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FSR ENERGY
Florence School of Regulation

New Business Models in the Electricity Sector

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Summary

1. Two key novelties in el. BizzMdl
2. (Novel.1) **Greening assets for generation**
3. (Novel.2) **Digitalizing el. Products with 'retail-size' players**
4. (Then >) **Caught in between: Regulated grids**

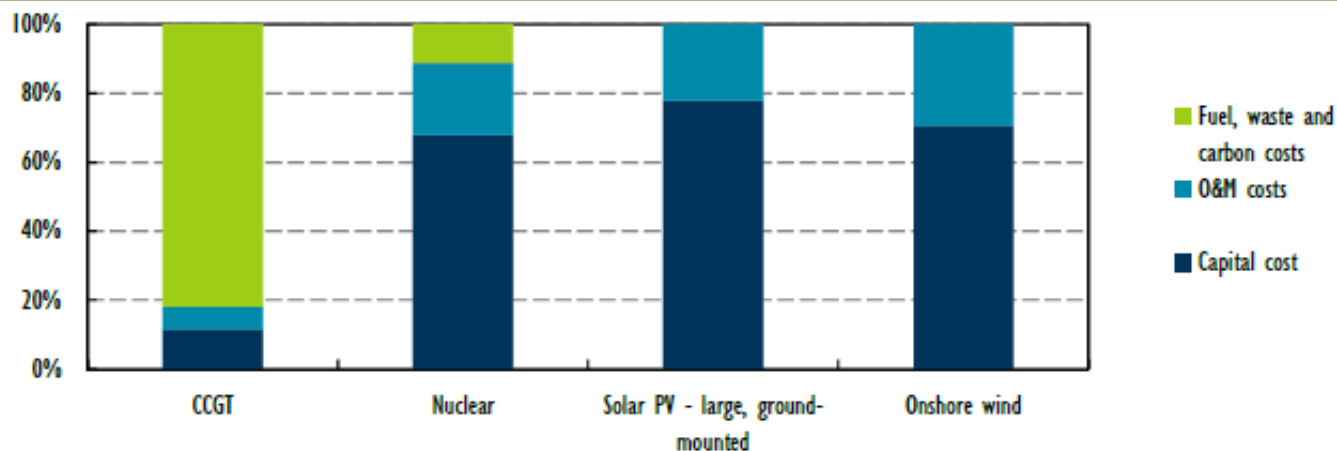
1. Two novelties in electricity business models

- Come after older waves of change shaking electricity sector & BizzMdl. Older waves were (Wholesale Markets + Retail Markets + X-Border) supported by (Smart Grids & Smart Metering)
- New wave has 2 remarkable legs:
 - **Greening assets for generation**
 - **Digital el. Products for “retail-size” players** (like in “sharing economy”)
- A simple conceptual framework to grasp it
BizzMdl = “How one creates, delivers & captures value”
(Osterwalder and Pigneur, 2010)

2. (a) *Greening assets for generation*

- Policy support & technological improvement expand role of RES (wind & PV) in generation mix
- RES call for upfront investment in generating asset, and little variable cost
- >> ***Need to secure stable revenue stream before*** taking final investment decision (as for nuclear...)

Figure 2.2 • Breakdown of the levelised cost of various technologies by cost component, United Kingdom by 2020 (7% discount rate)



Notes: CCGT = combined-cycle gas turbine; O&M = operation and maintenance.

Source: IEA/NEA, 2015.

- (Asset characteristics + revenue streams) influence economic viability & “types” of green generators

- Scale & entry barriers differentiate

- Onshore wind for all or for a few



- Offshore wind only for few majors



- Utility scale solar easy to enter



- Rooftop PV for prosumers



3. Digital el. products for “retail-size” players



- Digital technologies increase availability & accuracy of information and inject it in decision-making
- Digitalisation helps reducing transaction costs:
defining new products, searching credible partners, matching them, following up delivery-loop, plus settlement & dispute
- New BizzMdl:
 - Creation of *particular* services (instead of mass market commodities)
 - Value creation with “*light assets*” (typical: digital platforms)
 - Strategy validated *ex post* (time needed to gain customers who can validate new Digital BizzMdl)

- *The new digital world goes far beyond B2B and B2C*
 - Aggregator single activation: activates “retail-size” consumption units & packs them to re-enter into wholesale // ‘retail loop’ = C2Agg2B
 - Platform1 single activation: eliminates Aggregation as intermediaries, as TSO-DSO directly buying own flexibility needs = C2B
 - Platform2 double activation: activates both “retail-size” demand & offer = P2P
 - Blockchain too can do *double* activation; eliminating Platforms as intermediaries; but works better in a “club” = P2P
 - Communities as organic “activation association” = P&P
 - “Asset Fleets” as “autonomous territories behind the meter” (EV fleets; smart buildings; IoT; micro-grids, etc.) = C2Fleet

Grids in a distributed El. System? OFGEM 1 month ago...

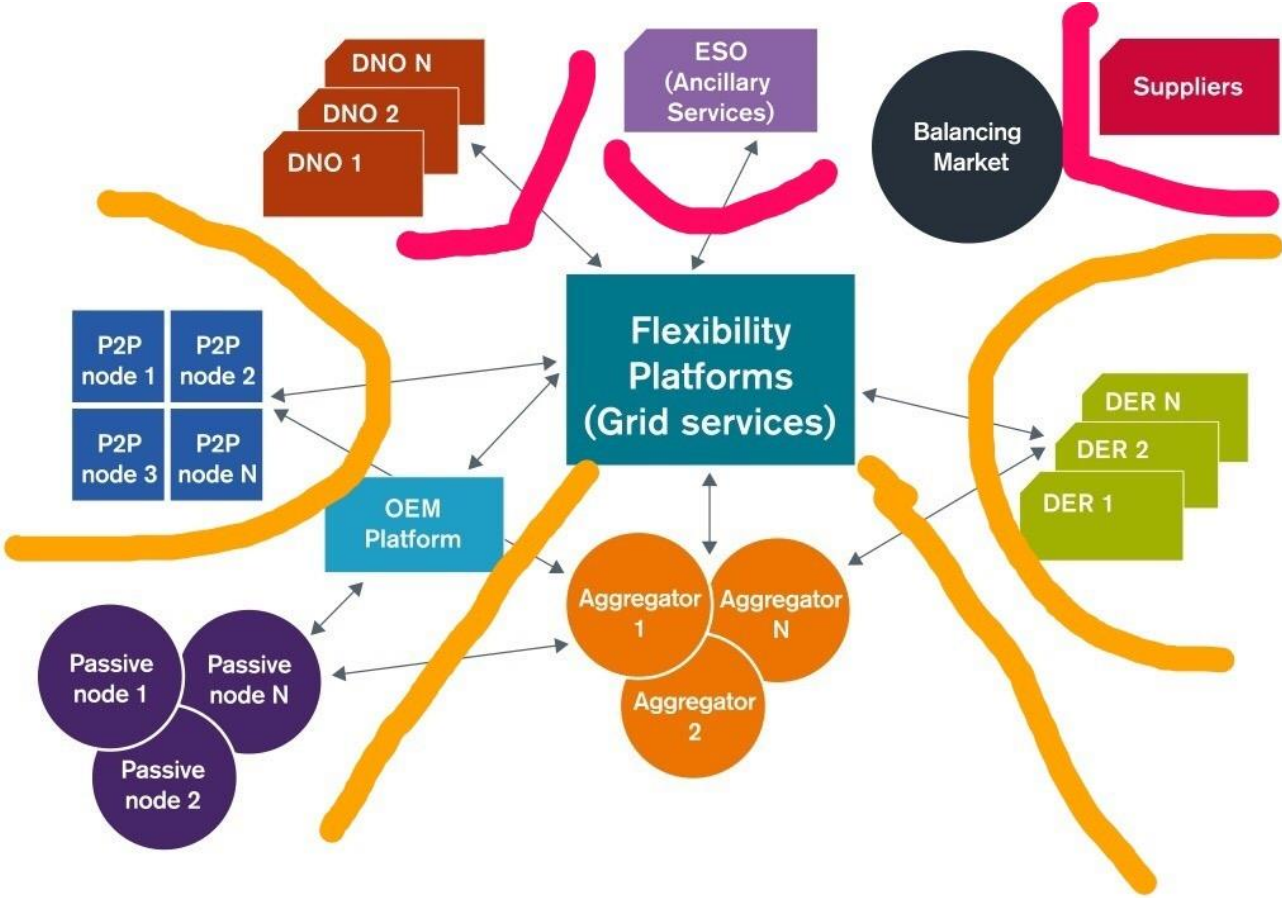
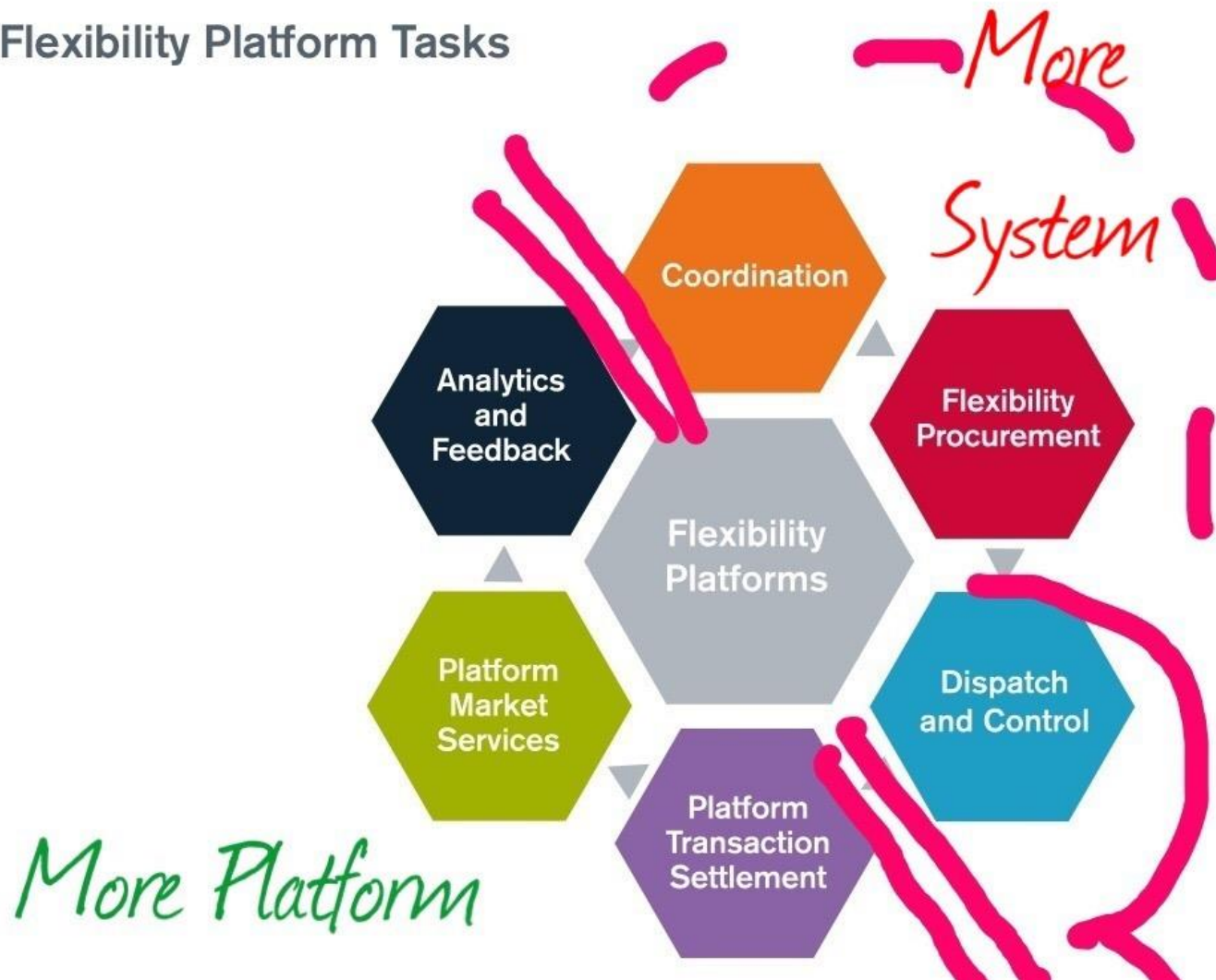


Figure 2 - participants in the Flexibility Platform ecosystem

Platforms question Grids “core tasks”

Flexibility Platform Tasks





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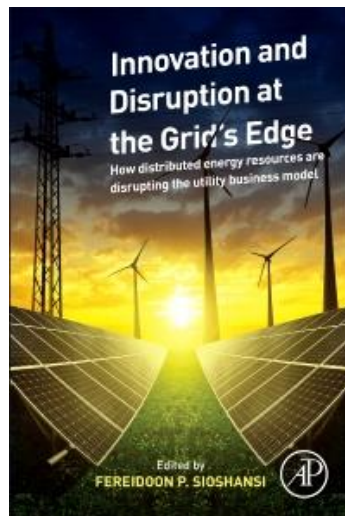
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4. Caught in between: the reg. grids



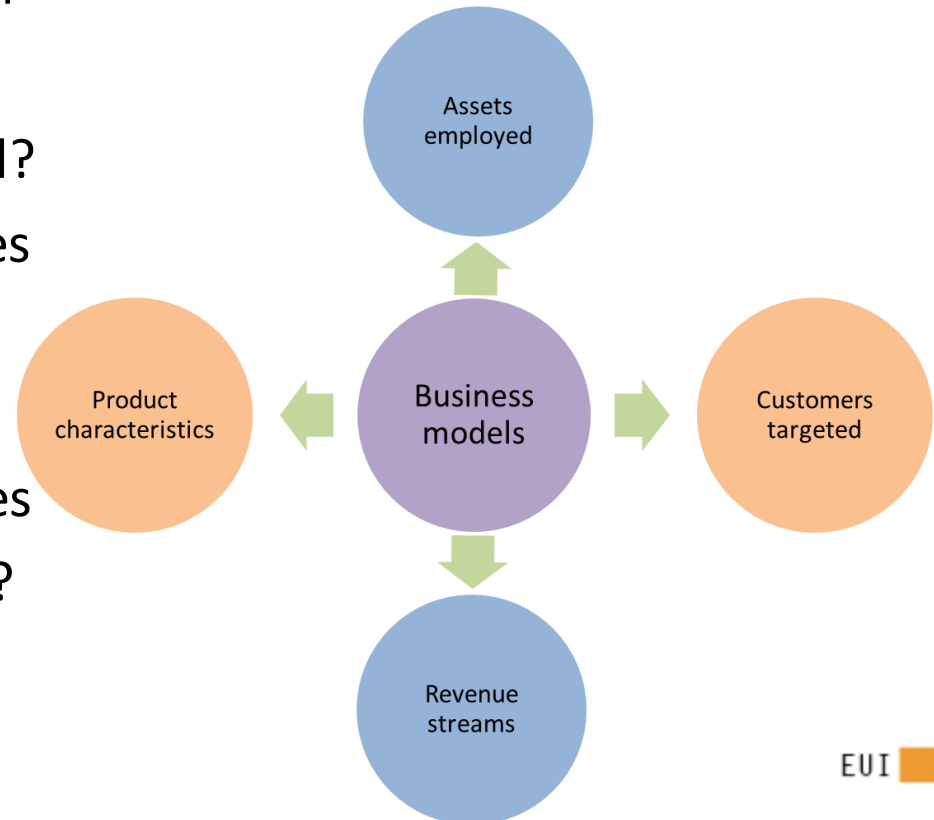
- Grids' business impacted by both **greening generation** & **digitalisation of retail-size players**
- Symmetrically, Grids are key to **GreeningGen** but incentive regulation still lacking (see GB vs DE regulatory framework for offshore grids; volumetric tariffs and prosumers)
- Grids essential facility to **Digital new Products** as “Amazon delivery loop” but incentive regulation still lacking (despite views on “Platformization” of distribution – NY PUC, MIT 2016, Hogan & Caramanis, Eurelectric, etc.)

- Grids still fully regulated as “Steel & Concrete World” with Universal Access + “Fix & Forget” + Public Service Obligations + Postal Stamp
 - *Neutrality* towards market parties, Tgies, BizzMdl
 - *Cost socialization* among network users + support to vulnerable and passive customers
 - *Consumer tutelage* (regulation of products, contracts, suppliers entry & conduct - called “Consumer Protection”)
- If grids are frozen to change, disruption can take place at their edge or behind, possibly by new players



5. Conclusions

- 2 types of BizzMdl are seen in electricity sector:
 1. (Assets employed) ↔ revenue streams secured ex ante to validate investments
 2. (Digital product characteristics) ↔ specific customers targeted to validate ex post this special offer
- Questions:
 - Any other type of BizzMdl?
 - Implications for companies implementing them?
 - Non company Bizz:
P2P Blockchain, Communities
 - What relevant regulation?



How far could it go? Ask OFGEM 2 weeks ago...

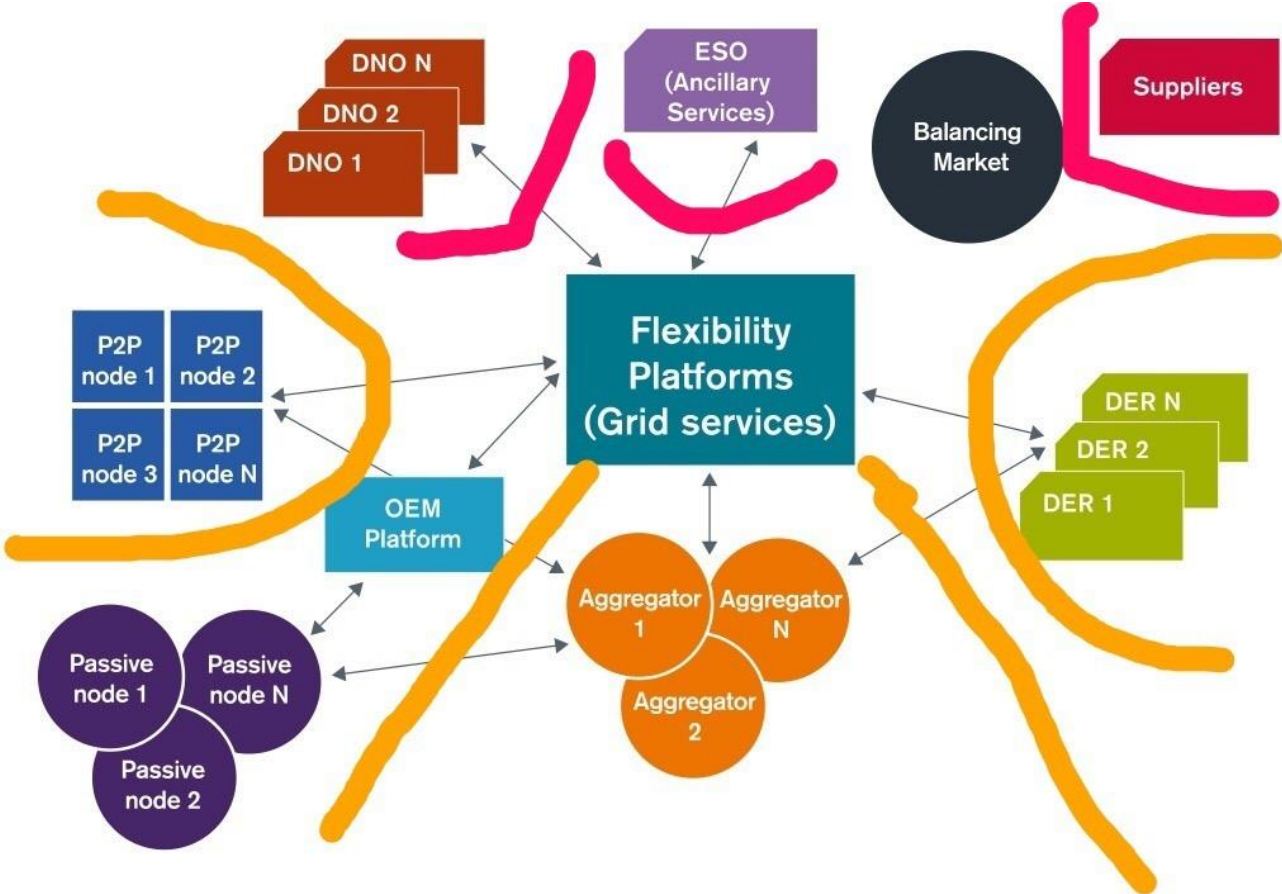


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The Business Model Canvas



Source: Osterwalder and Pigneur (2010)

Implications of the two BizzMdl

- The two BizzMdl face risks:
 1. Green generators depend on policy or regulatory decisions on revenues
 2. Particular services for retail-size customers are dependent on a physical delivery loop
- Questions:
 - Can green generators secure market-based revenue streams, e.g. by signing long-term corporate PPAs?
 - Will grids provide efficient & neutral price signals that ensure level playing field to new BMs?
 - Will grids become “digital platforms” facilitating emergence of new businesses? Or will mini-grids friendly to specific BizzMdl established & operated quasi-independently from regulated public grid?
 - Will a platform of platforms emerge allowing seamless integration of all particular platforms?