Smart meters and data management - towards a more flexible market through diversification of tariff offers

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ENEDIS
L'ELECTRICITE EN RESEAU

employees
38 000

turnover
€13Bn

concession contracts
600

field interventions
11 millions

EBITDA
€3.5Bn

1.3 million km
LV and MV network
43,3% underground

1 000 local sites

renewable sites
> 300 000

investment
€3Bn

The French energy transition

95% renewable energy are connected to the distribution network. The target is **29 GW in 2020** (excluding offshore wind), potentially 47 GW in 2030. **95% connected to distribution network**.

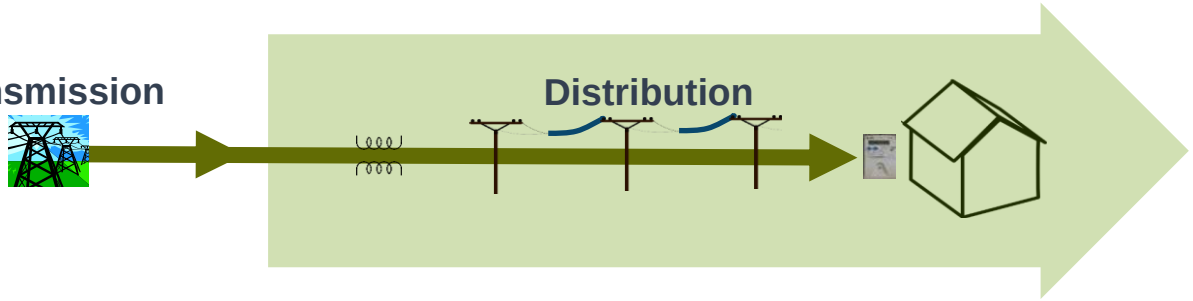
The Energy Transition law aims to install at least **7 million charging stations by 2030**

Civil society, individual behaviours and technologies evolve: **heat pumps, self-generation, storage ...** **35 million Linky** smart meters in 2021

Digital & Data management

The organization of the system is already changed

BEFORE:



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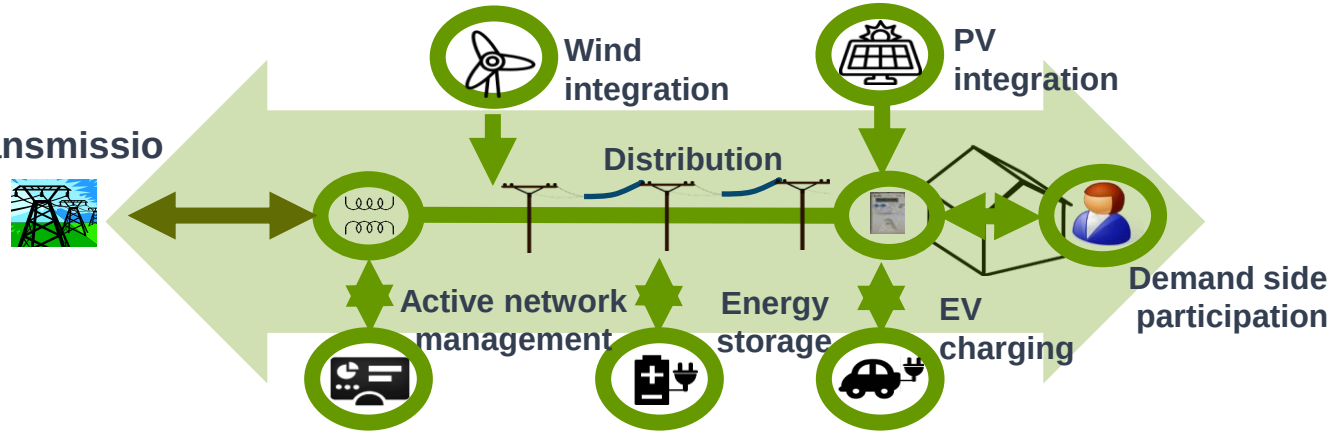


Consumer expectations also evolve

"Consumactors" and Communities claim direct influence on their energy environment

- *Data consumption access*
- *Modularity of network access services,*
- *Easy EV charging solution for existing buildings*
- *Production sharing for consolidated management of buildings*
- *…*

Linky smart meter platform, digital solutions and data management solutions facilitate distributor local response while ensuring solidarity

- *Data provisioning platform (French demonstrators : Watt & Moi, Solen ...)*
- *Enhancement of Linky use in response to modular occupation of commercial areas*
- *Connection to indoor installation of electric vehicle charging stations in collective housing*
- *Experimental pricing for production sharing experiments in eco-districts*
- *…*

Flexibilities connected to the Network, in particular demand management, could play a key role

Big Data

Accessibility to distributed flexibilities achievable through deployment of information technology and Big Data solutions

Aggregator : a new role

Aggregator : New actor emerging in the system is potentially in competition with energy suppliers

French and European politicians seized the topic

France is at the forefront of the development of DSM. The potential assessed by French regulator (CRE) is 8 GW in 2020.

The legislative and regulatory framework has been structured.

Storage is gradually integrated into the reflection

The European Commission consider DSM as a solution for the integration of renewable energy.

Some studies mention a € 100 billion per year saving across Europe (Kema study)

ENEDIS organized a 3 steps plan

- ***Step 1: deployment of the system of smart meters LINKY***

- ***Step 2: test and deployment of smart grid technologies***

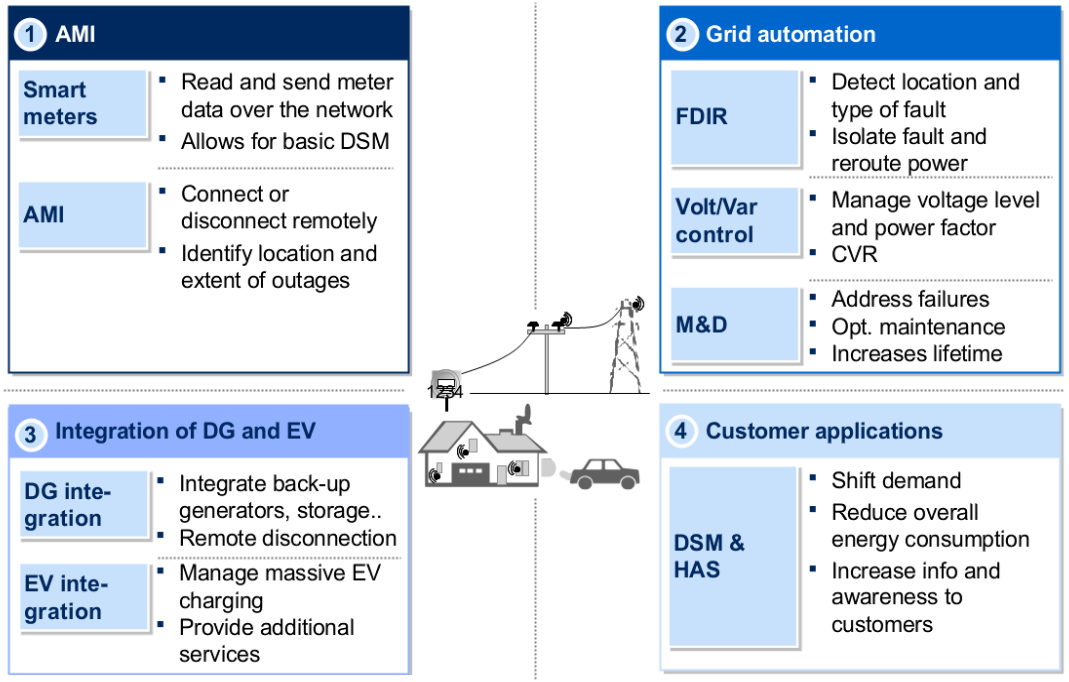
- ***Step 3: digital transformation of business***

But the value created is generally located outside the perimeter of the DSO

In the absence of regulatory incentives, the split of efforts and benefits of Smart Grids among agents will be highly unbalanced, with consumers getting most of the value

Market and regulation should adapt to ensure a fair return on investment to DSOs

Smart grid applications can be classified into four groups with different functionalities



Source : Mc-Kinsey & Company

Involving DSOs, as operator of a part of the system, in the design and operation of market mechanisms

Market Based

« smart » GRD

Willingness of the authorities to organize the electrical system through more market mechanisms

France

- Consumption flexibilities can now access most aspects of the market in competition with generation
- Medium term security of supply is organized through market mechanism (capacity mechanism)
- Support for renewable energy is changing (market price + premium)

Europe

- European Commission launched summer 2015 a consultation on Market Design in which it sees a growing role for DSOs, "market neutral facilitator"

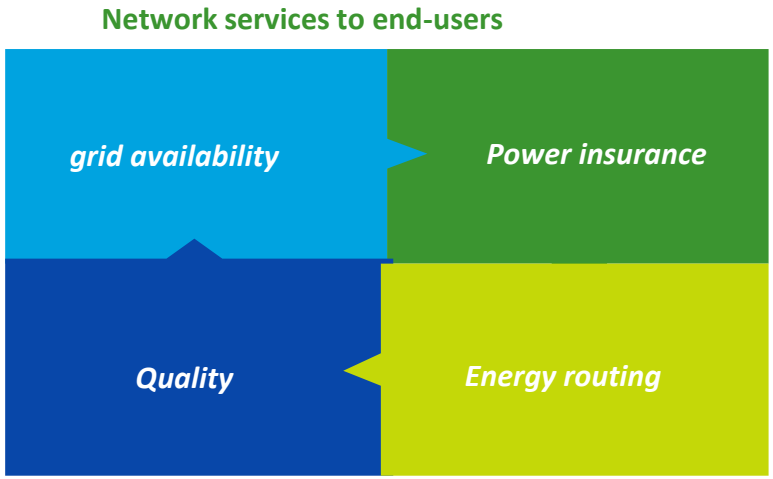
DSOs are increasingly involved as the border between the wholesale market and the retail market is fading:

the « increasing link between retail and wholesale markets will have to be reflected in the regulatory framework » *European Commission consultation about new model of energy market*

- CEER – Conclusion Paper on the future role of DSOs : « ***DSOs have an important role to play in ensuring system operation is secure and as a neutral market facilitator*** »
- A Grid Code on flexibility could emerge (TSO-DSO ongoing discussion)

Enforcing incentivized compensation of smart grid investments and adapting tariff structure

- *"Only grid automation" has a positive value for DSOs*
  - ➔*Implement best practice in smart grid regulatory management (*Foster a long term mindset, Push innovation aggressively...)
- *Cost of metering are decreasing*
  - ➔*provide data on platforms to enhance energy efficiency investments*
  - ➔*design time of use tariffs (seasonal) to make the best of end user flexibility*
- *« Free rider » risks are increasing (self-generation)*
  - ➔*rethink services of network to end-users*
  - ➔*determine cost from the network's service function (increase ratio power price / energy price)*



Organizing a strengthened dialogue between TSOs and DSOs

DSO/TSO Platform meetings
(chaired by the Commission)

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