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

Barriers to market for DSF

Frauke Thies
Brussels, 13 October 2016
Option 1: Implicit Demand-Side Flexibility

Consumer adjusts to variable market-price signals

- saves hedging cost & supports system
- uses power when it’s cheapest
Option 2: Explicit Demand-Side Flexibility

Supplier or network operator

flexibility

Aggregator

Call requests, payments

Consumer

Calls, payments

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 (very low)
- Hourly PVPC (but limited info)
- Dynamic ToU (regulated)
- Some specific real-time offers
- Monthly dynamic
Explicit Demand-Side Flexibility
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

- 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)

Credits: tachlistalk.com
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

• 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

RES Integration & System Adequacy

System Efficiency & Competition

Cost & Reduction

Consumer Choice & Benefit

Reduce backup MW & must-run

Credits: GE Digital Energy

SEDCC
Smart Energy Demand Coalition
Frauke Thies
Executive Director
frauke.thies@smartenergydemand.eu

Rue d’Arlon 69, 1040 Brussels, Belgium
www.smartenergydemand.eu
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 160 GW, driven by electrification of transport and heating.