# VALUING FLEXIBILITIES IN THE MARKET: WHAT OPTIONS?

## French embassy – Berlin

Marc Jedliczka – 23 mars 2023

# Who are we?

ASSOCIATION négaWatt

- Founded 2001
- 20 staff to-date
- 25 experts
  *la « Compagnie des négaWatts »*
- More than 1300 members
- 25 ambassadors

⇒ *Independant Think-tank on energy strategy*

⇒ *100% RES scenarios for France*

⇒ *Advocacy and presence in media*

⇒ *Network animation*

# What are we speaking of ? Many kinds of flexibilities !

**1) Demand side** :

- Industrial? Commercial? Residential?
- What about « sufficiency »? - 8% in France : one shot? structural / cultural? what policies?

**2) Offer side** :

- Curtailement : who? where? how deep? how often? static? dynamic?
- Other system services, i.e. reserves and inertia : how sharp ? how much ?
- Thermal fatigue in nuclear reactors caused by load following?

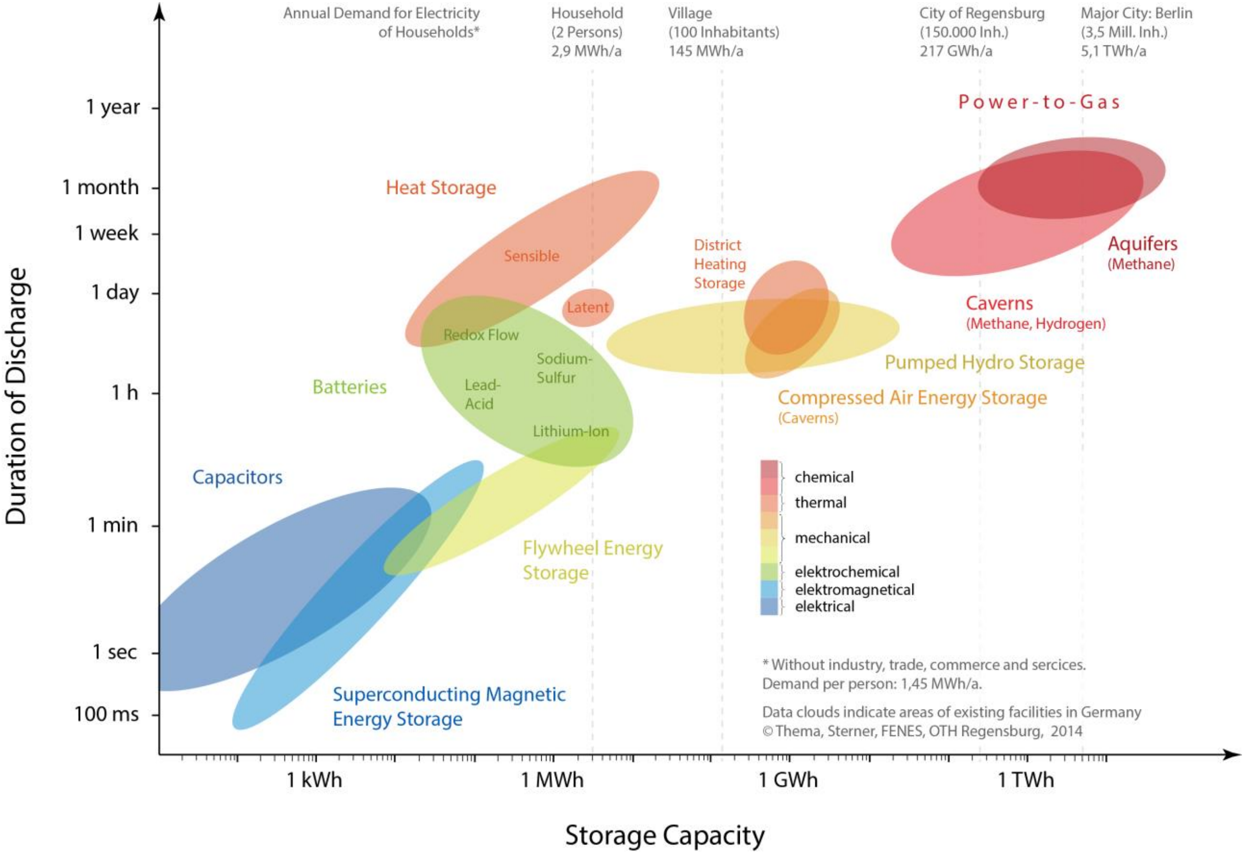
**3) In-between : storage**

- how much? how long? what technologies? where? operated by whom?
- how affordable? market vs. regulation?

**4) Other topics :**

- Interconnexions: the Mother of flexibilities?
- Sectoral coupling: what energy carriers? what economic sectors? what technologies?
- 100% electricity for all uses: how credible? what about heavy mobility?
- The role of renewable methan: simple servant of the electric system or full-fledged player ?

# The example of storage : a catch-all word?

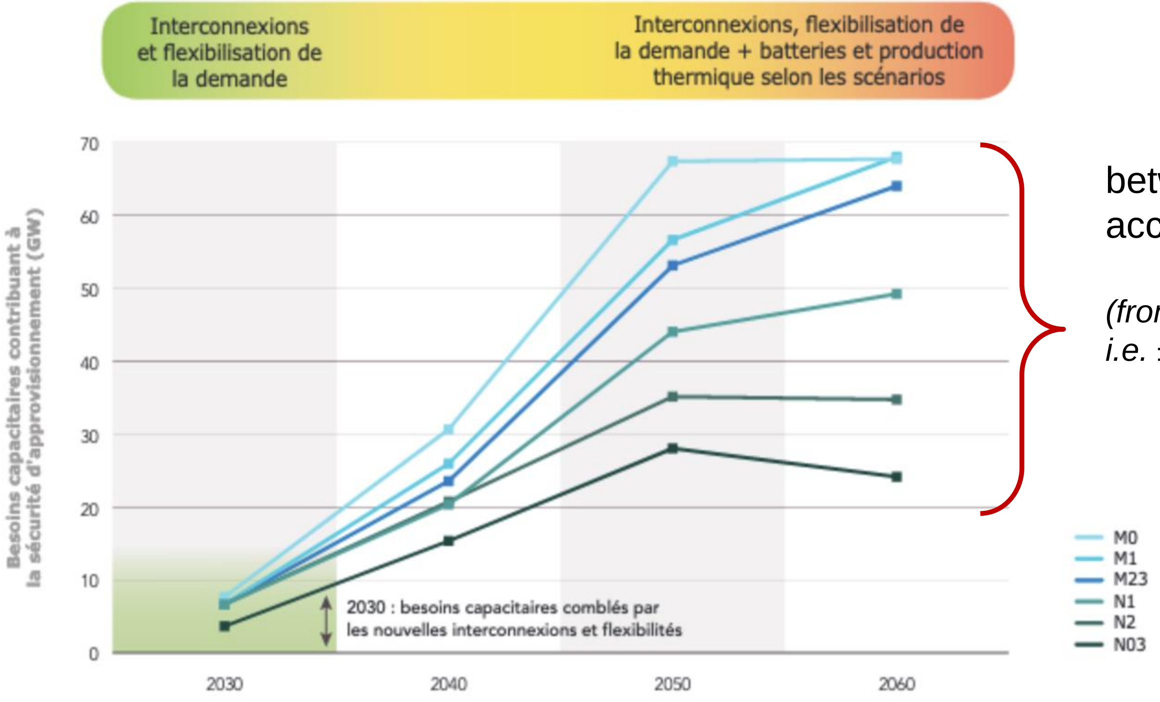



Source : Michael Sterner - 2008

Power-to-gas : who can do more can do less?

The issue of transition: first players *vs* newcomers

# The need for flexibilities in France




between 25 and 60 GW of flexibilities according to the share of variable RES

*(from 50% to 100%, i.e from 135 to 344 GW i.e. ± 5,6 GW of flexibilities / GW of V-RES)*

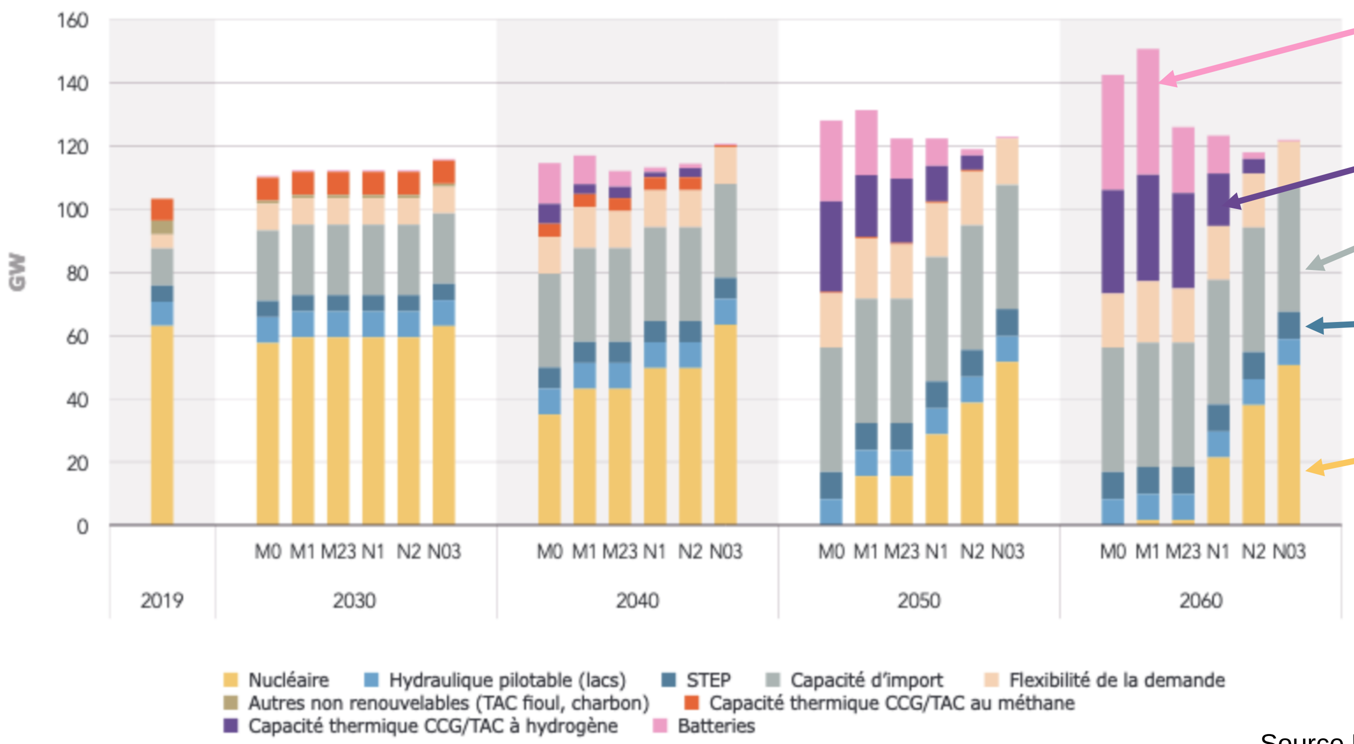
Is it so much?
How many players?
At what geographic scale?
Pure market?
What regulation?

Today :
<10GW

Source RTE - 2022

# The possible mixes of flexibilities

**Figure 7.37** Capacités flexibles installées en France dans les différents scénarios pour assurer la sécurité d'approvisionnement[29,30]




Batteries : centralized or distributed?

Gas backup : $H_2$ or $CH_4$?

Interconnexions as system backbone?

Hydro at its maximum

How far can nuclear be <u>really</u> flexible ?

Source RTE - 2022

# Last but not least : what is the value of flexibility?

- How to define the value of a given flexibilty? Market? Others?
- How to compare flexibilities and their relevance?
- How to priorise the most efficient ones at a given time?
- And on the long term?
- On what criteria?

and finally: a demand-driven or an offer-driven market ???

THANKS FOR YOUR ATTENTION !