Demand Connection Code Public workshop
Call for Stakeholder Input

Demand Side Response delivering Reserve Services

26th April 2012 – London ENA

entsoe

Reliable Sustainable Connected

DSR delivering Reserve Services - Context

Reserve capability is required by TSOs to deal with uncertainty ahead of real-time.

- uncertainty due to demand and unscheduled position for generation
- Increasing forecasting errors due to high penetration of RES

⇒a bigger volume of reserve will be needed to ensure system security.

Reserves are typically required to be available from a time when an incident occurs until the time that generation can start up and produce replacement power

TSOs define reserve ancillary services in this context and in real-time operation instruct at the lowest cost.

- During windy and sunny times, with high RES production, synchronous generation could be displaced, which removes the most economic service for providing reserves

⇒ Risk of a lack of services provided by synchronous generation during high RES production periods

DSR delivering Reserve Services – Example

Example: GB forecasting for 2025 with a central scenario for RES development

- The number of hours during which RES generation will be greater than total demand will increase
- In these cases, the need of reserve can reach **12 GW**, which cannot be provided by synchronous generation only.

Example:

30 GW of RES production

25 GW of demand, 8 GW of net export

3 GW left to be provided by synchronous generation (nuclear, run at 25% output)

This nuclear generation shall provide around 6 GW of reserve.

=> **6 GW left, to be provided by others means**

If provided by RES generation, during 5% of the hours of the year => **cost =650 M€ !**

(reserve costs for 2010/2011: ~ 120 M€)

DSR delivering Reserve Services – Alternatives

Alternative 1: optional service capability, leave delivery to market

- ➢ Choice left to the consumer to purchase an equipment with or without the capability
- ➢ Opportunity left to disable the service to have certainty of operation of the equipment when needed
- o Risk of low take up at time of purchase
- o Need to encourage the end customer to leave the service available

Alternative 2: standard service capability, leave delivery to market

- ➢ All equipments purchased have the capability,
- ➢ Opportunity left to disable the service
- o Big volume of reserve available
- o Cost/unit will be lower than alternative 1.
- o Need to encourage the end customer to leave the service available

Alternative 3: standard service capability, with mandatory delivery

- ➢ All equipments purchased have the capability
- ➢ No possibility to disable the service
- o Big volume of reserve available, predictability
- o Cost/unit will be lower than alternative 1.
- o Difficult to accept from the customer

DSR delivering Reserve Services – Questions

What is your view of the analysis presented on the challenge ahead associated with reduced availability of reserve services from synchronous generators at time of high RES production?

Is there any class of users that should be excluded from providing these reserve services?

What would be the technical and economical limits to the development of DSR for industrial customers, commercial premises and Closed Distribution Network operators?

With regard to the provision of mitigating the shortfall of reserves, are there any comparable alternative options?

What would be the typical cost to equip one appliance under each of the 3 alternatives?

What form and level of incentive do you believe is required to encourage consumers not to switch the reserve off under alternative1 and 2?

Considering the cost and consequences of the alternatives, do you support use of DSR for this purpose?

Which of the 3 DSR alternatives would be your preferred option to achieve the greatest societal benefit and for what reason?

If the services proposed here are provided, what further uses of these technical capabilities would be most beneficial and why?