

The background of the slide is a dark blue image of the Earth from space, with glowing blue energy lines or fiber optic paths crisscrossing the globe.

Task Force: Integration of Prosumers

ECDSO-E

Prosumers are individual consumers who generate energy to cover their own electricity demand (self-consumption) or to feed excess electricity in to the grid

Energy storage systems and Prosumers

- Common residential storage technologies include batteries (stationary batteries or electric vehicles) and thermal storage (hot water boilers)

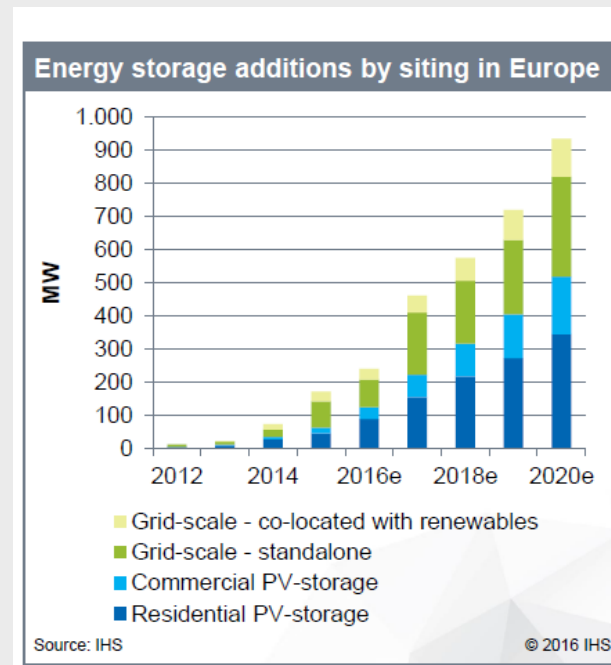
Benefits of energy storage for Prosumers include:

- Increasing self-consumption of electricity from renewables
- Allowing consumers to control when to use self-generated energy
- Enabling participation in demand response
- Enabling consumers to engage in arbitrage, i.e. storing electricity when prices are low and selling it to the grid when prices rise
- Providing back-up power to ride through grid blackouts or power fluctuations

Prosumers, energy storage, role of DSO, connection and grid usage (Introduction)

Increasing Role of Residential Storage in the Energy System

Distributed storage is expected to represent 50 % of annual energy storage installations by 2020 (EASE –European Association for Storage of Energy, Energy Storage for Prosumers, SK Presidency Conference “Transition to a Green Economy”, Bratislava, Slovakia 7 September 2016)



1. Is the right of the DSO to build in its grids the energy storage systems regulated? (1/2)

Energy storage has not yet developed its full potential in the energy markets. This is because, on the one hand some of the technologies were not widely developed, and on the other hand the regulatory framework was not in place to accommodate new flexible solutions. Support for electricity generation, regulated prices and green fees have impacted on the development of energy storage.

There is no consistency amongst the Member States on the way storage is treated in the energy system. For instance in several countries storage facilities pay grid fees both as consumer and producer, in other countries only as producer, or they have other special regimes. In some cases, by reducing administrative burdens and enabling non-discriminatory grid access for energy storage, the overall cost of the electricity system would be reduced. (Energy storage – the role of electricity, COMMISSION STAFF WORKING DOCUMENT, EUROPEAN COMMISSION, Brussels, 1.2.2017)

Distribution system operators shall not be allowed to own, develop, manage or operate energy storage facilities. By way of derogation from paragraph 1, Member States may allow distribution system operators to own, develop, manage or operate storage facilities only if the following conditions are fulfilled (Proposal for a Directive on common rules for the internal market in electricity, COM(2016) 864 final (recast of Directive 2009/72/EC):

- (a) other parties, following an open and transparent tendering procedure, have not expressed their interest to own, develop, manage or operate storage facilities;*
- (b) such facilities are necessary for the distribution system operators to fulfil their obligations under this Directive for the efficient, reliable and secure operation of the distribution system; and*
- (c) the regulatory authority has assessed the necessity of such derogation taking into account the conditions under points (a) and (b) and has granted its approval.*

1. Is the right of the DSO to build in its grids the energy storage systems regulated? (2/2)

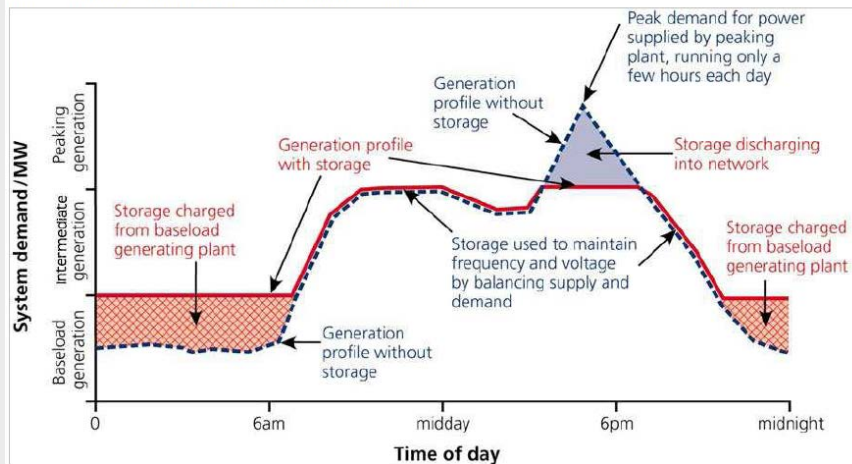
DSOs should also be able to deploy and operate their own electricity storage facilities, if necessary. In the latter case, the energy storage facilities should be integrated in the DSO's regulatory asset base and their cost should be recovered through network tariffs

DSOs should be allowed to procure system flexibility services from existing electricity storage facilities

As demonstrated in current R&D projects, electricity storage can support network operations, but its economic viability remains the main obstacle for commercial deployment, together with the lack of a clear regulatory framework

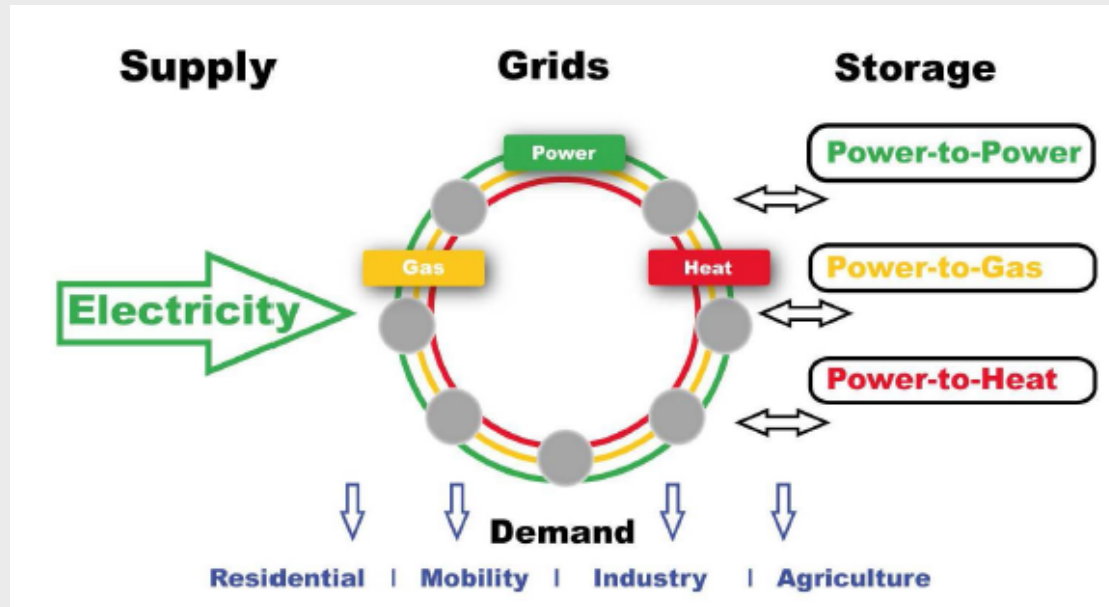
EU regulatory certainty should come in the revision of the Third Energy Package, through a clear definition of electricity storage. In the interim, NRAs should take stock of existing European initiative to develop their own set of rules. (European Distribution System Operators for Smart Grids, Integrating electricity storage in distribution grids, May 2016)

Peak shaving experiment in the Smart Storage Unit project



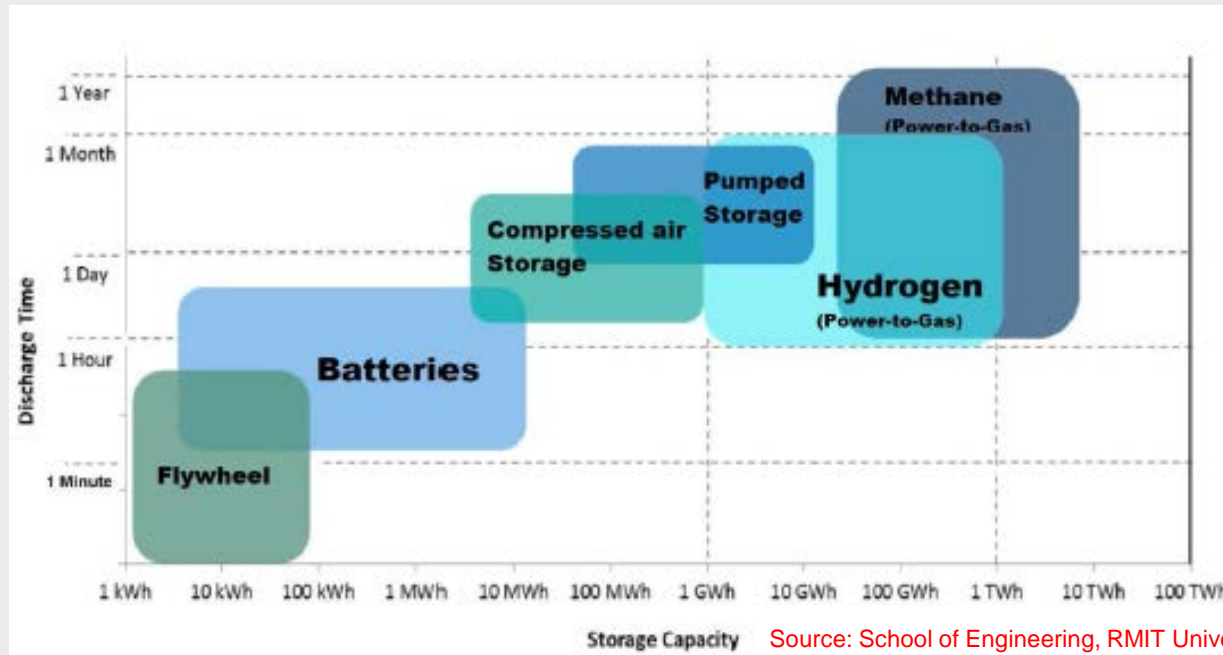
2. Who should own and operate electricity storage facilities? (1/2)

Electricity storage facilities should be built and operated by multiple companies in a competitive environment, in the same way generation power plants are owned and operated today. Depending on the technology used and on commercial and regulatory incentives, electricity storage facilities could be used for market-driven purposes (e.g., portfolio optimization, trading), for the provision of system services to transmission system operators and/or for the use by distribution system operators. (European Distribution System Operators for Smart Grids, Integrating electricity storage in distribution grids, May 2016)



2. Who should own and operate electricity storage facilities? (2/2)

Taking into account the fast development of electricity storage technologies, DSOs should also be able to deploy electricity storage on their own, if necessary. In that case, the electricity storage facility should be included in the regulatory asset base of the DSO and its cost should be recovered through network tariffs. (European Distribution System Operators for Smart Grids, Integrating electricity storage in distribution grids, May 2016)



Source: School of Engineering, RMIT University (2015)

3. Should storage facilities pay energy taxes and network tariffs?

Taxes and fees based on the end-consumption of electricity were designed to charge every unit of electric energy/capacity (kWh/kW) only once, which is why they are linked to the end-consumption and not – for example – electricity trading. Charging taxes and levies on storage (i.e. electricity taken from an electricity grid and re-injected later into the same electricity grid) would violate this principle as the same energy would be charged twice, once when stored in the energy storage facility and once when consumed by the final consumer. In this context, EDSO encourage NRAs to apply fair taxes on storage not to jeopardize its economic viability

Network tariffs are a distinct issue. In today's regulatory framework, grid users are charged differently: generators usually pay a limited share of the total network charges (if any), while consumers bear the brunt of them. Such differences, which correspond to local context and regulators' objectives are necessary

Electricity storage facilities should not be taxed twice. As for network tariffs, the decision to charge electricity storage facilities should be left to the national context

(European Distribution System Operators for Smart Grids, Integrating electricity storage in distribution grids, May 2016)

4. Are the DSOs compensated for the cost of building the energy storage system through the RAB tariff?



The grid operators should be allowed to recover the costs associated with the services procured from storage operators if those were necessary for efficient system operation. Furthermore, network fees should provide stability and predictability that allows investments in long-term assets, like storage facilities.

Storage operators should be allowed to provide multiple services to system operators, e.g. for distribution system operator (DSO) congestion management or transmission system operator (TSO) balancing.

The development and operation of storage facilities is promoted in the new MDI as a commercial activity to be performed by market parties other than regulated entities. The development and operation of storage facilities is promoted in the new MDI as a commercial activity to be performed by market parties other than regulated entities. (Energy storage – the role of electricity, Commission staff working document, European commission, Brussels, 1.2.2017)

5. Shall the prosumers agree with the DSO the technical decisions of its electrical installations?

Prosumers have an obligation to act in accordance with Technical rules and quality standards regulated in Distribution Grid Code, approved by National Regulatory Authority, regarding their electrical installations

6. Is there a condition to prosumers to separate its consumer loads and sources of electric power generation when connecting it to the DSO's grid?

No condition to prosumers to separate its consumer loads and sources of electric power generation when connecting it to the DSO's grid

7. How is the rate of payment for a new connection to the grids of the prosumer with the capacity of 20 kW, 50 kW, 150 kW developed? Is the cost fee for a new connection of the prosumer different from the cost fee for the consumer of the same capacity?

Cost fee for a new connection of the prosumers are not different from the cost fee for the customers of the same capacity.

8. Do the prosumers and other representatives of the distributed generation bear the responsibility for the compliance with the quality standards for electricity (voltage level, frequency) that is produced and injected into the DSO's grids?

Yes, the prosumers and the distributed generation shall bear the responsibility for the compliance with the quality standards for electricity (voltage level, frequency) that is produced and injected into the DSO's grids, in accordance with appropriate Distribution Grid Code

9. Which supervisory authority in other electricity markets do monitor the compliance of the prosumers requests and reWhich supervisory authority in other electricity markets do monitor the compliance of the prosumers requests and representatives of distributed generation with the rules for the installation of electrical installations and the quality standards of electricity in their grids?

DSO shall establish a technical rules and quality standards for prosumer's generation facilities connected on the distribution system. Technical rules and quality standards shall be part of Distribution Grid Code, approved by National Regulatory Authority

National Regulatory Authority shall monitor the appropriate implementation of Distribution Grid Code by all stakeholders