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New business models in the electricity sector

Nicolò Rossetto

Florence, 27 November 2019

Summary

1. Two novelties in electricity business models
2. Greening generation
3. Digitalisation of retail-size customers
4. Caught in between: the case of regulated grids
5. Conclusions

1. Two novelties in electricity business models

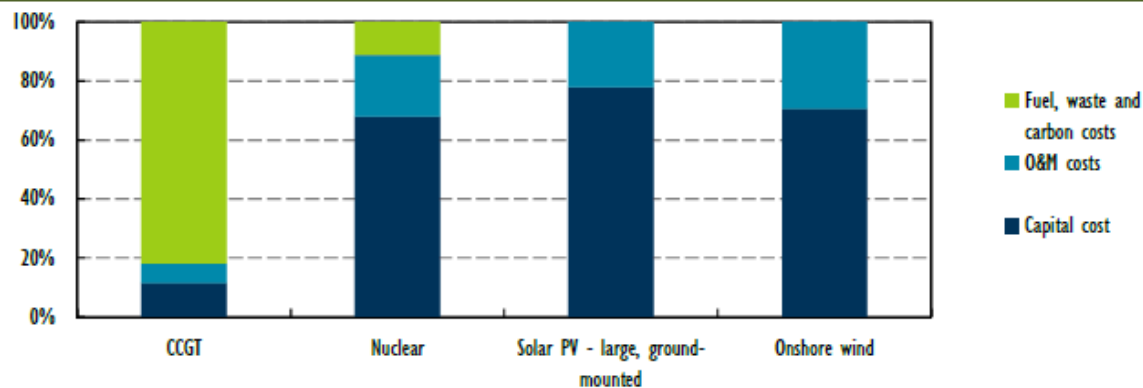
- A wave of changes is shaking the electricity sector and the business models (BMs) emerged with the sector's liberalisation
- Two novelties clearly visible:
 - Greening of generation
 - Digitalisation of retail-size customers
- A conceptual framework needed to understand the implications

NB: a BM is “the rationale of how an organisation creates, delivers and captures value” (Osterwalder and Pigneur, 2010)

2. Greening generation

- Policy support and technological improvement are expanding the role of new RES (wind and PV) in the generation mix
- LCOE mainly due to upfront investment in the long-lived generating asset
- Need to secure a stable revenue stream over a long period of time before taking final investment decision (like with 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.

- Specific asset characteristics and revenue streams available influence the economic viability and “identity” of green generators

- 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. Digitalisation of retail-size customers



The Digital World Knocks at Electricity's Door: Six Building Blocks to Understand Why

*By Jean-Michel Glachant and Nicolò Rossetto,
Florence School of Regulation*

- Digital technologies improve the availability and accuracy of information
- Information can be better injected in the decision-making process
=> reduction in transaction costs and a more efficient use of resources
- From a BM point of view:
 - Delivery of customised services instead of commodities
 - Value creation may require a limited amount of physical assets (e.g., digital platforms)
- Caveat: time and money needed to attract customers and validate a BM

- At least three types of new services can be offered to retail-size customers (both on the demand and supply side)

➤ Aggregation to re-enter retail into wholesale (C2Aggr2B)



➤ Platforms for direct trade (C2SyOp or P2P)



➤ Establishment of autonomous territories behind the meter (smart homes, micro-grids, smart EV fleets, etc.) (C2Fleet)

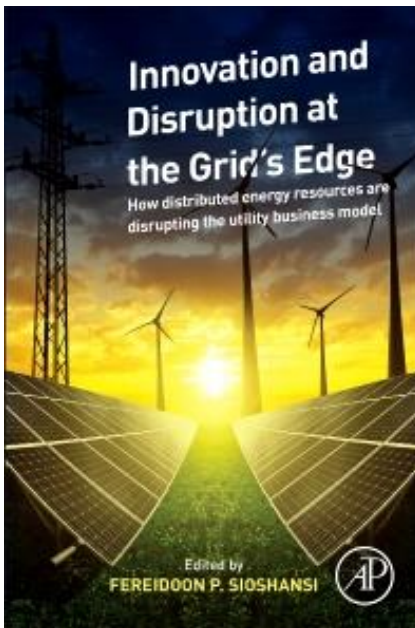


4. Caught in between: the case of regulated grids

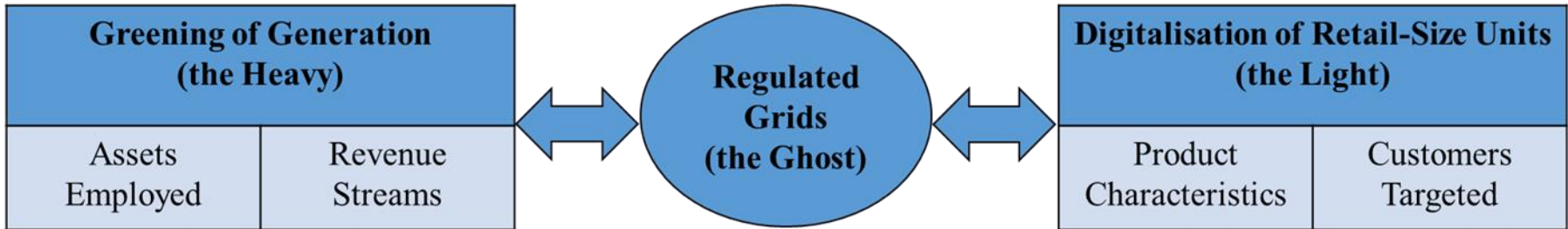


- Grids' business is impacted by the greening of generation and the digitalisation of retail-size customers
- Grids essential to enable decarbonisation but the right incentive framework is still unclear (e.g., GB vs DE regulatory framework for offshore grids)
- Grids represent the essential “delivery loop” for DERs and new services but an efficient system of prices and charges is still missing (e.g., volumetric tariffs and prosumers)

- Not only risks but also opportunities: turning from dumb pipes into platforms for new businesses
- However, grids are regulated companies vested with public service obligations:
 - Neutrality towards different market parties and BMs
 - Fair treatment of network users and vulnerable customers
- If grids are blocked, disruption can take place at their edge, possibly by new players



5. Conclusions



- Two types of BMs are visible in the electricity sector:
 1. Assets employed \leftrightarrow revenue streams secured to validate investments ex ante
 2. New product characteristics \leftrightarrow specific customers targeted to validate the offer ex post
- Questions:
 - Any other type of BM?
 - Implications for the firms implementing them?
 - Implications for efficient regulation?

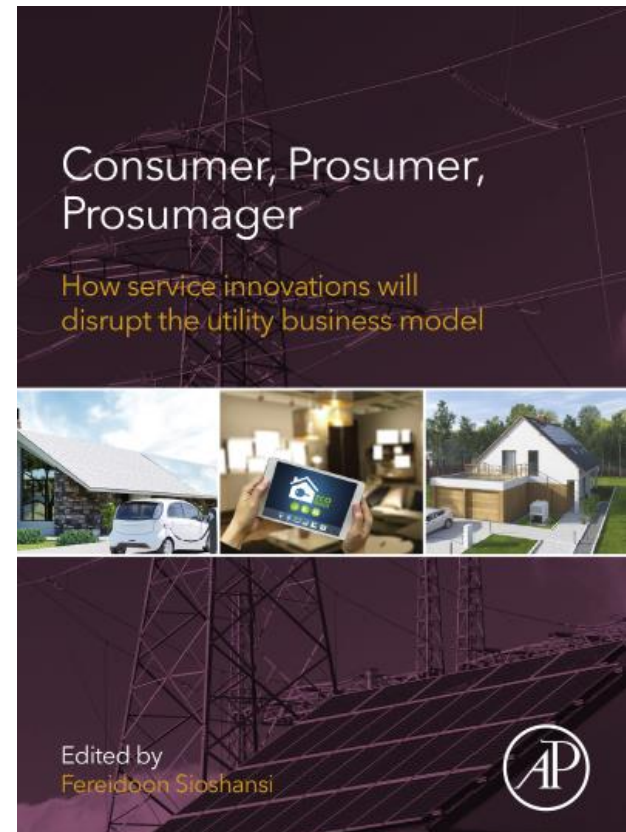
To dig deeper...



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Jean-Michel Glachant



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***Business Models in an Evolving Industry:
the view of a former practitioner***

By Olivier Lavoine,
Florence School of Regulation, Policy Advisory Council member

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UsersTCP



Global Observatory on Peer-to-Peer Energy Trading



Synopsis

This Annex (the observatory) is a forum for international collaboration to understand the policy, regulatory, social and technological conditions necessary to support the wider deployment of P2P energy solutions.



New Business Models in Electricity: the Heavy, the Light, and the Ghost

By Nicolò Rossetto, Piero Carlo Dos Reis and Jean-Michel Glachant, Florence School of Regulation



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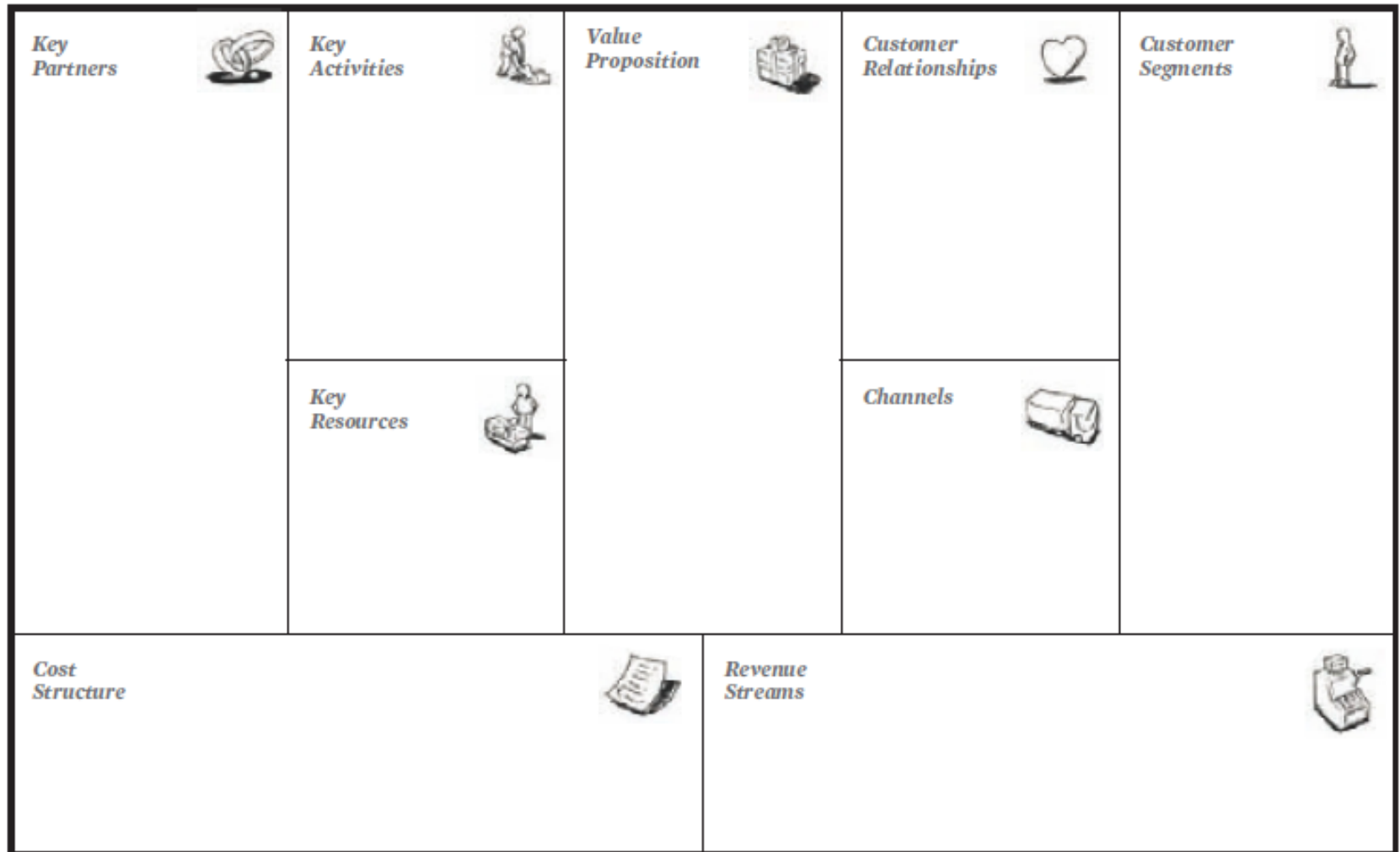
Thank you very much for your
attention

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Back-up slide

The Business Model Canvas



Source: Osterwalder and Pigneur (2010)

Implications of the two BMs

- The two BMs face risks:
 1. Green generators are dependent on policy or regulatory decisions on revenues
 2. New 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 and neutral price signals that ensure a level playing field to new BMs?
 - Will grids become “digital platforms” facilitating the emergence of new businesses? Or will mini-grids friendly to specific BMs be established and operated quasi-independently from the regulated public grid?
 - Will a platform of platforms emerge allowing the seamless integration of all the particular platforms? Who will run it?