



REKK Demand Side Response Day

How Poland incorporated the demand side into system regulation

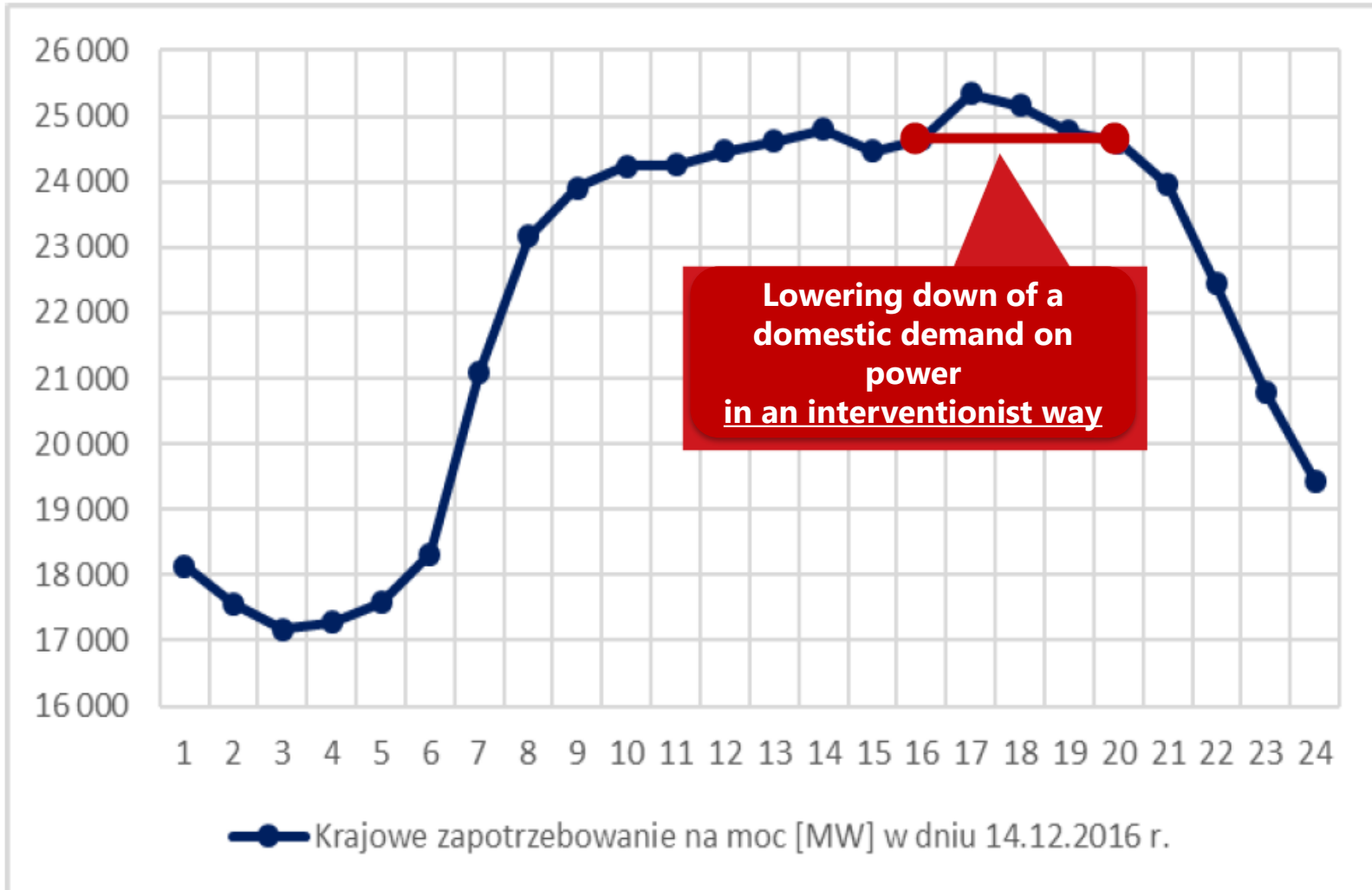
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11 December 2018

Driving forces behind DSR introduction in Poland

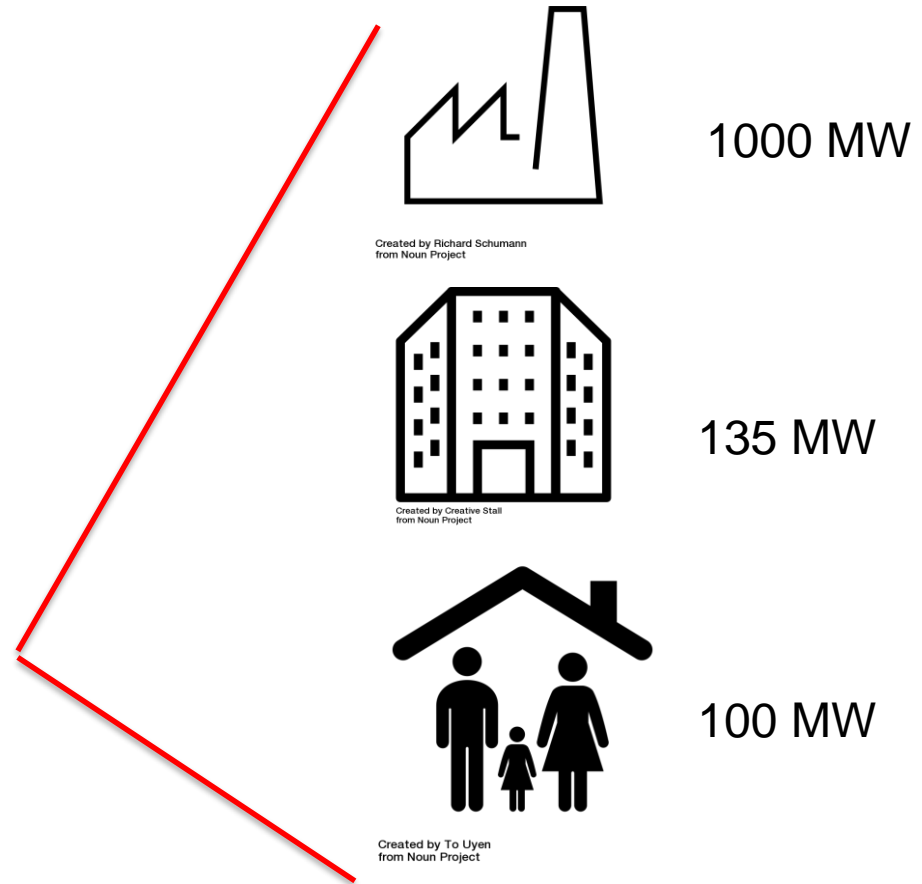
- need for flexibility to integrate RES
- problems with balancing in mid- to long- term (withdrawal of generation)
- **peak demand**
- **direct reason:** load curtailment introduced in August 2015 during hot summer days in Poland
 - level of required generation capacity reserves was lower than the minimum threshold
 - the need to obtain a greater volume of reduction capacity

Peak problems



DSR potential

- **technical potential**
3.6 GW, 14% of peak demand (GILS)
- **economic potential**
1.2 GW, 5% of peak demand (RAP)
- 2.5 GW (EC decision on capacity market in Poland)



DSR as a service

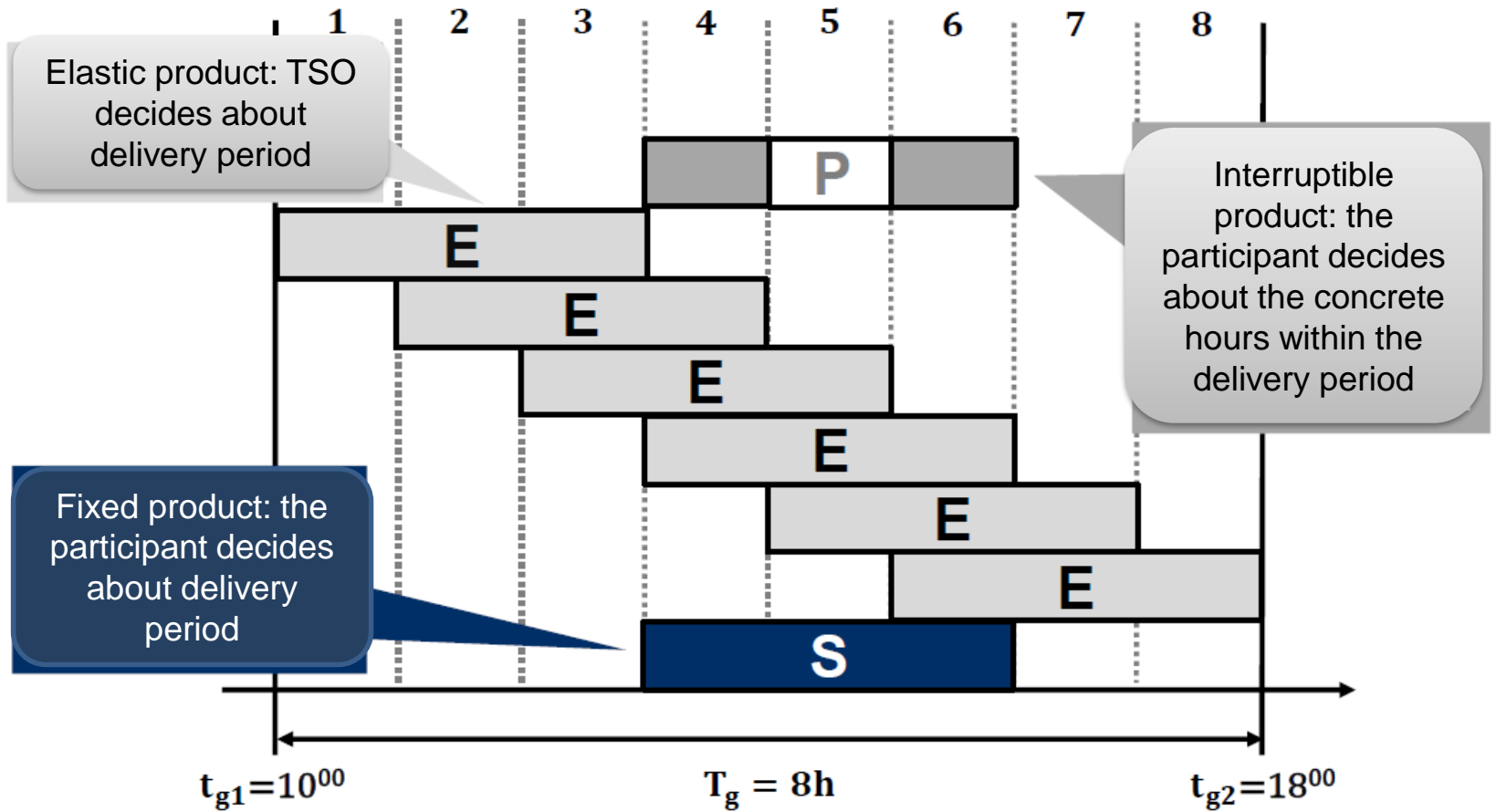
The **programme participant** is an entity having a contract with TSO for providing the DSR service.

The **product** (one or more) is the subject of purchase / sale and settlement on the DSR market.

The **reduction object (one or more)** is a physical object executing demand reduction; is subject to the process of certification (including tests).

The **DSR resource** may include load and generation.

DSR products



DSR programmes (1)

Guaranteed programme – the participant has to submit a proposal for power consumption reduction upon the request of PSE. In return, it is remunerated for its readiness. In addition, it is remunerated for the reduction if its proposal is accepted for handling the given event.

winter and summer programmes

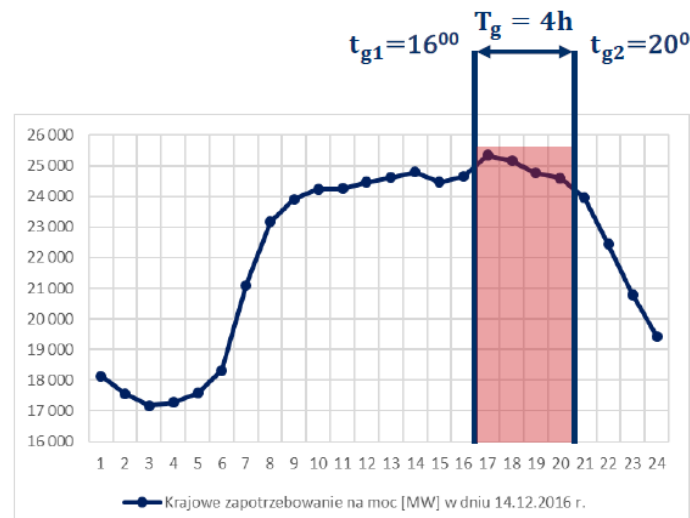
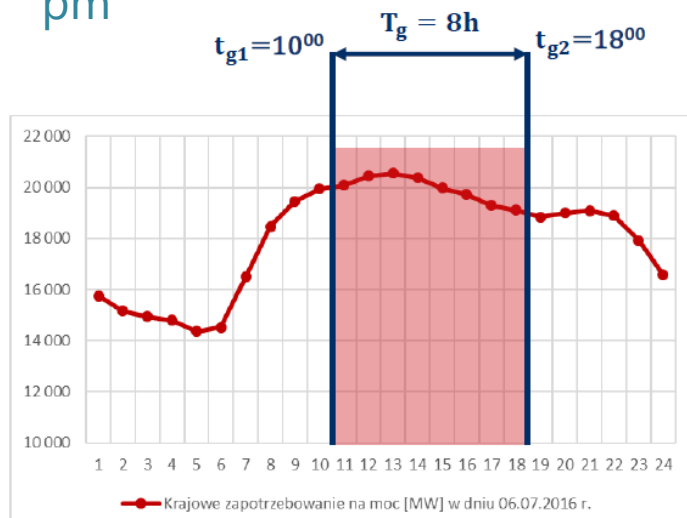
On-going programme – the participant may, but does not have to, submit a proposal for power consumption reduction upon the request of PSE. It is remunerated for

DSR programmes (2)

Programme	Guaranteed	On-going
Remuneration for readiness	YES	NO
Replay to TSO's call for sales offer	Mandatory	voluntary
Reaction to reduce call provided that sales offer was accepted	Mandatory	Mandatory (in the updated programme – voluntary + no penalties)
Offer parameters at the stage of contracting for the service	All set of parameters	Maximum execution price [PLN/MWh]
For participants, who	can guarantee the service during the whole contract duration, excluding	are able to perform the service only periodically

Guaranteed programme

- Guaranteed programme (2018/2019)
- 500 MW at TSO's disposal in each hour of the guaranteed interval
- One or more products of a guaranteed capacity in the range 10 MW to 200 MW
- **Period of service performance – winter and summer**
 - **Summer** (April – September), working days, hours: 10 am – 6 pm
 - **Winter** (October – March), working days, hours: 4 pm – 8



On-going programme

- Unit price (PLN/MWh)
- Price for a hypothetical product of 10 MW capacity, duration – 1h and one reduction
- Period of the service performance – 12 months
- After the conclusion of the agreement – possibility to offering sales products of capacity from 10 MW to 200 MW

Price limits

	Tender 2017/2018	Tender 2018/2019
Payment for deployment [PLN/MWh]	13,770 (3,211 euro)	13,815 (3,220 euro)
Payment for readiness SUMMER [PLN/MW-h]	89.70 (20.91 euro)	92.90 (21.65 euro)
Payment for readiness WINTER [PLN/MW-h]	132.70 (30.93 euro)	137.40 (32.03 euro)

Other changes

- Longer time to prepare an offer
- Capacity cap increase to 200 MW (from 100 MW)
- Rules of DSR service in times of failures
- Automatic use of a default offer when an offer was not send to TSO

DSR activation



- Two procedures of activation:
 - Ordinary
 - Special – no prescribed time schedule, offers only voluntary
- Announcement of activation
 - Procedure – ordinary or special
 - Date of reduction
 - Interval of reduction
 - Excepted volume of reduction

DSR procurement so far

- **First edition (2017/2018)**
 - 350 MW acquired (500 MW expected)
 - Total payment – 17 milion PLN (4 million euro) – only for readiness
- **Second edition (2018/2019)**
 - Procedure – ordinary od special
- **Features**
 - Rather high prices for readiness (cap or close to cap)
 - Whole range of capacities offered (10 MW to 100 MW)
 - Differentiated periods of reduction (≥ 3 h)
 - Mainly flexible, but also fixed product (no interruptible)
 - Short times of activation – 0.5 – 2.5 hour
 - end-users or aggregators (EnerNoc, ENSPIRION)

DSR in capacity market (1)

The auctions are open to existing and new generators, demand side response (DSR) and storage operators, located in Poland or in the control area of neighbouring EU TSOs.

Demand = Generators

- No possibility to report unavailability.
- Long time gap between winning the auction and time to provide service / receive remuneration (auctions in 2018 for delivery year 2021-2023).
- Capacity offers: 2 MW – 50 MW.
- Secondary market (even lower threshold for transactions: 1kW → DSR in small companies and in services sector).
- 5-year contracts for DSR in case of significant investments needed.
- **RESULTS**
 - First auction (delivery year 2021): 620 MW; auction price 240.32 PLN/kW/year (55.81 euro), share of DSR capacity: 2,76%
 - Second auction (delivery year 2022): 751 MW, auction price 198.00 PLN/kW/year (45.98 euro), share of DSR capacity: 7%

DSR in capacity market (2)

By 1 January 2021, Poland will make sure that DSR is eligible to participate in the wholesale electricity markets (including day-ahead and intra-day) as well as the balancing market and will be treated in a similar way as other market participants and balancing service providers. DSR can be represented either individually or via aggregators.

Conclusions

- Poland is in the middle between those who are performing good and those who are performing not so good in DSR
- For industrial consumers DSR is not their core business, hence decision on DSR depends on CBA analysis and participation as simple as possible → role of aggregators
- PSE was the key driver, but unfortunate weather conditions in 2015 were a wake-up call for activation all possible solutions to ease the SoS problems
- DSR needs to be consumer, not TSO oriented, otherwise potential will not be tapped

