



**INFORSE Europe Seminar**  
**Transition**  
**to 100% Renewable Energy**  
**and a Zero Carbon Society**

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**Demand - led transition**  
**scenario for France**  
**The négaWatt 2017 - 2050**  
**scenario and beyond**

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Part of Proceedings of INFORSE-Europe Seminar's Webinar on 21/9 2020  
Transition to 100% Renewable Energy and a Zero Carbon Society (Examples from UK, France, Denmark):  
<http://www.inforse.org/europe/seminar.htm#INFORSEEuropeSeminar100RE21092020>

## ↘ The négaWatt association

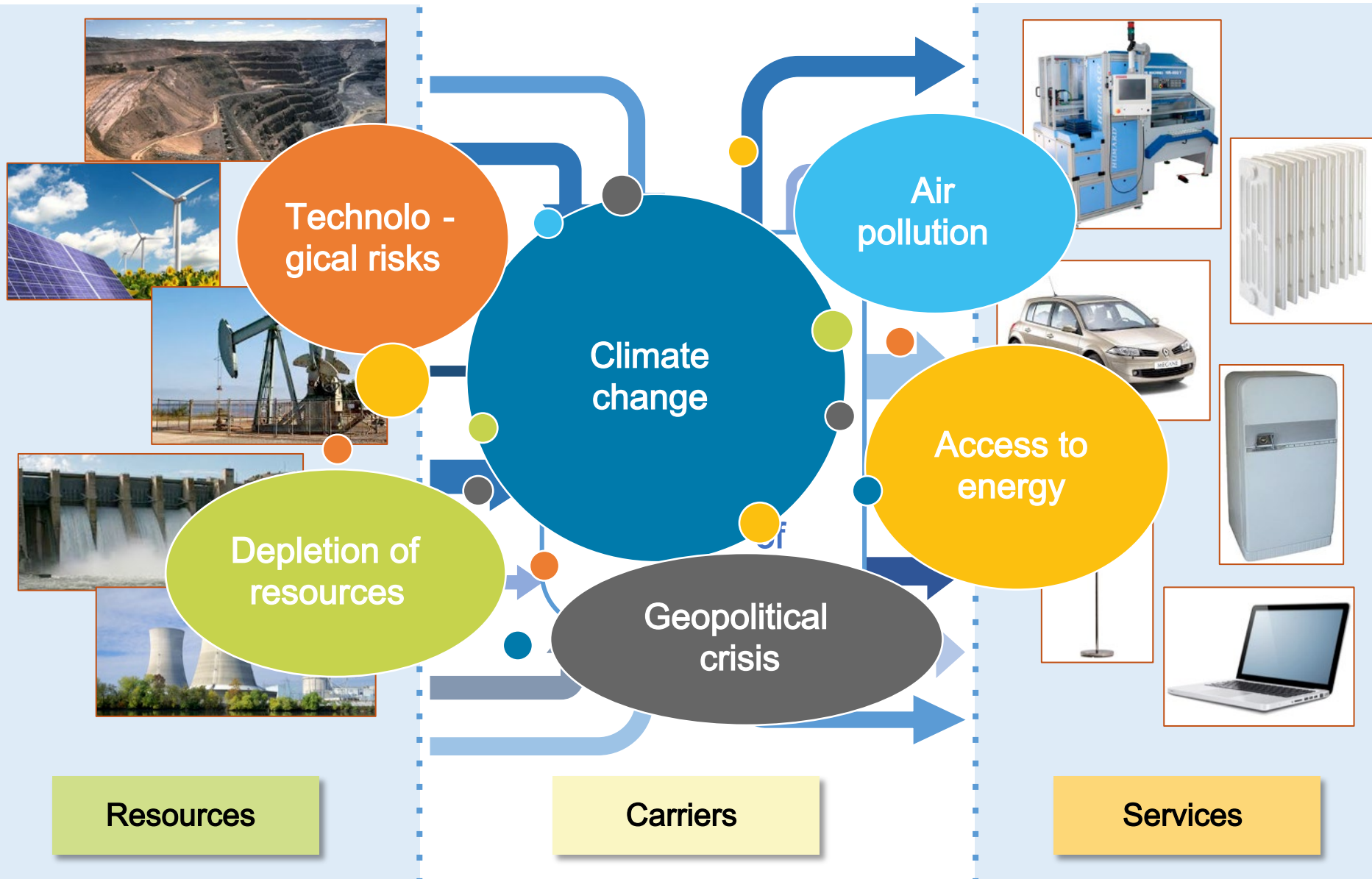


- A think tank on energy created in 2001
- A non-profit, independent group of experts and field-practitioners
- A core of 25 “companions” + 25 “ambassadors”, 1200 members
- Producing sustainable energy scenarios (latest in 2017) and proposing systemic policies and measures

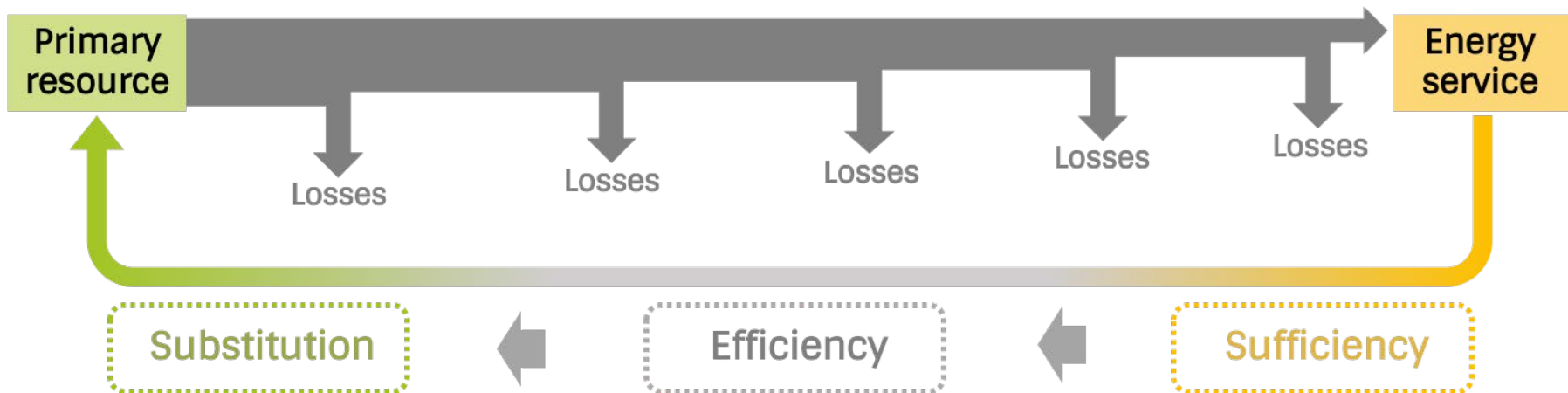


- Subsidiary created in 2009
- Operational branch of the association

# ➤ Energy is a system framing our society



# ➤ A systemic response to unsustainability



Smarter action on...

1. designing energy services
2. delivering the required energy
3. tapping available resources

# Decarbonisation options / Sustainable Devt Goals



Total score over 17 SDGs (mean, min. and max.)



Source: négaWatt, from IPCC (2018) Special report 1.5° C



*Passing down benefits and incomes to future generations  
rather than burdens and debts*

A scenario for

- setting a long term vision
- building a step -by- step pathway
- designing policies and measures

1

### Hierarchy of options

- › Sufficiency, efficiency, flow -based resources

2

### Technological and economic realistic approach

- › Relying on “matures” solutions, although innovation will happen
- › A physically realistic and economically sound approach

3

### Sustainability

- › Ensuring a sustainable and fair transition

# Three levels of sufficiency

## 1 Servicial

Intensity and duration of use of equipments

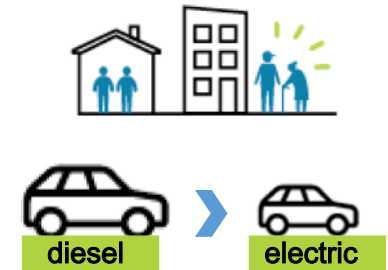
*Turning off lights, computers...  
Reducing obsolescence of appliances*



## 2 Dimensional

Size, nominal capacity of equipments

*Size / adapted cars to various uses  
Surfaces of houses, offices...*



## 3 Organisational

Collective planning and sharing

*Car-sharing, co-working...  
Urban planning (reducing distances)*



+ Sufficiency on other goods and food



# Four levels of efficiency



Grey energy

1

**Efficiency of building and manufacturing**

Life-cycle energy optimisation, upfront and after use

*Recycling, use of biomaterials  
Building with wood...*

Useful energy

2

**Efficiency in using and adapting**

Insulation, passive gains, optimisation of energy exchanges with environment

*Thermal retrofitting of existing buildings*

Final energy

3

**Efficiency of equipments**

Reduction of losses, conversion performance of end-use equipments

*Efficient lights, appliances, vehicles...*

Primary energy

4

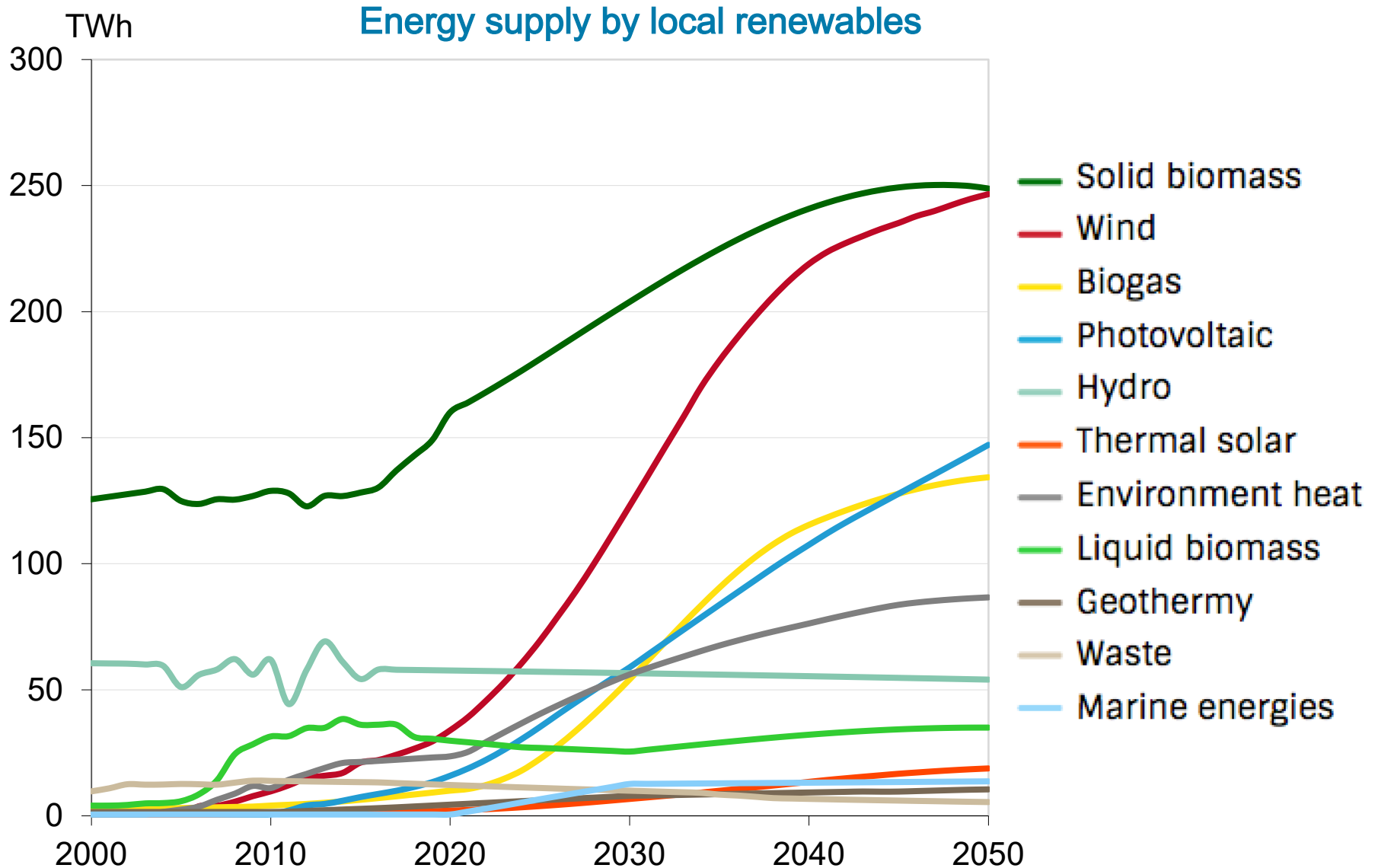
**Efficiency of production**

Conversion performance of production, reuse of energy

*Combined heat and power (CHP)*



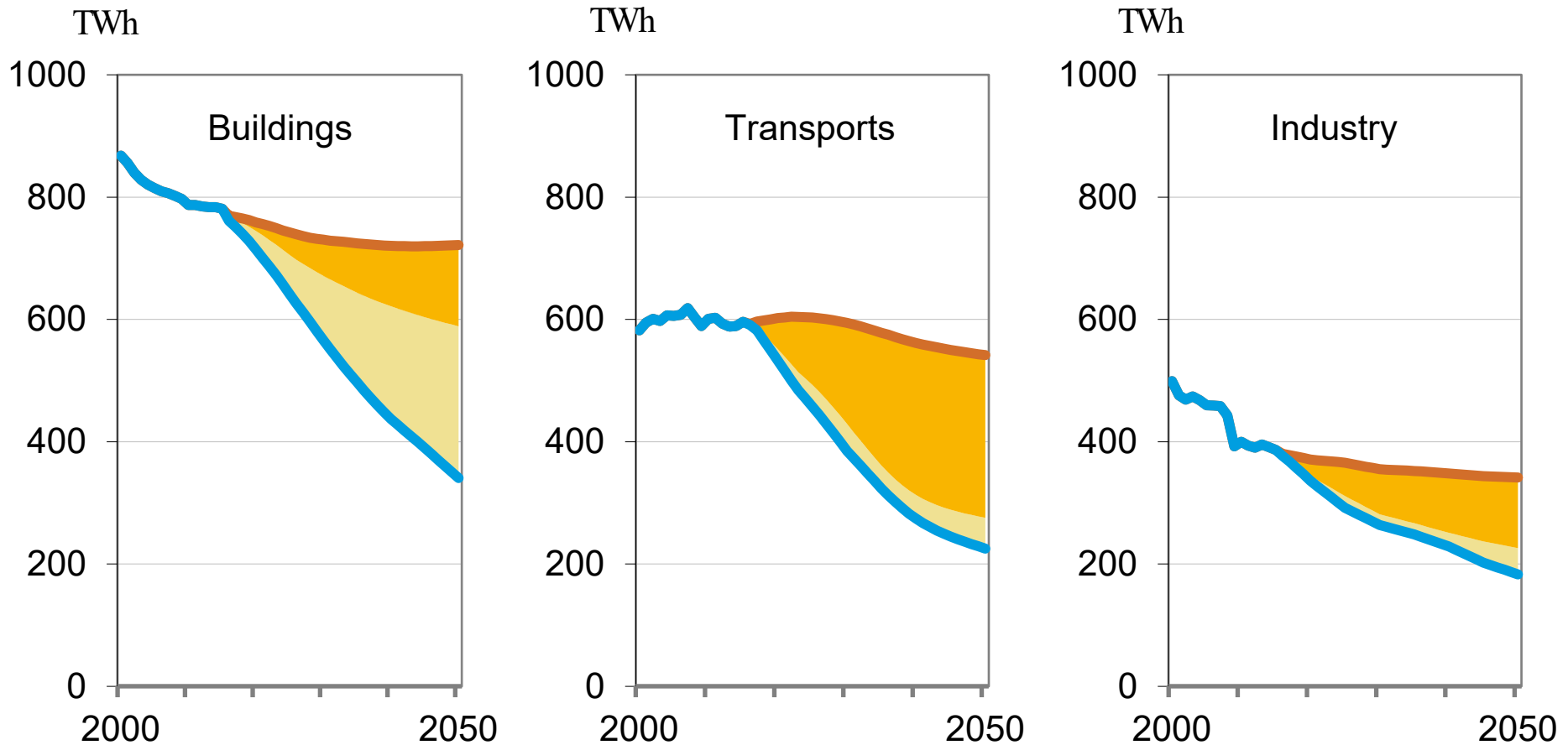
# ➤ Diversified and balanced mix of renewables



# Change in energy demand



- Sufficiency
- Efficiency
- Trend
- négaWatt



Evolution of final energy consumption in the négaWatt scenario

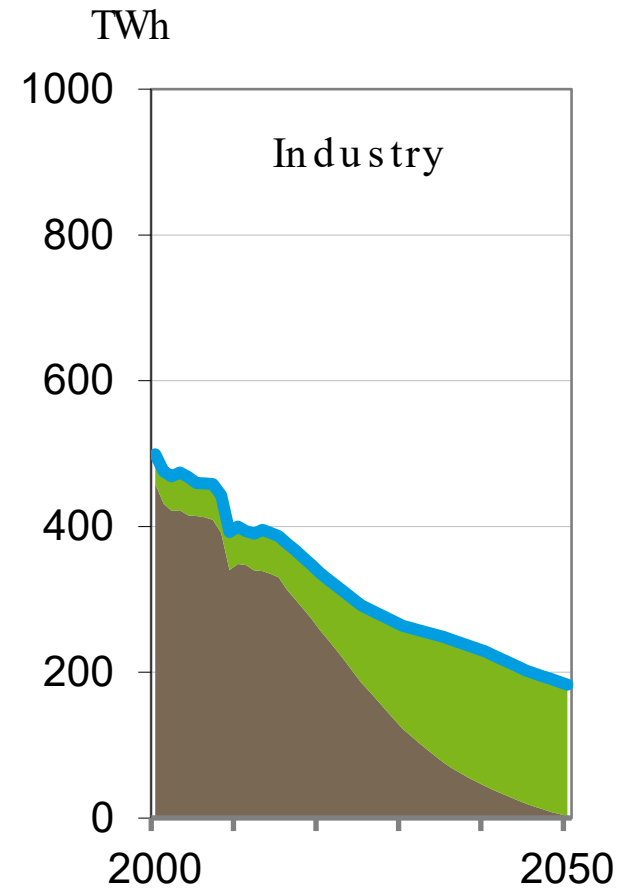
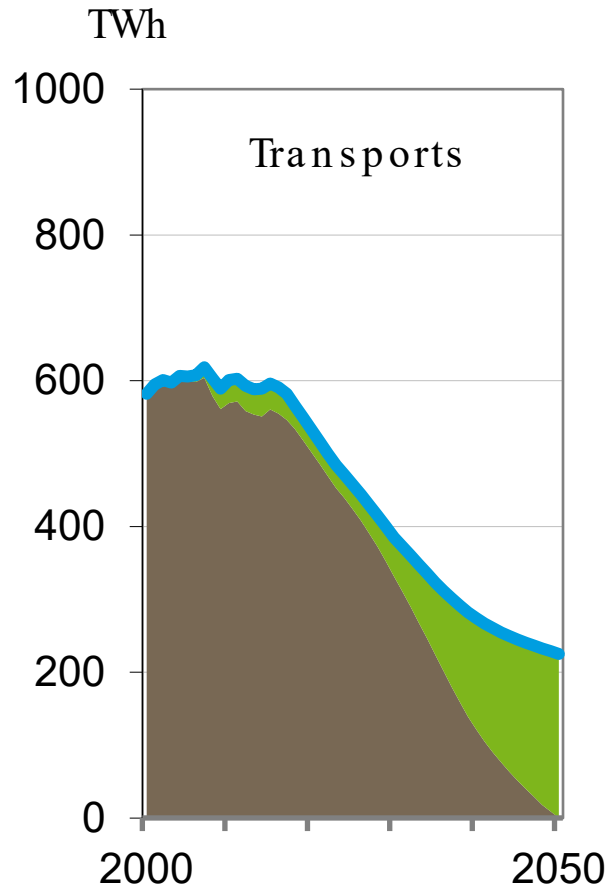
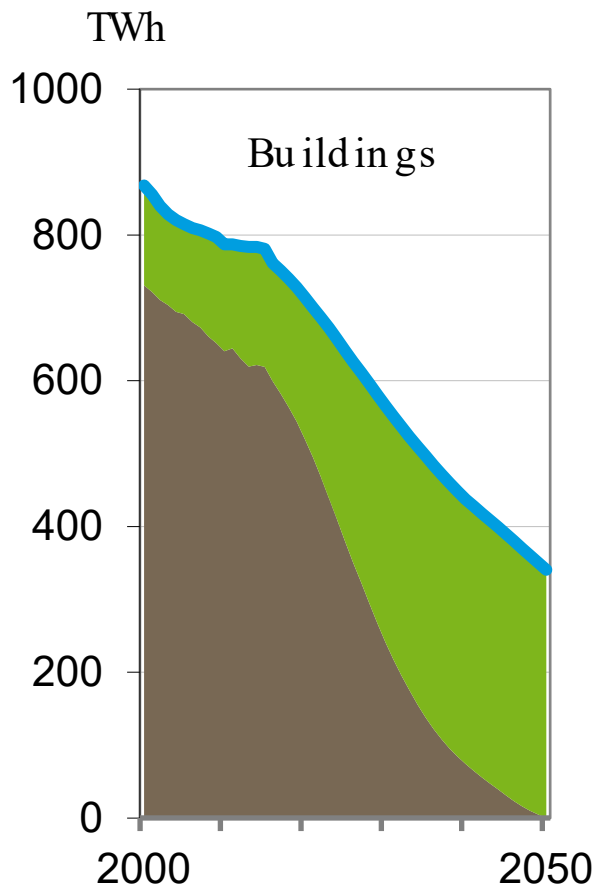
# Change in energy demand



Renewables

Fossils + Nuclear

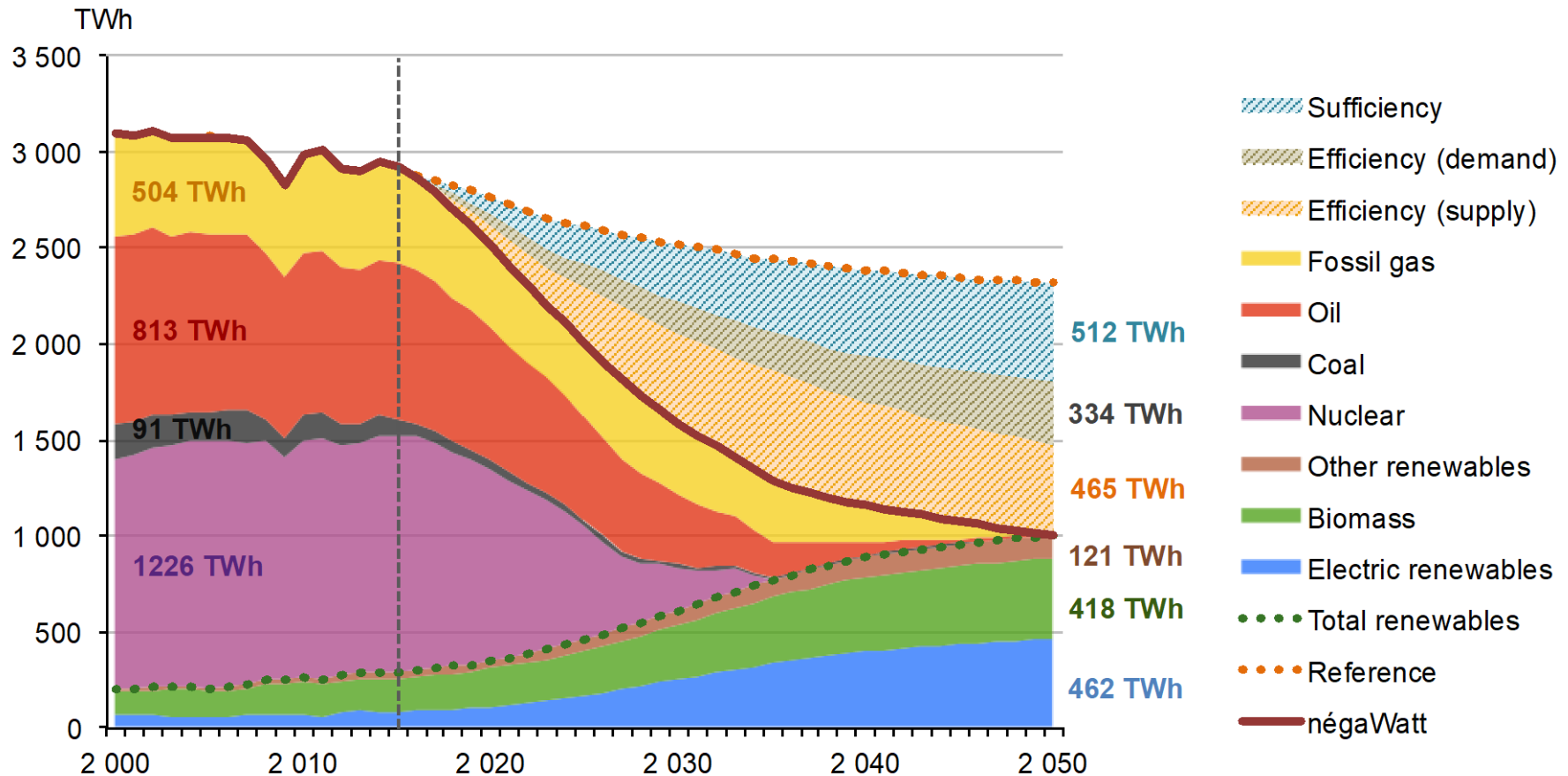
négaWatt



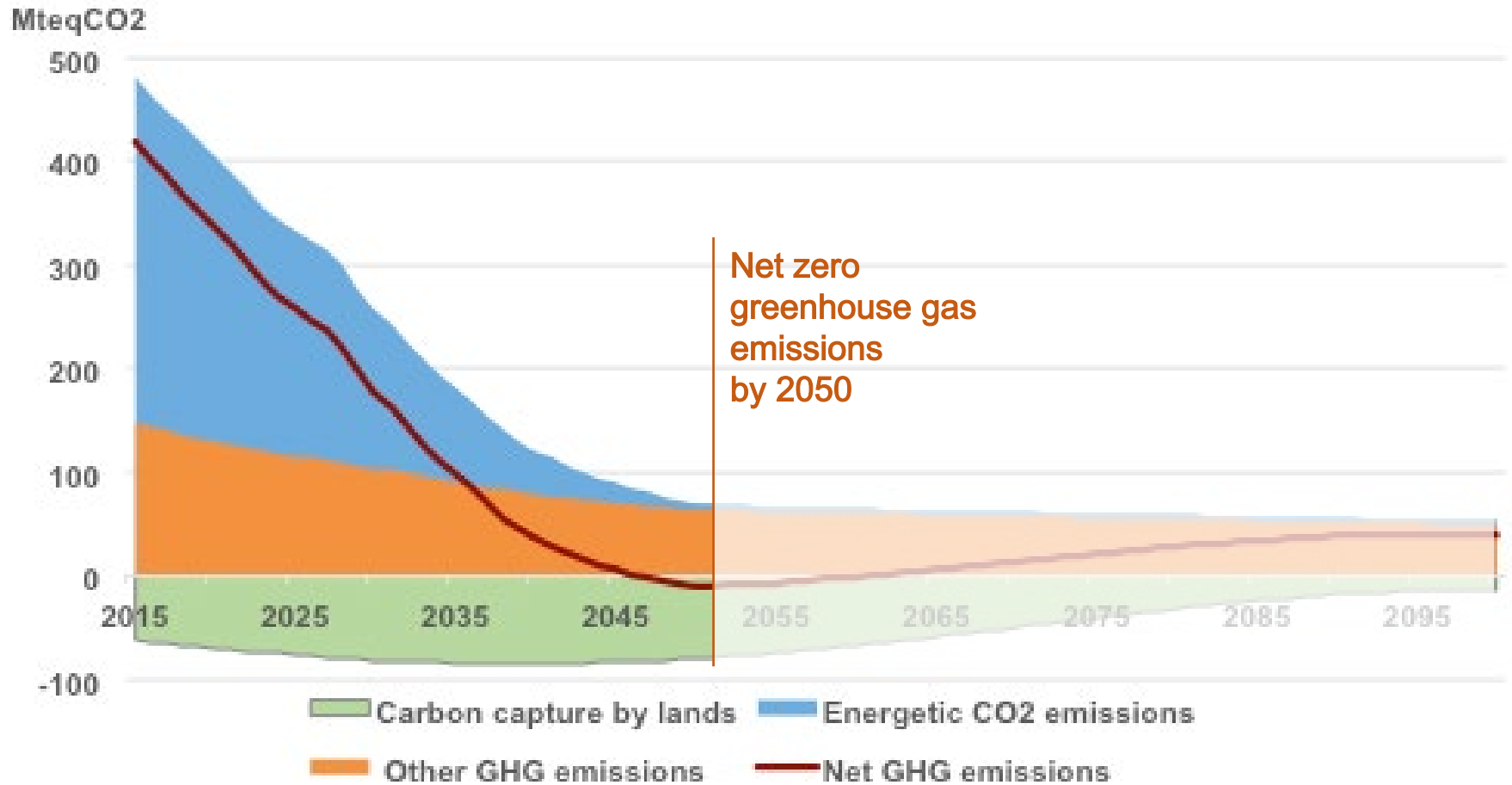
Evolution of final energy consumption in the négaWatt scenario

## Primary energy consumption in the négaWatt scenario 2017

- 2050 for France

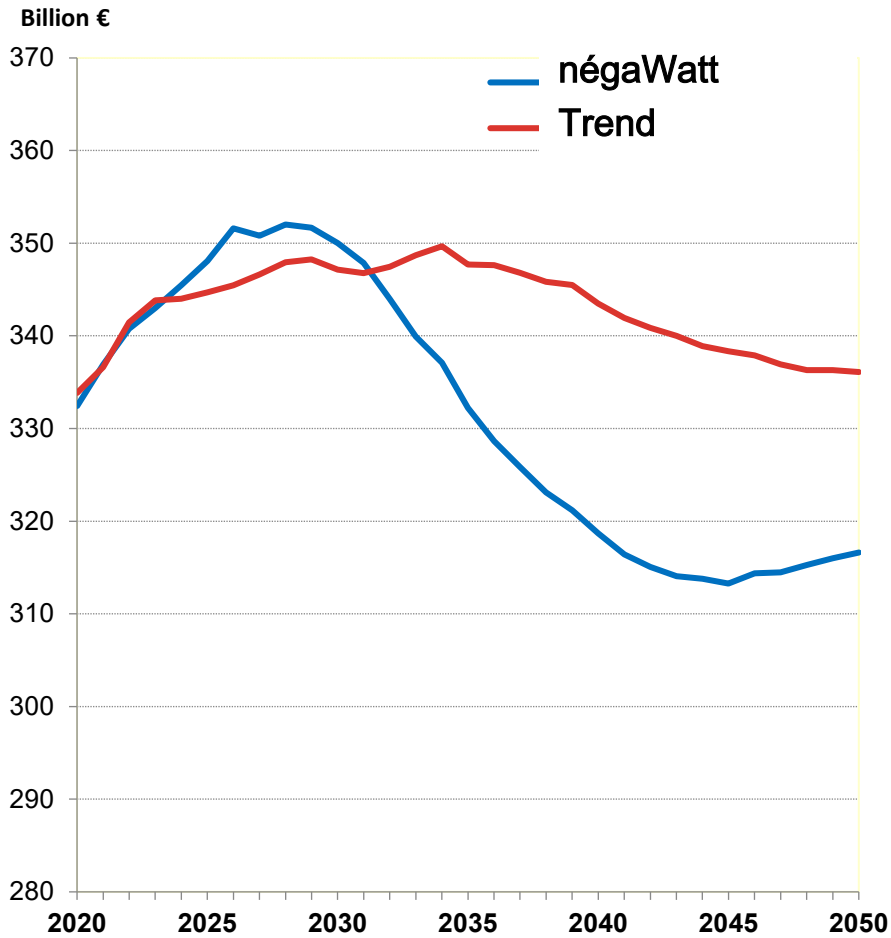


# Reduction of net GHG emissions

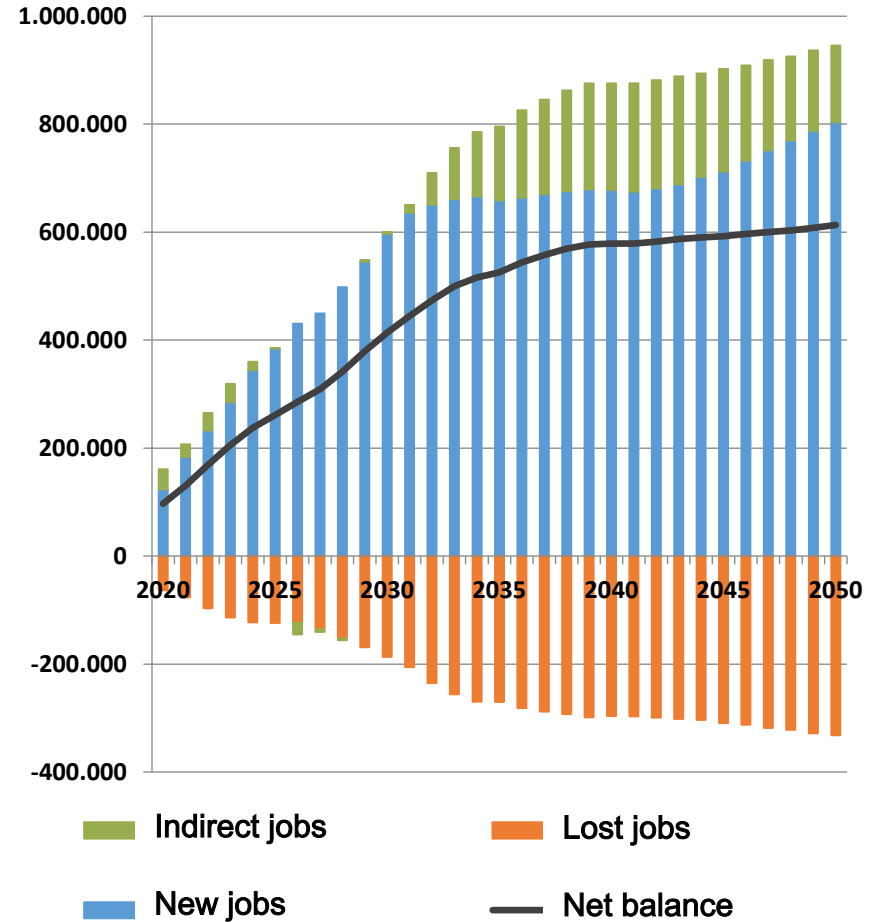


Evolution of greenhouse gas emissions to 2050 (and to 2100)

Associated costs



Jobs created



# ↘ La transition énergétique, projet de société

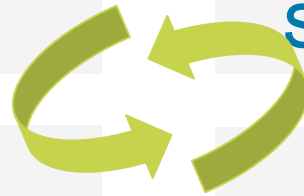


Citizens

States / Europe

Enterprises

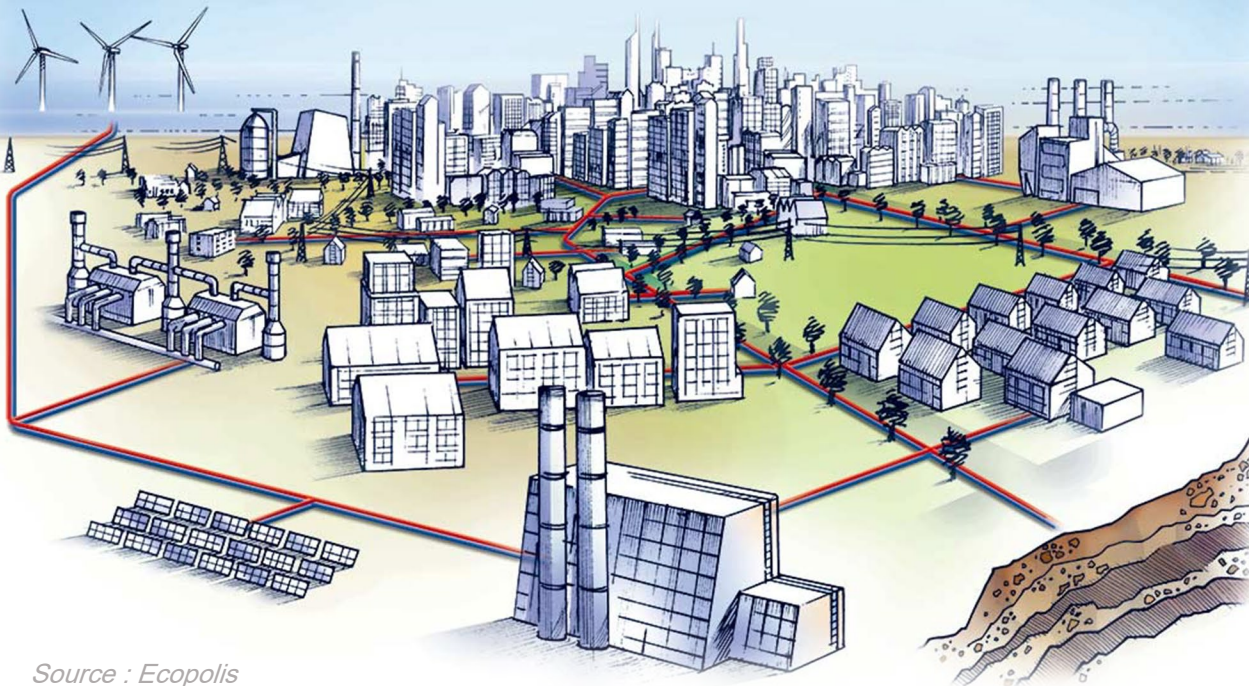
Communities



Rapid energy transition is a need and an opportunity

It can be achieved but calls for a new paradigm

- Decentralized action to tap local potentials
- Regulated consistency in sharing efforts and benefits
- Creating value through protecting resources
- Caring for common goods
- Innovation in services

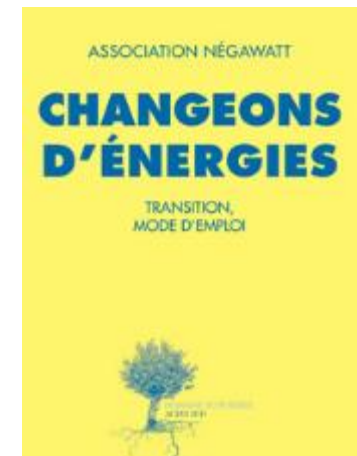


Source : Ecopolis

Contact : [contact@negawatt.org](mailto:contact@negawatt.org)

- Technical and synthetic reports
- Graphics and data
- Videos
- Press coverage
- négaWatt news

○ Books



[www.negawatt.org](http://www.negawatt.org)

- Debunking energy issues



[www.decrypterlenergie.org](http://www.decrypterlenergie.org)