



Blockchain and market design :

The consumer in the middle

Blockchain and energy market
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Gerald.vignal@rte-france.com



Where we are ?

A Demand Response friendly market design

- The french regulatory framework on Demand Response evolved a lot to enable the transformations brought by digitization (smart meters roll out, breakthrough in IT solutions, big data revolution,...)
 - DR on an equal footing with production in all the markets
 - Consumers can freely choose independant agregators, different from their supplier (even on the residential level)
 - Data hubs in place to give full informations to consumers
- DR provides more than 2GW of flexibility for the french electric system
- DR fosters competition
 - The costs of reserves procurement dropped significantly with the developpement of DR
- DR empowers consumers
 - A new layer of competition in addition of competition between suppliers.



Overview of the french market framework for DR

	For balancing and network services		For market participants	
	FCR and aFRR	mFRR and RR	Through markets	Within portfolio
Capacity	Provision of services open to consumption sites connected to the transmission network	DR participation to call for tenders for availability	Capacity certificates for DR	Reduction of the capacity requirement
Energy		Activation of DR-based available offers	Capacity mechanism	
			Direct valuation in energy markets	Portfolio optimization for suppliers (sourcing vs sales)
			NEBEF	



Peer to peer transactions, community platforms (...) : new game changers

- Many experimentations in France and Europe on new mechanisms (Blockchain technology, peer to peer platforms, energy communities ...)
 - Collective self consumption is emerging in France
 - BC solutions transform the way prosumers/consumers buy and sell energy
 - *which intermediaries are necessary ?*
 - *Is our regulatory framework fit ?*
 - *Which place for the current stakeholders ?*
- (...)
- New challenges for the electric system :
 - *How to accompany, even promote, these new tendencies to foster an harmonized integration into the electric system ?*
 - *How will evolve the frontier of responsibilities of the different actors?*



Unleash the energies

TSO has a key role to foster the integration of these new energy exchanges that will bring new flexibilities if 3 major barriers are removed :

Geographic barriers

- *In the various experimentations, peer to peer exchanges are limited to neighbors*

➡ enable all type of peer to peer exchanges, without geographic barriers (f i, cross border peer to peer exchanges)

Regulatory barriers

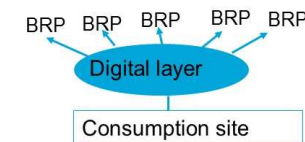
- *Many exchanges are yet possible but the various consumers must be in the same BRP perimeter*

➡ propose new market arrangements that enable these new exchanges between all consumers, whatever is their retailer and without previous agreement

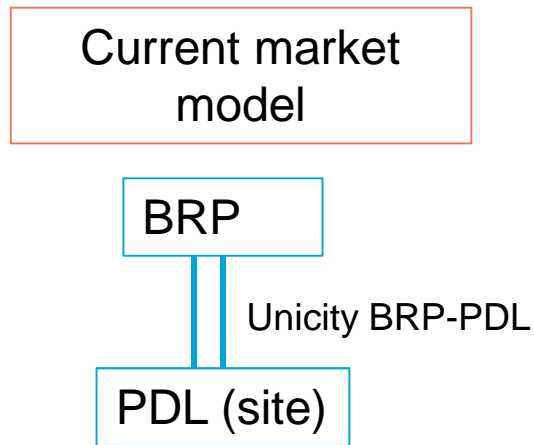
Digital barriers

➡ BRP mechanism should evolve to become more agile

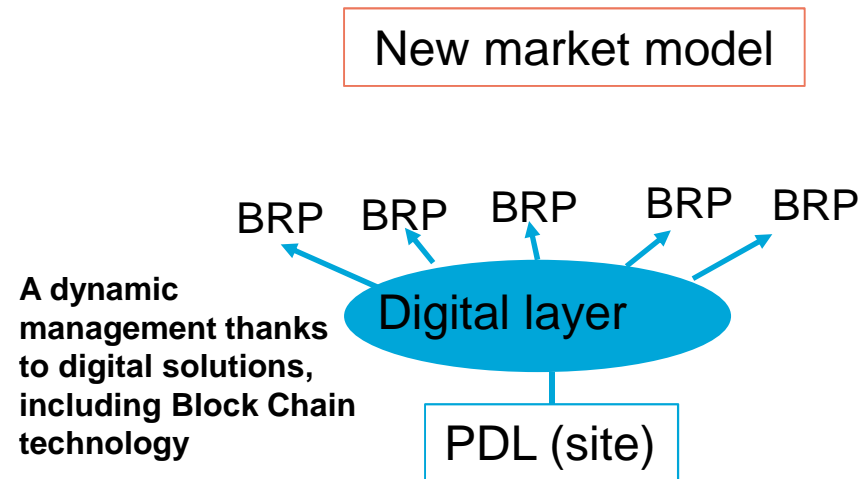
Titre de la présentation - date



Digitalization et market model



A model built at the beginning of the liberalization.
With a copper plate approach, no justification *a priori* of this unicity.



The relation BRP-PDL is no longer unique
This new model fits new demands (electromobility)



Thank you for your attention