

Demand response and smart meters

– a DSO's perspective

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About *ESB Networks*



- Own and Operates Republic of Ireland's Distribution Network
- Meter operation and data collection
- 2,200,000 customers

ESBN Mission is to Efficiently deliver network infrastructure and services that support national economic growth and sustainability targets

Some of our current initiatives

- **Supporting national smart meter customer trials**
- **Smart meter technology trials**
- **EPRI Smart grid demonstration projects**

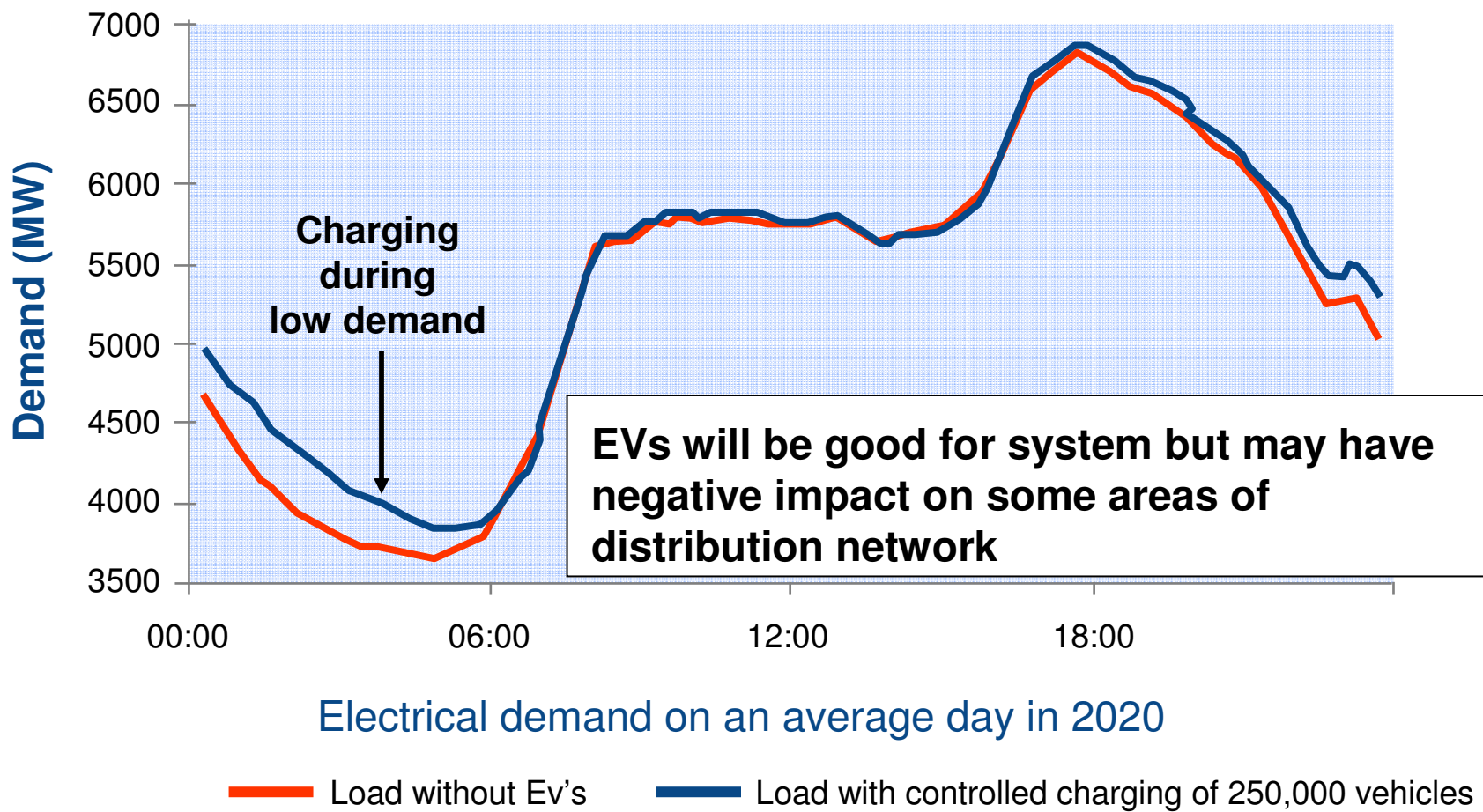
DSO has dual role in demand response

- Beneficiary
 - Deferring investment in reinforcement
 - More tools to better manage the network
- Enabler
 - Support the systems and processes necessary for demand response

DSO Benefits

- Deferred network reinforcement
 - General benefit of shift in system peak demand
 - Specific local network congestion issues
- Management of existing loads
 - Storage and water heating
- Management of newer unpredictable loads
 - Electric vehicles and Micro generators

Demand response and Electric Vehicles?



Enabling demand response

- All components of the smart metering system should support demand response
 - Meter
 - Communications
 - IT systems
 - Home area network

- **Meter – is the source of record**
 - Must have the granularity to support whatever pricing is necessary
 - Profile (Interval) data
 - Import and export
 - It may be necessary to refer meter to program (ID)
- **Communications infrastructure**
 - Secure and reliable collection of at least daily profile data
 - Timely availability of data to stakeholders
 - Low latency for on demand activities
 - Ability to broadcast or multicast to support programs

- **IT systems**

- Capacity to manage high volumes of data
- Security
- Customers web portal
- Demand response program referencing
- Secure provisioning and management of devices

- **HAN**

- Relationship between utility HAN and customer HAN
- Real time information from meter
- Real time one way pricing information – AMI or Internet
- Demand response program 2-way messaging – AMI or Internet
- Open standards a big issue

In summary

- DNO is both a beneficiary and an enabler of demand response
- Smart metering should support demand response
- A robust and reliable smart metering communications infrastructure is essential
- The smart meter HAN should complement the customer HAN
- Questions over channels for communications such as real time pricing information, demand response commands and acknowledgement
- The demand response service provider can use customers broadband connection
- DSO needs to ensure system security

Thank You

Any questions?

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