



# French Low Carbon Scenarios

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Low Carbon Societies Network

Scenarios for a Fast Transition to Sustainable Energy  
10th December, 2009, 10.00-12.00  
Brown Room, DGI-Byen, Klimaforum'09, Copenhagen  
NGO Side Event to UNFCCC COP15

[http://www.inforse.org/europe/conf09\\_COP15.htm](http://www.inforse.org/europe/conf09_COP15.htm)

<http://www.lowcarbon-societies.eu/>

**INFORSE**

International Network for Sustainable Energy



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- **ENCI-Low Carb**
- **Energy and GHG in France**
- **Results of the review on existing French Low Carbon Scenarios**

## Low Carbon Societies Network



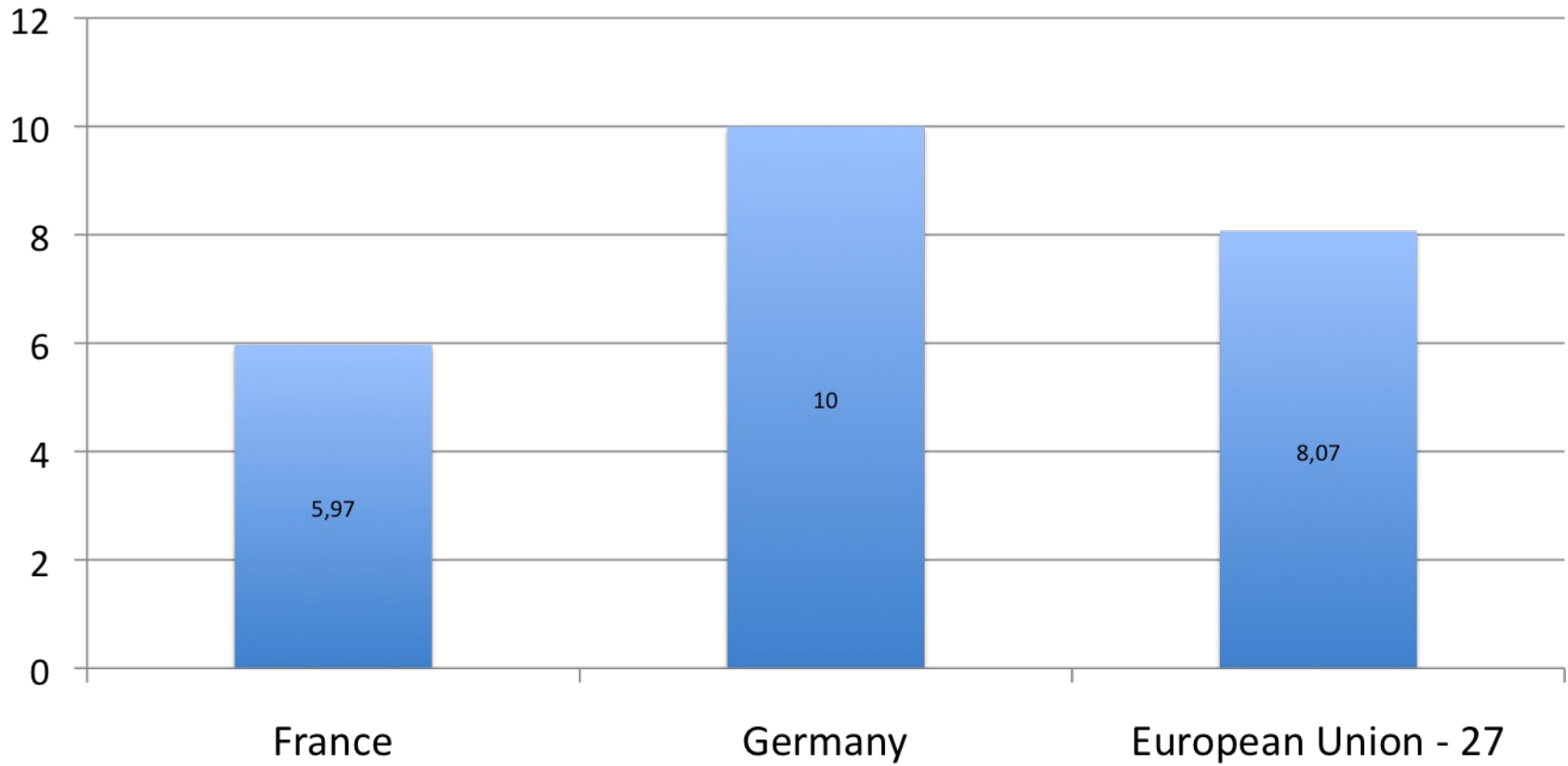
- ENCI-Lowcarb (Engagging Civil Society in Low Carbon Scenarios)
- Creation of a low carbon energy network between Civil Society Organisations (CSOs) and research institutes working on low carbon energy scenarios and technologies ← Invitation!
- Development of low carbon scenarios for Germany and France for 2050 with an ambitious greenhouse gas emission reduction target + nuclear phase out

[www.lowcarbon-societies.eu](http://www.lowcarbon-societies.eu)

# Comparaison t CO<sub>2</sub> per capita in 2007



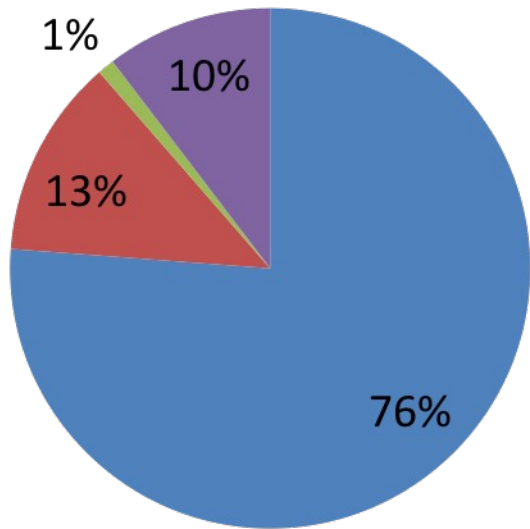
t CO<sub>2</sub> per capita



# Net electricity production in 2008

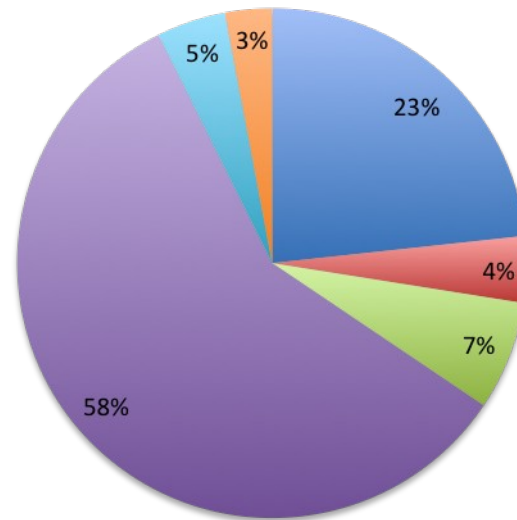


## France



- Nuclear
- Hydro
- Wind - Photovoltaics
- Thermal power plants

## Germany

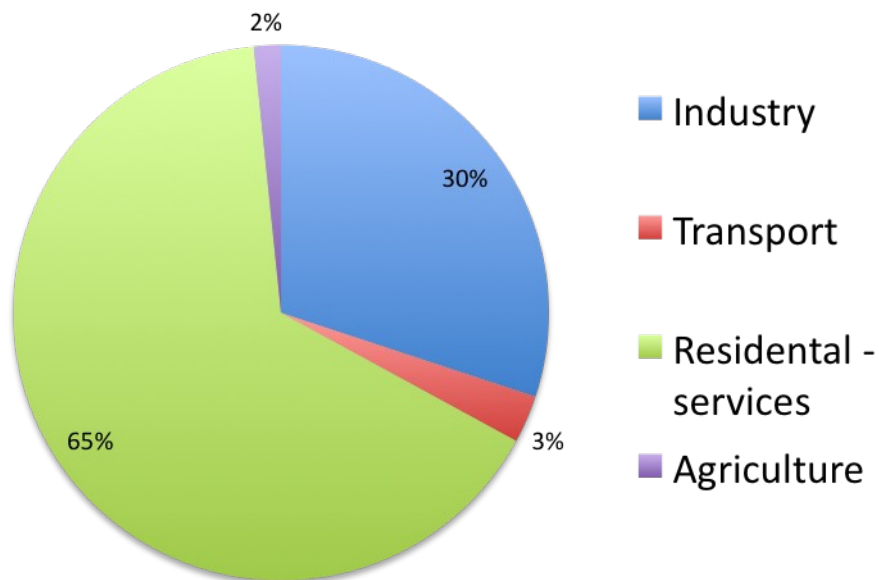


- Nuclear
- Hydro
- Wind - Photovoltaics
- Thermal power plants
- Biomass
- Other

# Electricity consumption in 2008

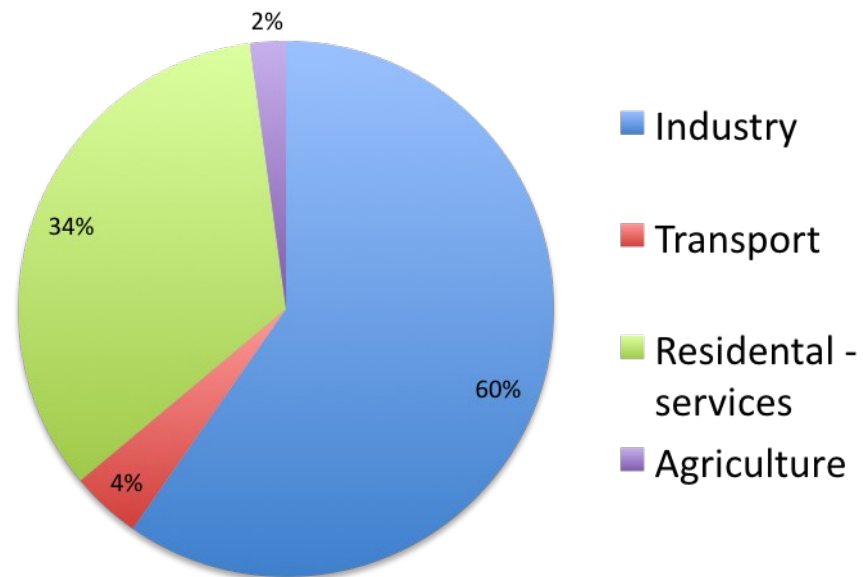


France



France: (kWh/capita) 7585  
7175

Germany



Germany: (kWh/capita)

# Particularities of the French energy system



- High rate of nuclear energy: 76% of electricity, most of it 65% used for the household and service sector
- Electric heating:
  - 10% of the national electricity consumption
  - 36% of the energy consumption of households
  - 30% of the buildings are equipped with electric heaters
- Low emission (carbon) intensity due to the high % of nuclear energy
- 25% of the French emission are non energy related emissions

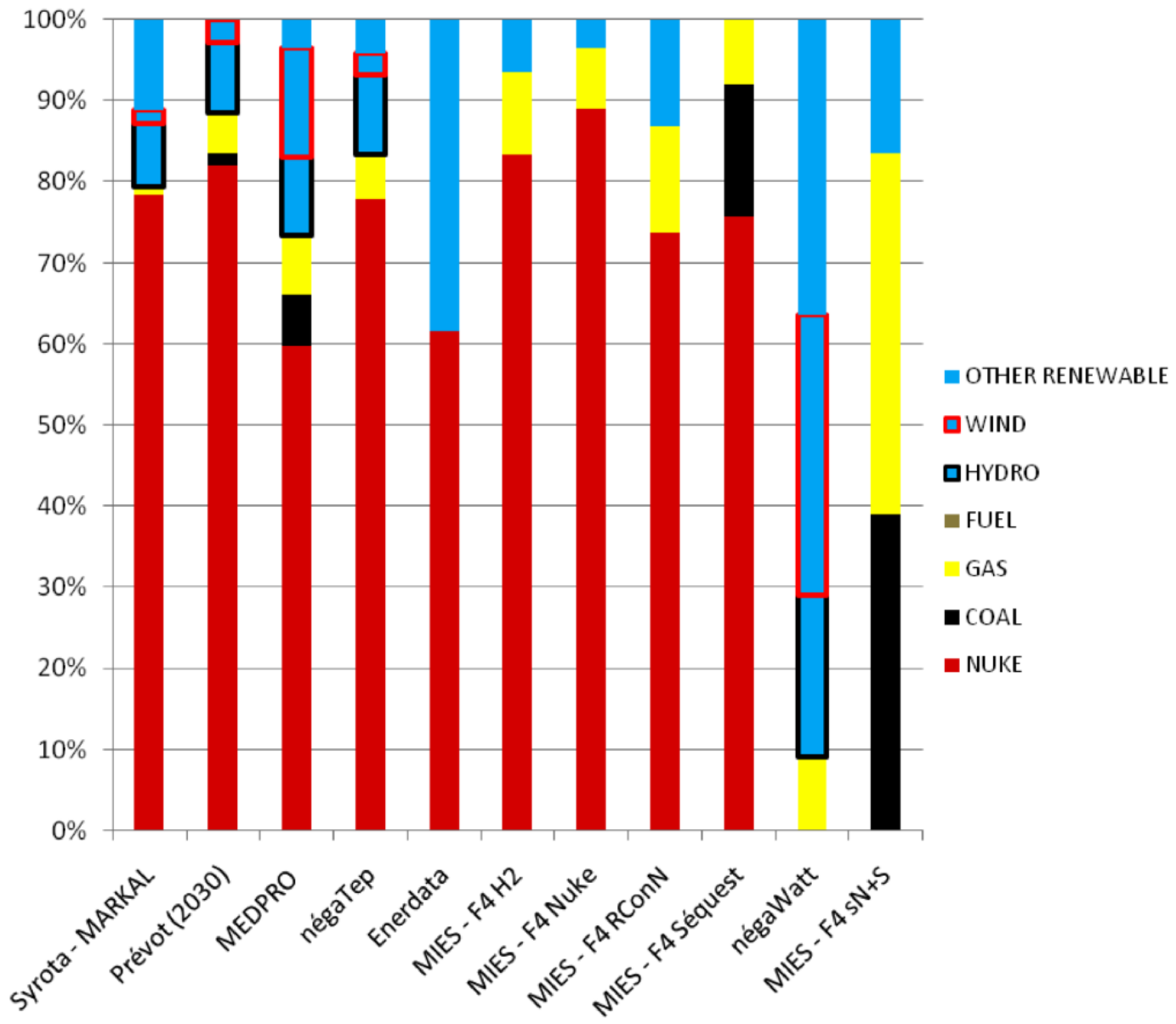
# Mitigation objective of the existing French scenarios



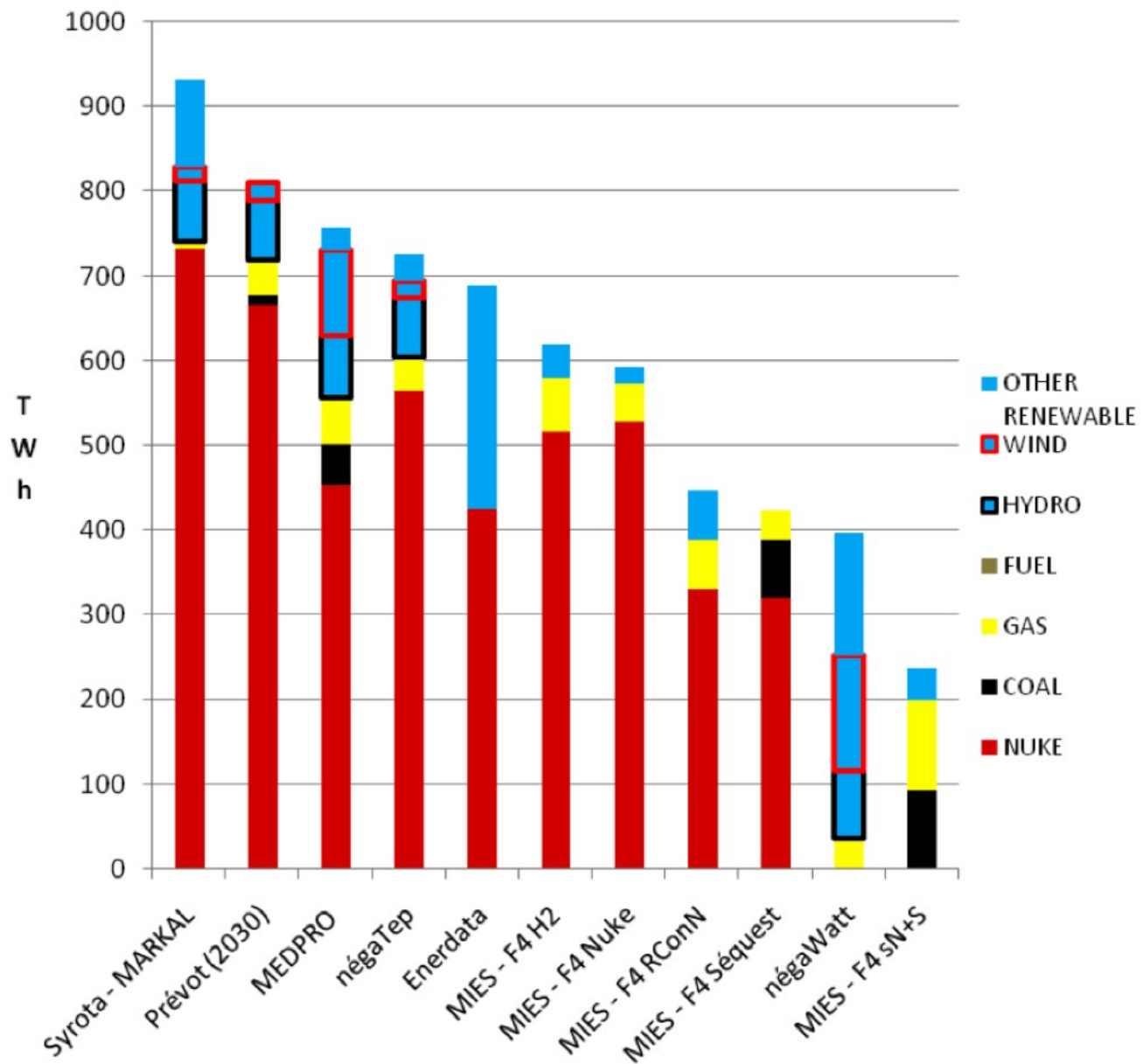
	Year	Emission in 2050 (MtC)	Emission reduction	Mtoe final energy
négaWatt	2050	110	-75%	107
négaTEP	2050	129	-64%	135
MIES	2050	117-120	-69%	140-146
DGEMP	2050	125	-64%	116
Prévot	2030	137	-63%	152
Syrota-Markal	2050	187	-55%	153
Syrota-MedPro-POLES	2050	162 (102 with CCS)	-60% / with CCS -74%	100,5



# Energy mix – power sector %



# Energy mix – power sector TWh



# Sectoral repartition of emission reductions



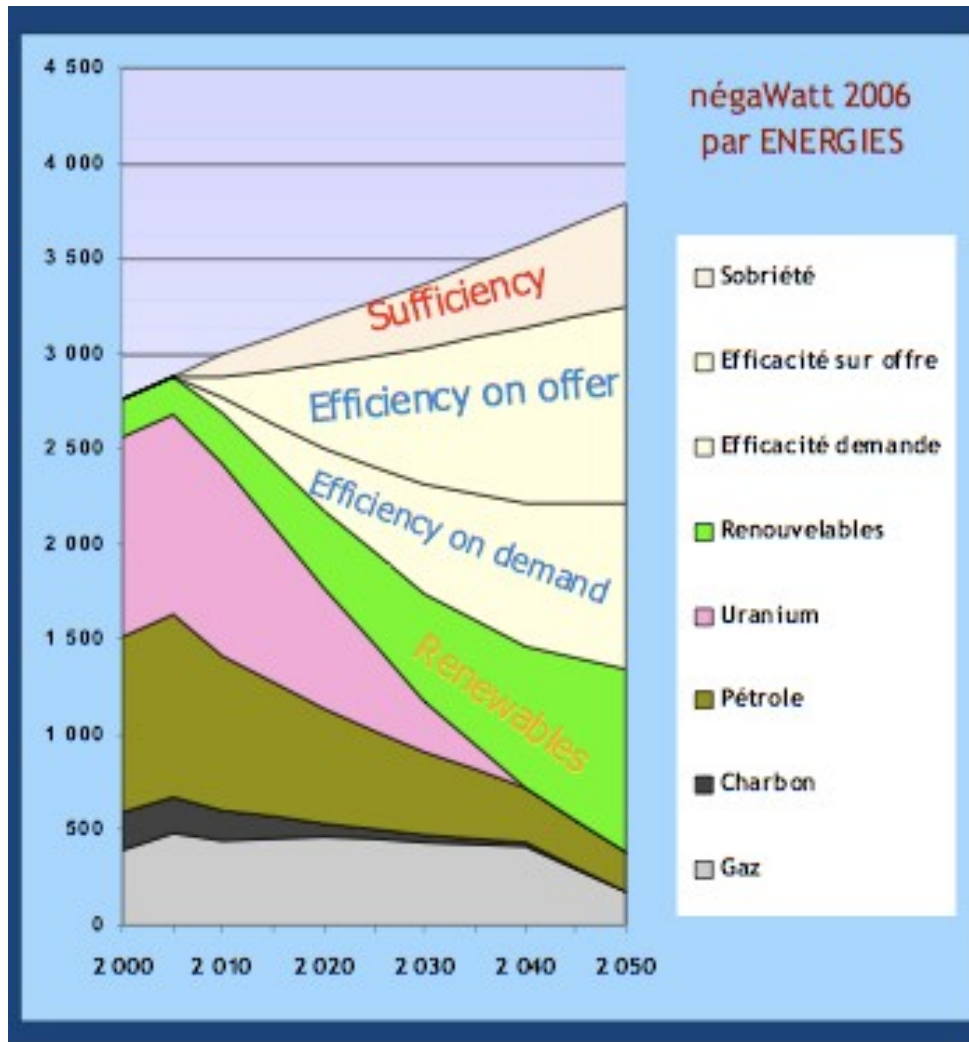
- **Transport sector:** between -47% and -82%
- **Building sector (residential and tertiary):** between -5% and -88%
- **Industry sector:** between +40% and -81%

# Sectoral repartition of emissions in mitigation scenarios



# Scenario négaWatt

## Primary energy sources TWh



Primary energy :  
1206 TWh en 2050

→ 2429 TWh that  
have been reduced  
by efficiency and  
sufficiency  
measures



# Conclusions

- No analysis about the social acceptability of the technological choices
- Information about costs are limited
- The analysed scenarios differ concerning the reduction objectives and technology choices
- An ambitious mitigation scenario opting for nuclear phase-out has to reduce finale energy demand by exploiting all dimensions of energy efficiency (and energy sufficiency ?)