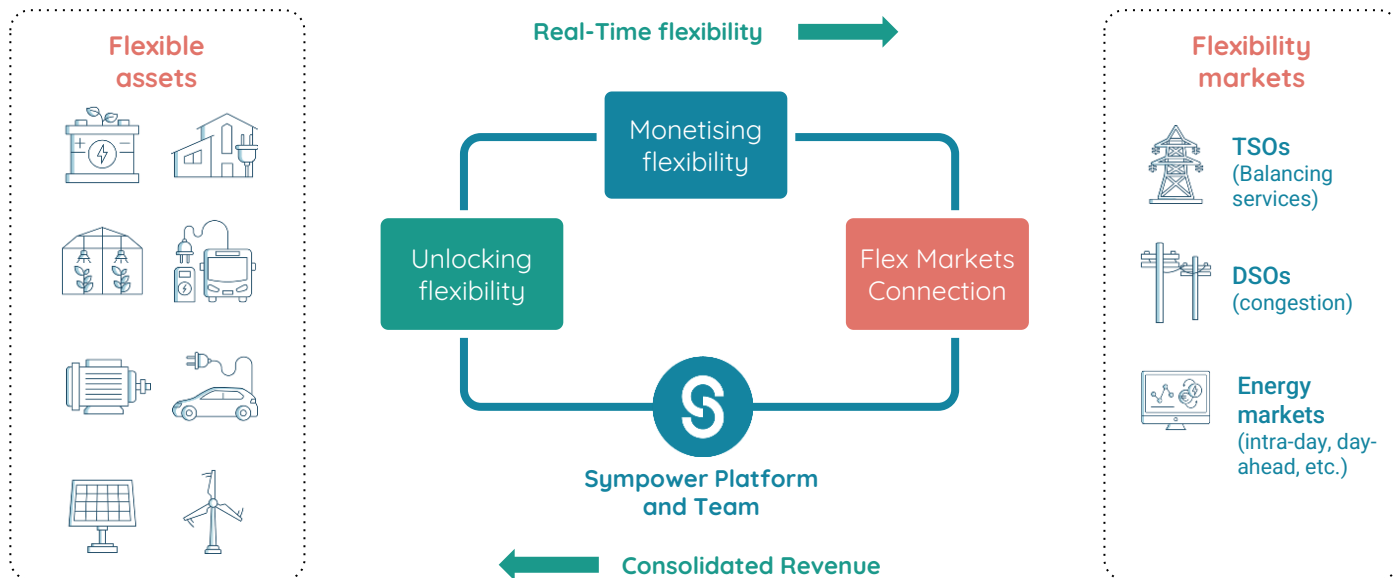


# DR4EU workshop

Demand Response and fast track for this winter  
6th of December, 2022

# Sympower creates value with flexibility

Sympower's platform efficiently monitors, manages, and aggregates distributed industrial and commercial energy assets to help sustainably balance the energy system.



# We are a mission driven team

## Founded in 2015 as an independent aggregator

Managing almost

# 1 GW

of flexible distributed energy resources

We are a team of more than 100 experts, with over 30 nationalities, working in 12 countries.

Active in more than 10 different Balancing market programs

Involved in EU-funded innovation projects

Working with more than 200 commercial and industrial businesses, including greenhouses, data centers, steel mills, food factories, solar parks, batteries, waste incineration plants...



# Reflecting on Sympower's experience with Demand Response in Finnish Balancing Markets

2017

Opening of FCR-D (primary reserve) market program to **independent aggregation** of Demand Response

**Sympower entry** in the Finnish Balancing Markets



**Rapid increase of distributed Demand Response** presence in FCR-D, followed by other Balancing Market programs (FCR-N, FFR)



# Independent aggregation enabled a broad participation of DR in Balancing Markets

## Independent DR aggregation:



### Lifts constraints of size

Aggregated loads from multiple small consumers add up to the minimum levels required by the market



### Avoids developing specific capabilities

Businesses don't need to develop costly IT systems to communicate with the TSO or to have advanced expertise on energy markets



### Allows consumers to maximise flexibility value

Businesses benefit from a wide range of services from discovery of flexibility to activation & optimization in energy markets

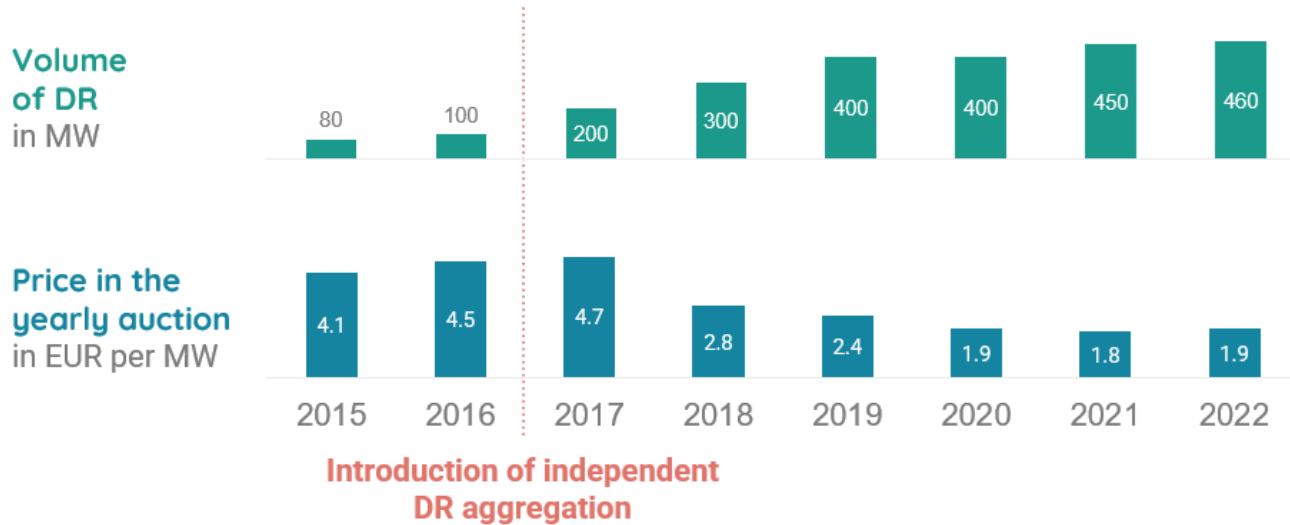


### Provides freedom of choice to consumers

Customers don't rely to a single player to optimize their energy strategy and avoid potential conflicts of interest

# Participation of independent aggregation in Finnish balancing markets led to ~10% cost savings<sup>1</sup> for the TSO

## Evolution of FCR-D (primary reserve) in Finland



1. Fingrid procured 425MW in 2021. If they had been procured at 2016 prices (4.5 EUR/MW), it would have led to ~EUR 10M higher spending for FCR. This represents ~10% of Fingrid's total balancing services spending in 2021 (~EUR 100 M)  
Source: Fingrid, Delta-EE

EXAMPLE ON PRIMARY RESERVE (FCR-D)

# Börje Ivars Greenhouses monetize the flexibility of their lighting system and compensate for high electricity prices

## How does it work?

The **lighting systems** can be **switched on and off** directly after installation to **meet the Finnish grid needs**. Shut-downs are **short enough** that, for example, growing cycles aren't affected.

*"Working with Sympower has been easy and simple. They are always responsive and I'm happy with their services. The added revenue is a major plus!"*

**Börje Ivars**





## EXAMPLE ON PRIMARY RESERVE (FCR-N)

# Sympower helps Misawa Homes of Finland, a sawmill, to make savings while balancing the grid

The electricity consumption related to sawmill **wood drying process** is flexible. Sympower enables Misawa Homes of Finland to generate revenue by **activating this flexibility in the FCR-N and FCR-D balancing markets**.

*“As we use lots of electrical energy for wood drying, we are always interested in new projects that could save us money. The installation and operation of Sympower’s solutions have not affected the drying time or quality of our timber. Instead, we use less energy to get the same high-quality dried timber.”*

**Pasi Löhdelähti | Misawa Homes of Finland’s Factory Manager**





# These positive impacts were made possible thanks to some regulatory enablers



**First mover:** BM market program (FCR-D UP) opened to Independent aggregation as early as 2017



**No need for a law to allow TSO to use DR:** directly integrated into the balancing rules



**Looking at DR from a system needs perspective:** Technology agnostic and new market programs will open on this basis



**Communication campaigns:** carried out by TSO to promote DR towards resource owners

*Example of TSO communications to energy users*

FINGRID ieht.fi



## Consumer flexibility brings benefits to customers

15.1.2019 FRONT PAGE + PERSPECTIVE + CONSUMPTION FLEXIBILITY BRINGS BENEFITS TO CUSTOMERS

FINGRID ieht.fi



## Clean energy increases the need for demand flexibility - this is how it is created

24/11/2020 FRONT PAGE + ELECTRICITY MARKET + CLEAN ENERGY INCREASES THE NEED FOR DEMAND FLEXIBILITY - THIS IS HOW IT IS CREATED

# Providing DR with effective **market access** would enable to replicate **across EU** the impact it had in Finland

**Fully transpose the (EU) Directive 2019/944 on Electricity Market Design in every Member State**

**Lift technical barriers to DR participation in energy markets**

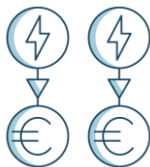
- DR to be allowed to participate in **all electricity markets**
- **Non-discriminatory participation** of demand-side BSP, including independent aggregators
- **No prior consent** from third parties shall be needed for flexibility to participate in electricity markets
- **Financial compensation, if needed, shall not create a barrier to market entry**
- Markets and market programs should be technology agnostic
- Asymmetrical bids should be allowed
- Market caps (i.e. max capacity allowed in a portfolio) should be removed



**Short-term policy enablers to foster the participation of DR as a sustainable alternative to generation**

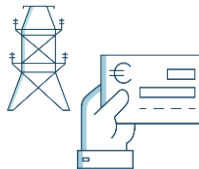
# If relevant policies are implemented, DR in Balancing Markets is an impactful solution in the short-run

## Overview of short-term<sup>1</sup> potential benefit on DR in Balancing Market in EU



### Reduction of energy costs for businesses

~up to 5-10% of cost of electricity<sup>2</sup>



### Reduction of balancing spending for TSOs

~up to EUR 750M saving potential<sup>3</sup>



### More production capacity in wholesale

by replacing generation capacity reserved for balancing (up to 1.5% of peak demand<sup>4</sup>)

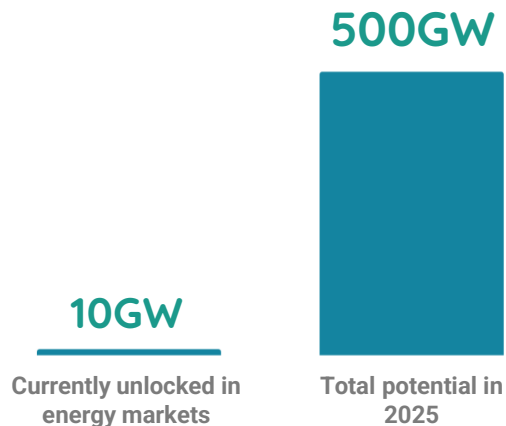
Participation of DR in Balancing Services secured by an ecosystem of 100+ flexibility service providers, active in EU for several years and already managing ~10GW of flexible capacity







1. In the short-term, DR can expand its reach in "low activated" balancing reserves, representing ~20% of Balancing Markets capacity 2. The average price in reserves accessible to DR in the short term is EUR16/MWh, which we compared with the average wholesale prices in EU (~EUR160/MWh on October 2022). The bracket accounts for price reduction linked to the introduction of DR. 3. EU TSOs spend ~EUR 1.5B in reserves accessible to DR in the short term. By extrapolating the impact experienced in Finland (prices divided by 2), this spending could be divided by 2. 4. In the reserves accessible to DR in the short term, 8GW is in the upward direction, served mostly by generators. If replaced by DR in Balancing services, these 8GW could be used in wholesale market (~500GW peak demand in EU)  
Source: ENTSO-E, Delta EE, SmartEN

# In the medium run, DR bears a strong potential beyond balancing markets

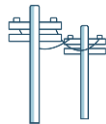
## Volume of DR in Europe



## Potential markets in which distributed flexibility could play

		Impact potential	Openness to DR
	Balancing Markets	+	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>
	Other ancillary services	+	<input type="radio"/> <input checked="" type="radio"/> <input type="radio"/>
	Wholesale Markets	+++	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>
	Congestion Markets	++	<input type="radio"/> <input type="radio"/> <input checked="" type="radio"/>

# ...which can bear far more benefits if achieved at scale



## Sustainable grid balancing

DR is an alternative to grid reinforcement



## Key enabler of the energy transition

More efficient integration of renewable energy



## Important tool for EU energy security

Reduction of a systemic reliance on fossil fuels for grid balancing



## Resilient industry

Concrete tool to support SMEs activities and jobs during the energy crisis



## Just transition

Involvement of businesses and consumers in the energy transition

