

IEA DSM event on the role of DSM to
provide flexibility in electricity systems

Barriers to market for DSF

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Brussels, 13 October 2016



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Option 1: Implicit Demand-Side Flexibility

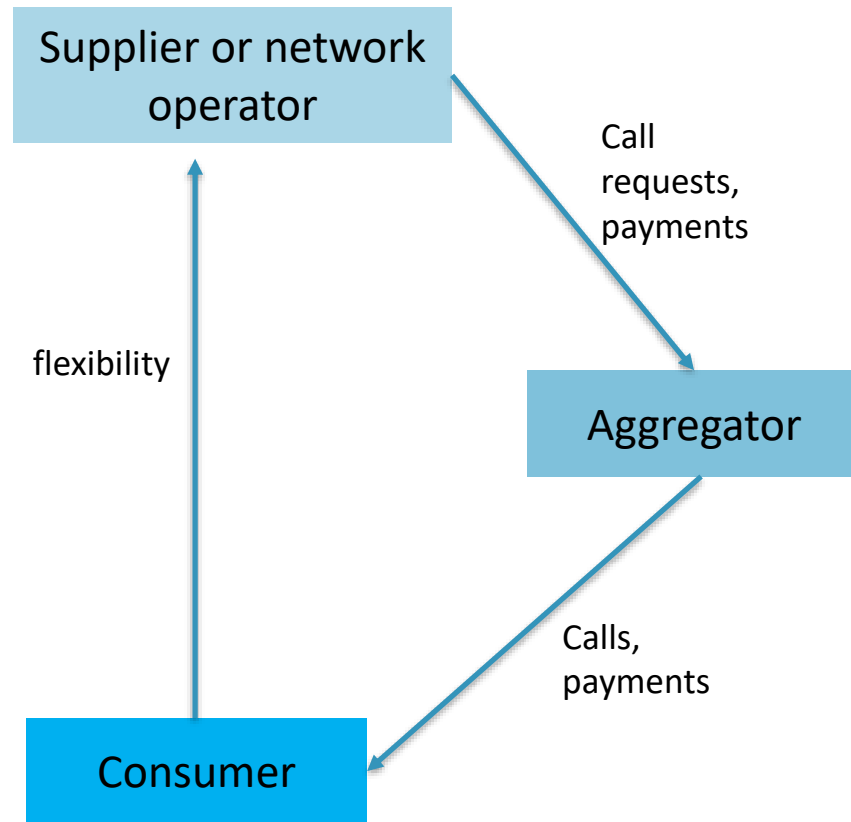
Consumer adjusts to variable market-price signals

- > saves hedging cost & supports system
- > uses power when it's cheapest



Credits: brincadeira89.wordpress.com

Option 2: Explicit Demand-Side Flexibility



Consumer sells local flexibility via an aggregator

- > Income on committed flexibility
- > System support

Barriers today



Implicit demand-side flexibility

- Access to **real-time pricing**
- Access to smart infrastructure
- Need for **appropriate price signals**

Retailers testing dynamic ToU + CPP static ToU

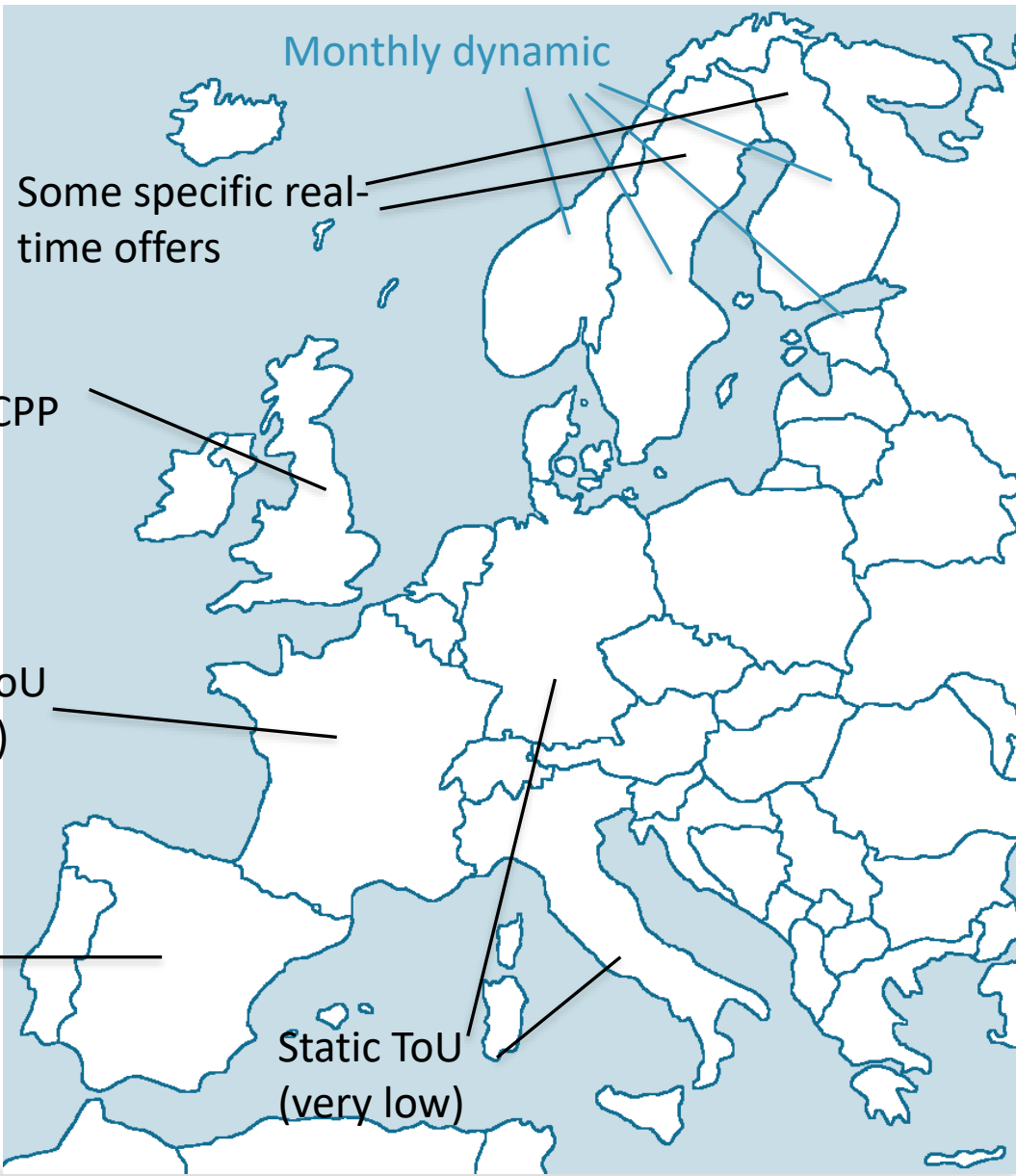
Dynamic ToU (regulated)

Hourly PVPC (but limited info)

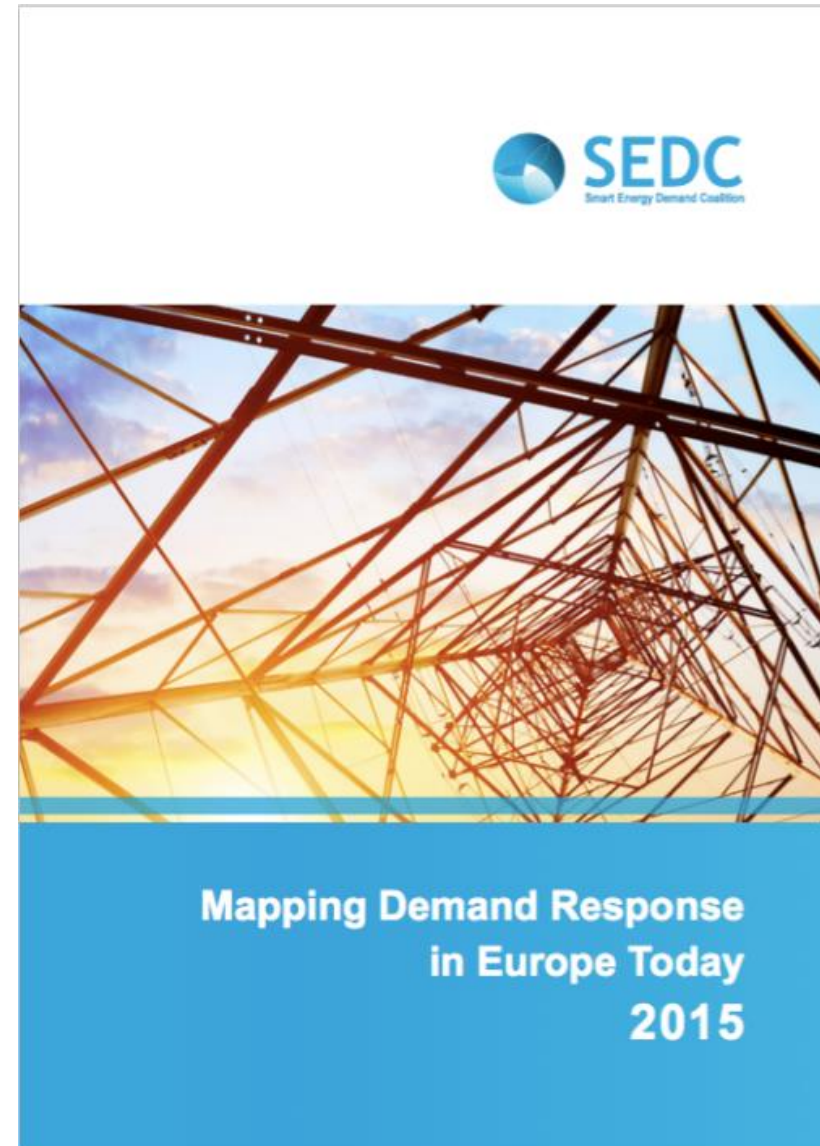
Monthly dynamic

Some specific real-time offers

Static ToU (very low)

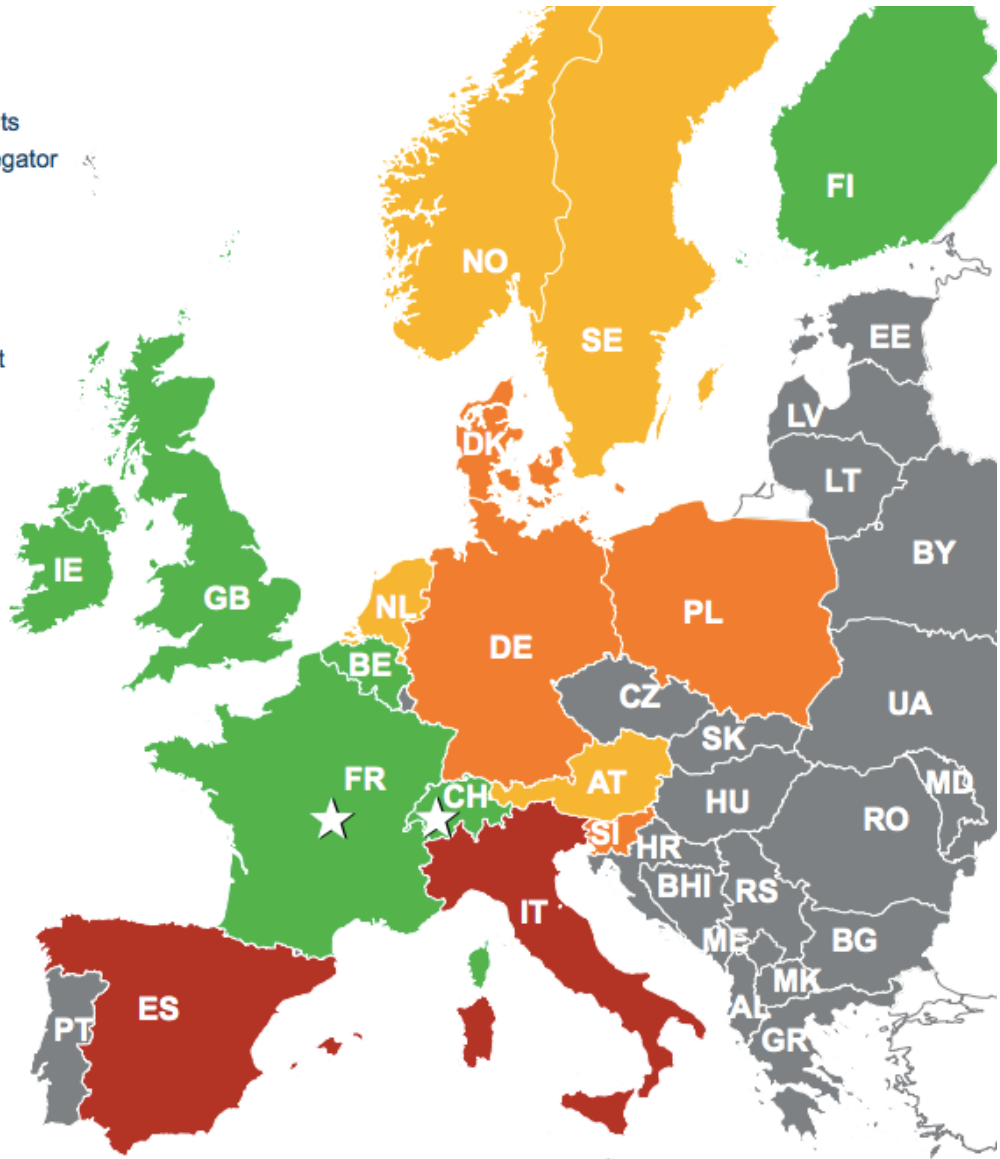


Explicit Demand-Side Flexibility



Market Access

- ★ Commercially active, standardised arrangements between BRP and aggregator in place
- Commercially active
- Partial opening
- Preliminary development
- Closed
- Not assessed



Markets open for DR

Market access for independent aggregators

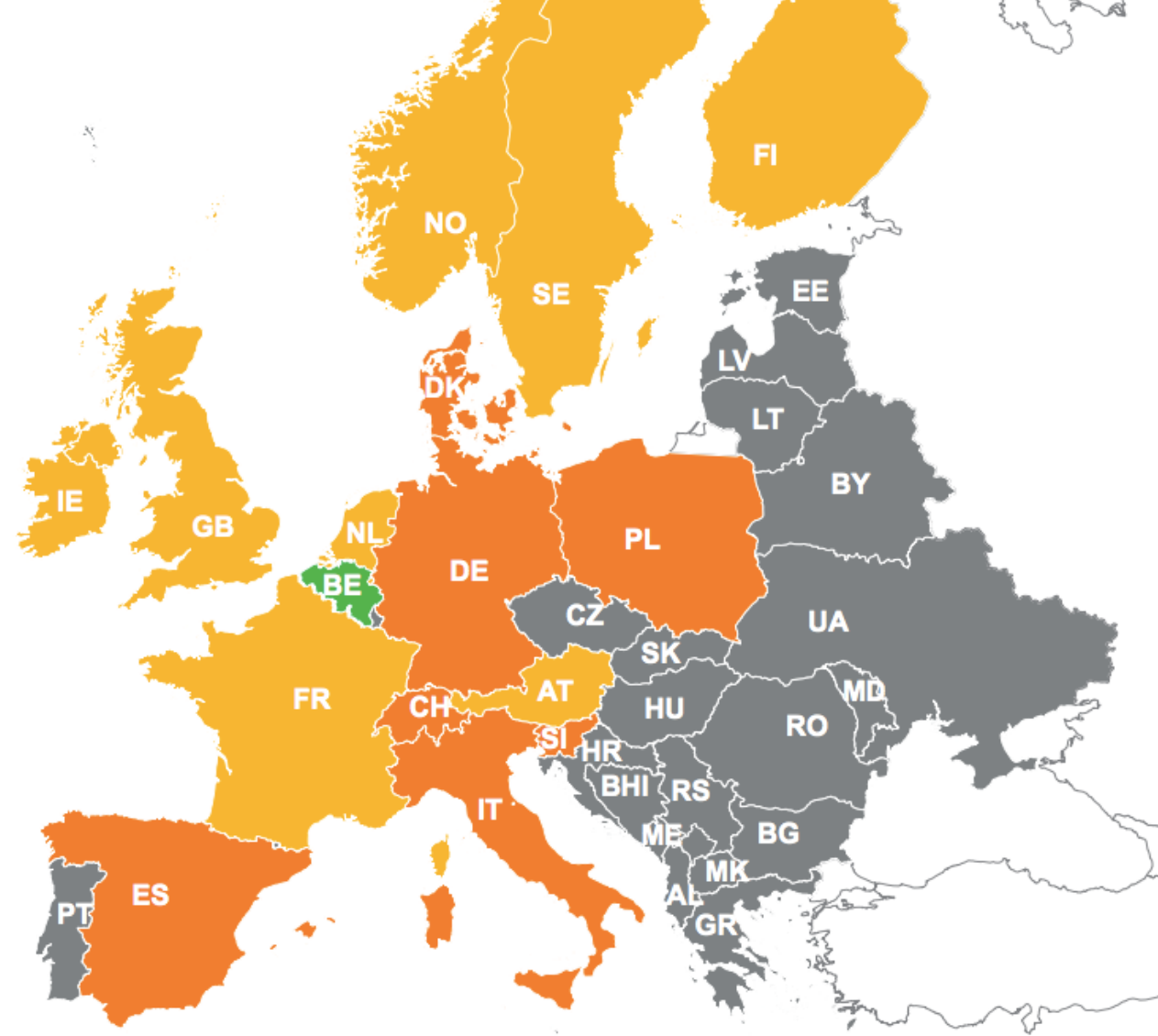
Market for system services at distribution level

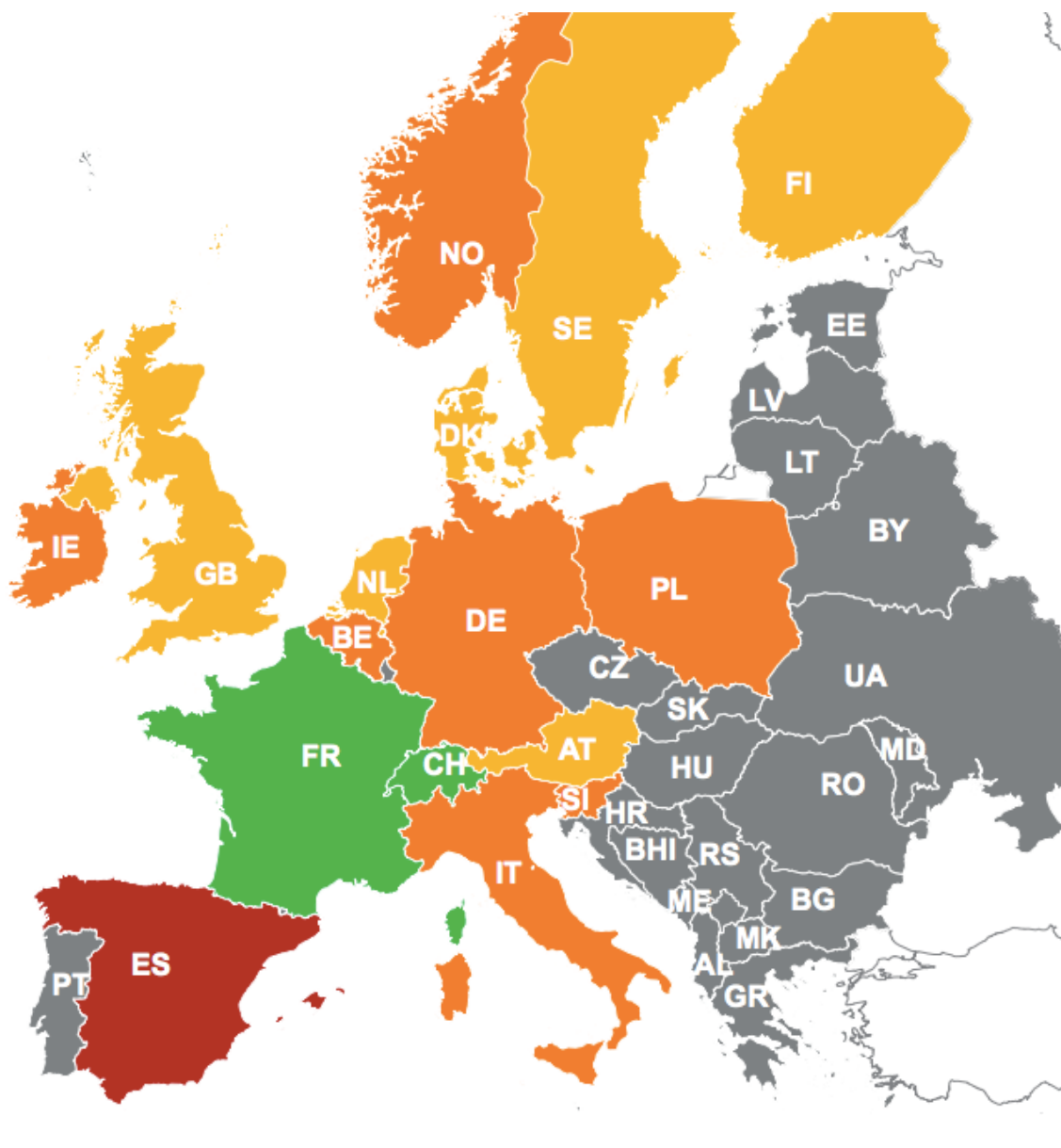
Product Requirements

Historically designed around the specifics of generators

- Symmetric bidding
- Minimum bid size
- Duration
- Activation limits
- Pro rata dispatch
- ...

Progress on Balancing (FR, BE, AT...),
Wholesale (FR, ...) and Capacity Markets (FR,
BE),
Local grid services in UK



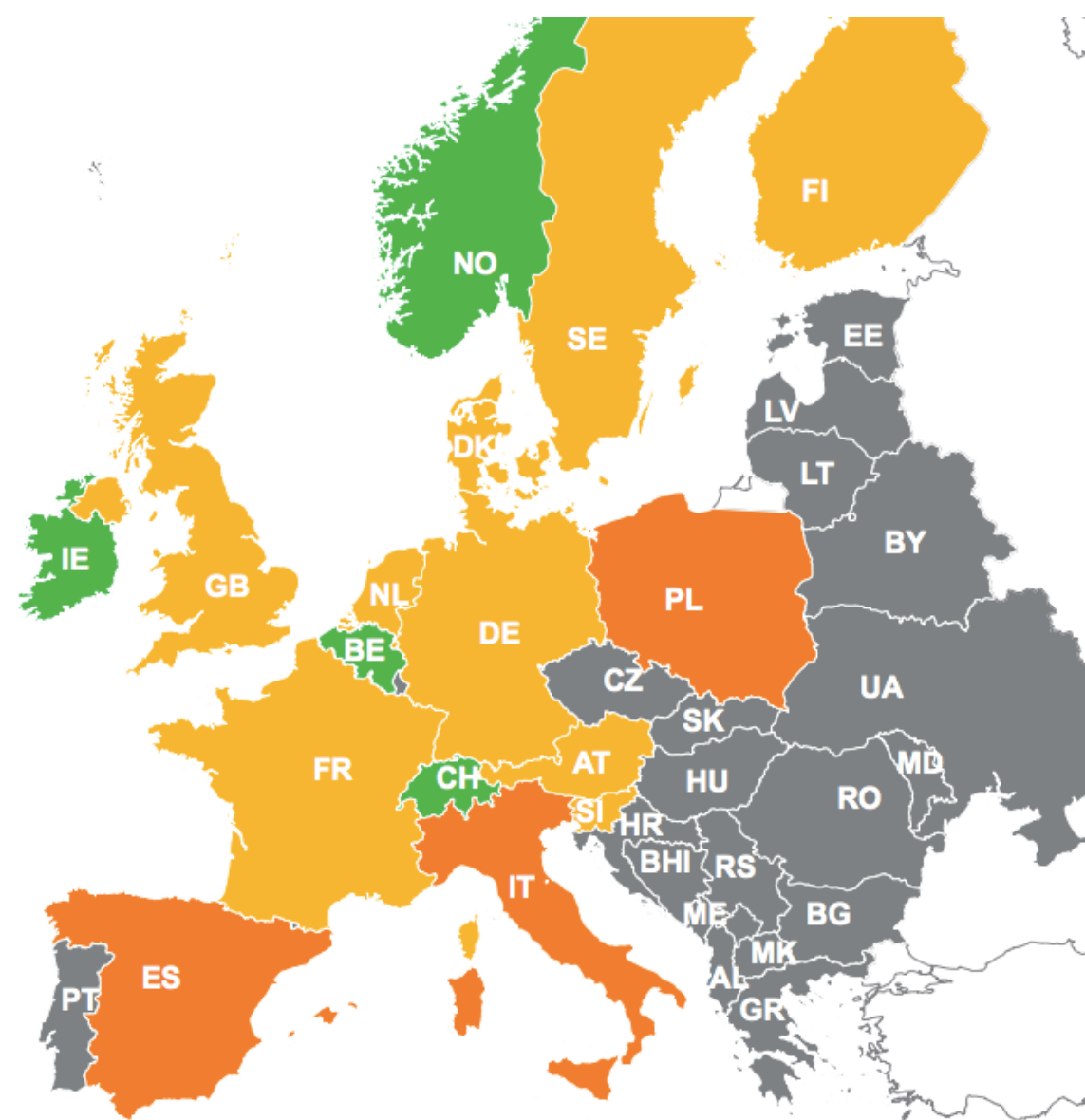


Measurement & Verification

- Often no standardised and transparent requirements for measurement
- M&V often at the consumer level rather than for the **aggregated pool**

Fair Payment & Penalties

- Demand may have **less revenue streams** or be **paid less** than generation
- Payments may be **negotiated individually**, not decided through a market or auction process, **not published**
- Penalties should be fair (usually the case)



Price signals for explicit and implicit DSF



Credits: tachlistalk.com

- Hampered **price signals** (scarcity prices, full cost of balancing)
- **Blunting effect** of taxes, charges and levies
- Over-sized **capacity (assessments)**, excluding demand-side flexibility
- **Perverse incentives** (e.g. certain grid charges)

What does it mean for policy and market design?



Enablers at prosumer level

Making flexibility accessible:

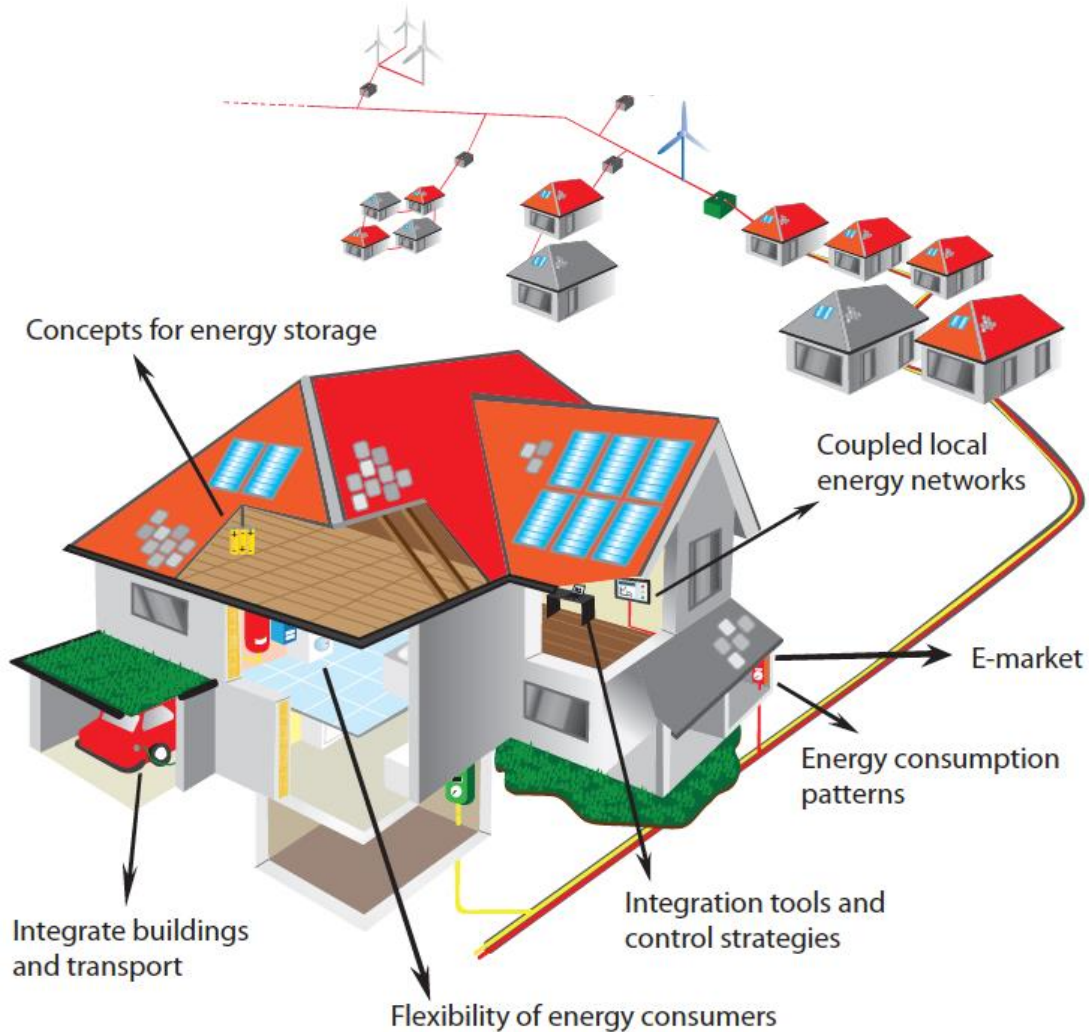
- Smart energy building certificate
- Complementary smart appliance label
- Access to smart meter
- Quality data & standardised communication

Marketing flexibility:

- Right to market-related hourly or shorter-term pricing
- Free choice of service providers/ aggregators



Enablers at distribution level



Source: Laborelec

- CAPEX -> TOTEX basis for DSO price control
- Market-based procurement of DSF
- Distribution tariffs support and don't hamper DSF

Enablers at market level

- Open all energy and power products to demand response and storage
- Adjust product definitions to create a level playing field
- Framework to enable access for independent service providers and aggregators (including rules on data, removal of prior agreement)
- Include Demand-Side Flexibility in System Adequacy Assessments



A win-win-win-win





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The Potential

European Commission @Florence Forum (preview on Impact Assessment):

Theoretical Demand Response potential is about **100 GW** in Europe.

The residential potential is clearly the biggest potential in there.

For 2030, the potential could go up to **160GW**,
driven by electrification of transport and heating.