énergie, 2011, SOeS

# Implementation on energy demand

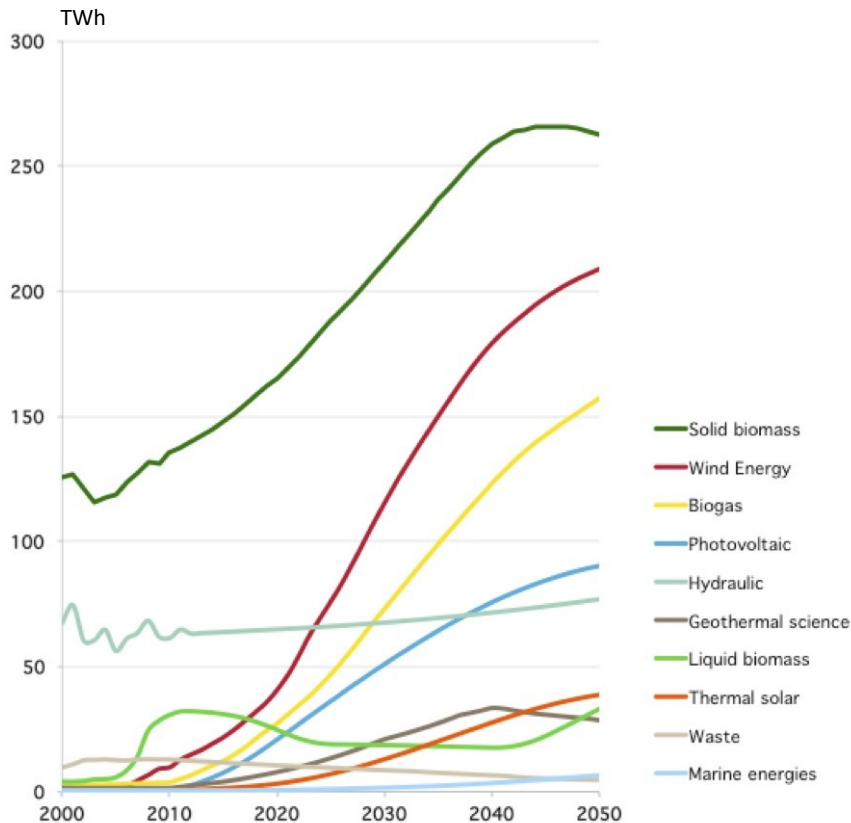
Buildings	Moderating surfaces/person or activity Deep and large thermal retrofiting Constructing positive energy new buildings
<b>Specific electricity</b>	Implementation on every uses of best equipments and behaviours of today
<b>Transports</b>	Urban planning to reduce need for distances Modal transfer (road-rail, individual-collective) Efficiency of vehicles and adaptation to uses
<b>Industry</b>	Extended recycling of materials Reduced need of goods Efficiency in processes
<b>Agriculture</b>	Same approach on land-use & use of biomass Change of food-habits (less meat, etc.)

**Sufficiency + efficiency are keys for substituting rather than adding renewables to existing energy productions**

*Allows for sustainable use of bioenergy*

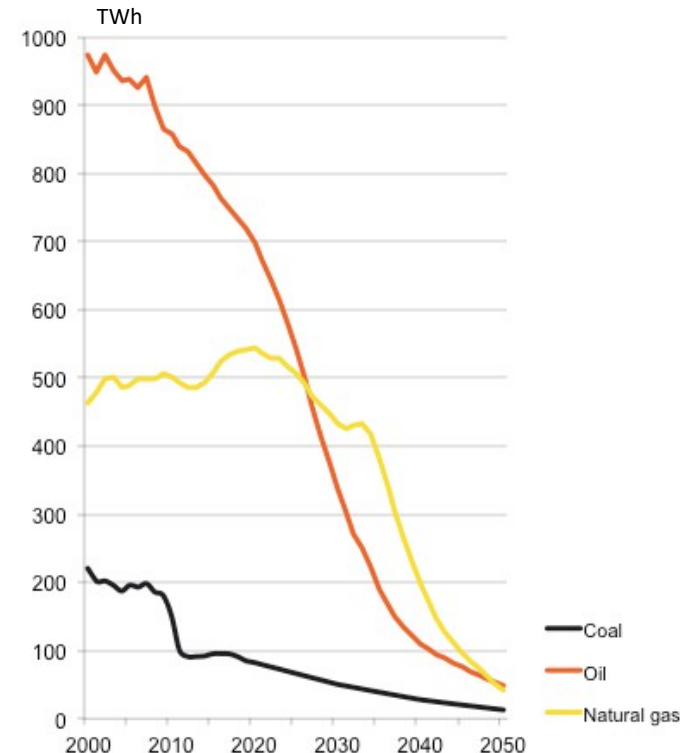
## Strong development of renewables

- Biomass (mostly wood and biogas)
- Electric renewables (mostly wind and PV)

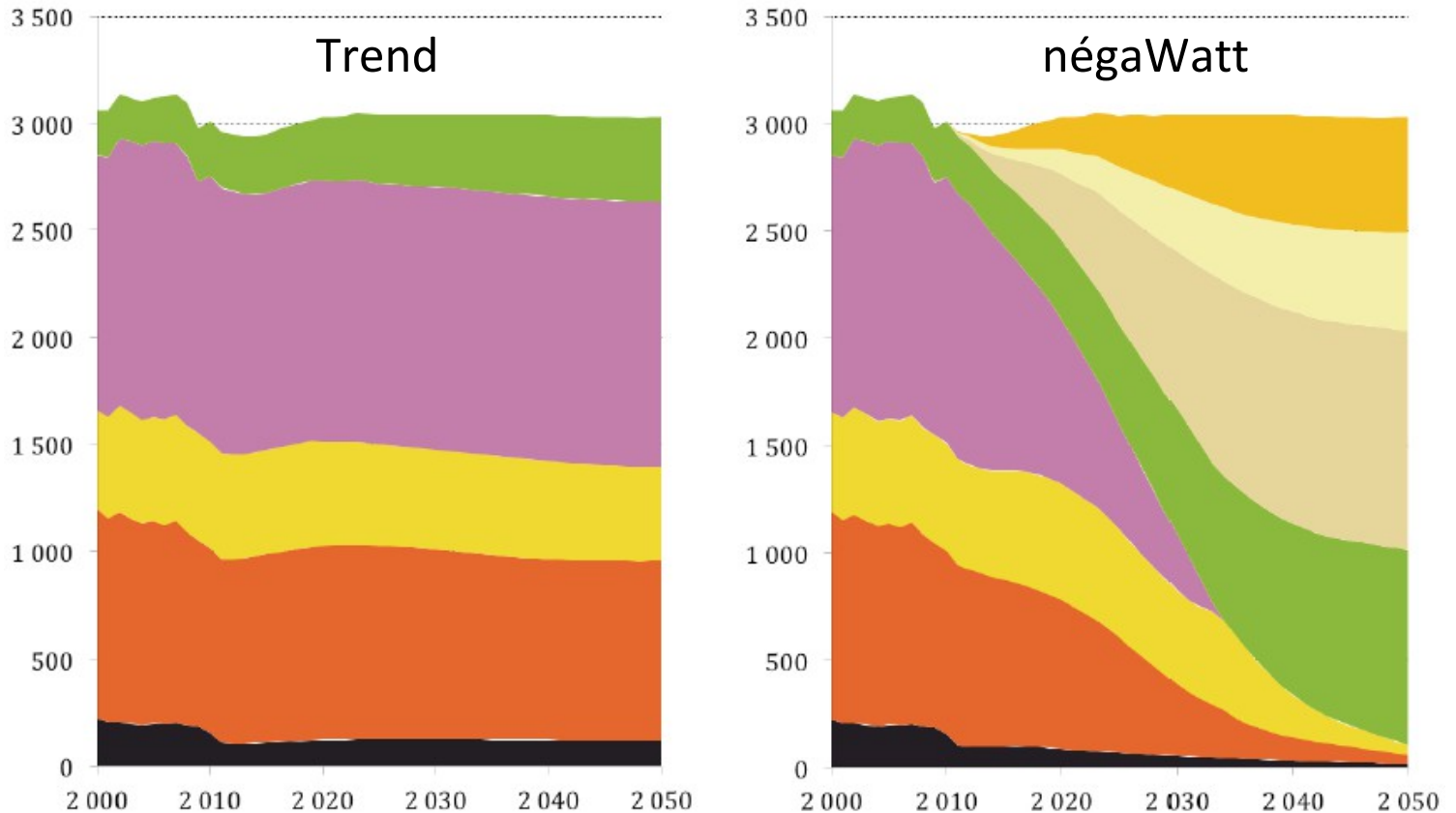


## Phase out of stock-based energies

- 58 nuclear reactors gradually shut-down (before 40 years lifetime)
- Residual use of fossil fuels

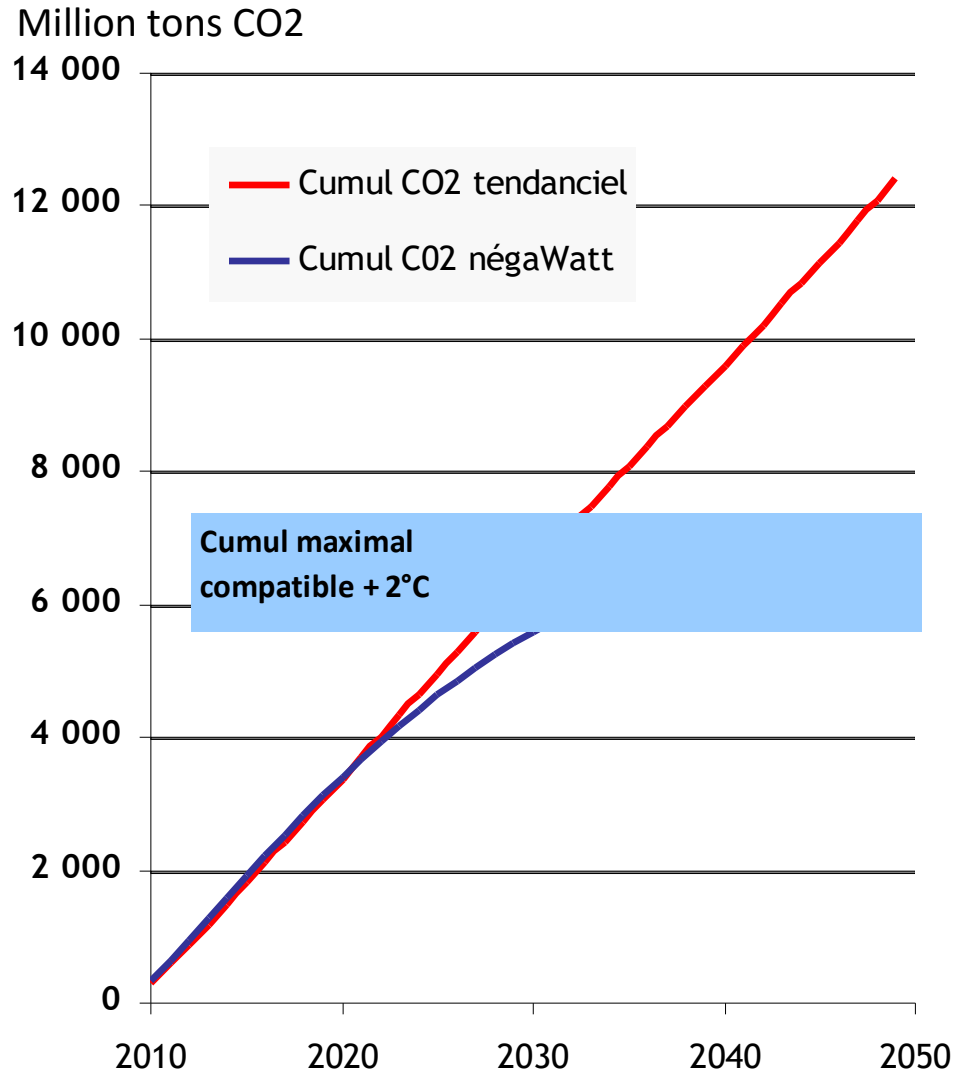


# Primary energy balance



**67% cut in primary energy consumption / trend**  
**90% based on local renewables in 2050**

- Factor 4 on GHG emissions by 2050**  
 Compared to 2010, CO2 emissions divided by 16 by 2050, estimated GHG emissions divided by 4
- Cumulated CO2 emissions 2011-2050**  
 In line with France's fair share in a global mitigation scenario (keeping global warming below 2°C)\*  
 \* Based on carbon budgets, cf. study by Postdam Institute





Savings on national energy bill  
(60-70 G€ per year)

Investments with predictable payback  
(energy conservation)

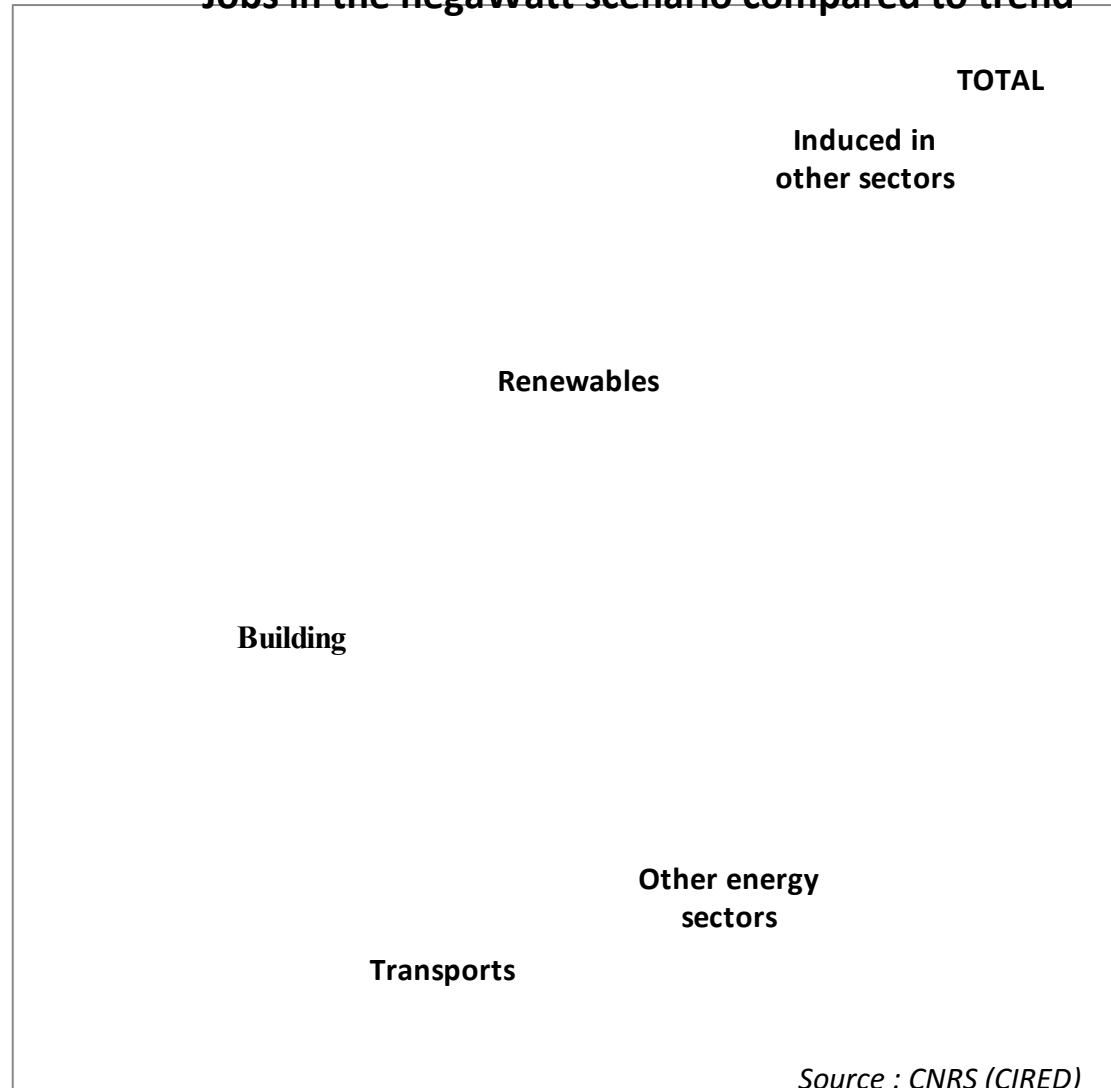
**Long term competitiveness**  
(decreasing costs of renewables, vs. increasing costs of fossils & nuclear)

**Jobs creation**  
(+ 600.000 net by 2030)

**Less economic poverty**  
(now up to 10 million people)

Overall positive macro-economic results

## Jobs in the négaWatt scenario compared to trend



Source : CNRS (CIRED)

## Conclusions and recommendations

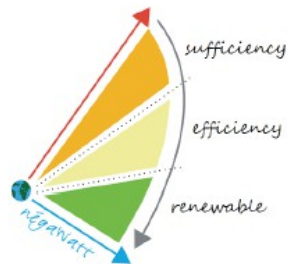
- Based on existing and emerging solutions, it is possible to implement energy transition of a country like France to **almost 100% renewables by 2050**
- A strategy based on **intelligent energy uses, technical solutions and choice of resources** is needed to meet the objective of keeping below 2°C
- More efficiency and inclusion of sufficiency are the most readily available option to **raise the ambition of countries' pledges** (INDCs)
- **Sufficiency in the North is key to equity with the South**: in a globally constrained use of fossil resources, shifting useless uses of energy allows for increasing vital ones
- The **négaWatt approach is based on strong values** of fairness, equity, minimum risks, and 'no-regret' path
- The recommended solutions and policies have **social and economic benefits** and can be replicated in many other countries

Thank you for your attention!

To learn more:



## The négaWatt 2050 Scenario



négaWatt2050 Scenario  
Executive Summary

www.negawatt.org

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