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- to empower the future Smart Grid

Capacity-based grid tariff design – economic impact

Sigurd Bjarghov

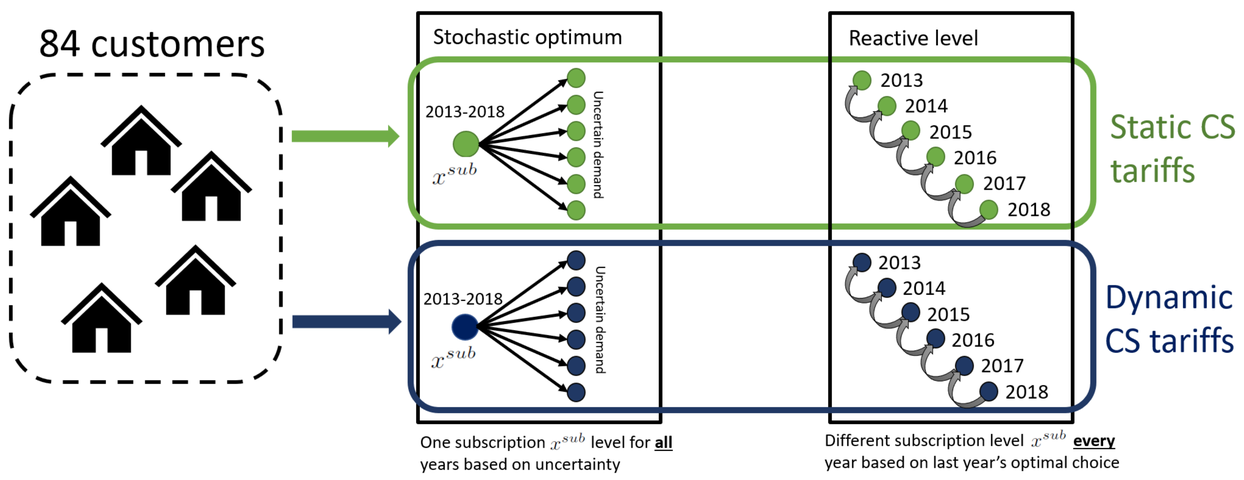
NTNU Department of Electric Power Engineering, Norway

Challenge and objectives

- Determine the economic impact of changing from energy-based to capacity-based grid tariff structures.
- We suggest two types of capacity subscription, "*static*" and "*dynamic*".
- Find optimal subscribed capacity **ex ante** based on uncertainty.
- Investigate the robustness and stability of the stochastic approach compared to subscribing to a sub-optimal level.

Approach

- Find optimal stochastic subscribed capacity for 84 consumers over six years (2013-2018).
- Compare costs of suggested static and dynamic capacity subscription tariff.

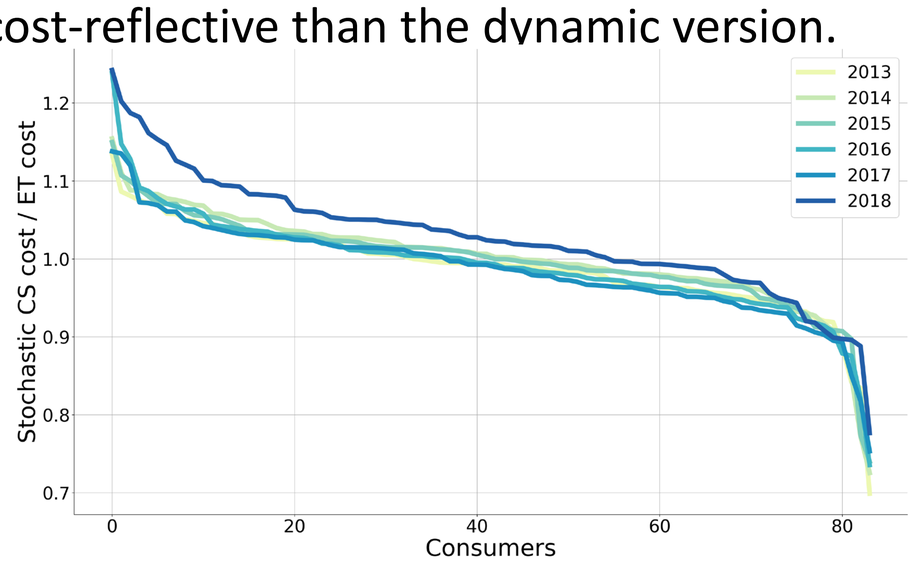


Significant results

1) Using a stochastic approach to find the subscription level works well for most consumers.
2) Choosing between static and dynamic grid tariffs is a choice between complexity, fairness and cost-reflectiveness.

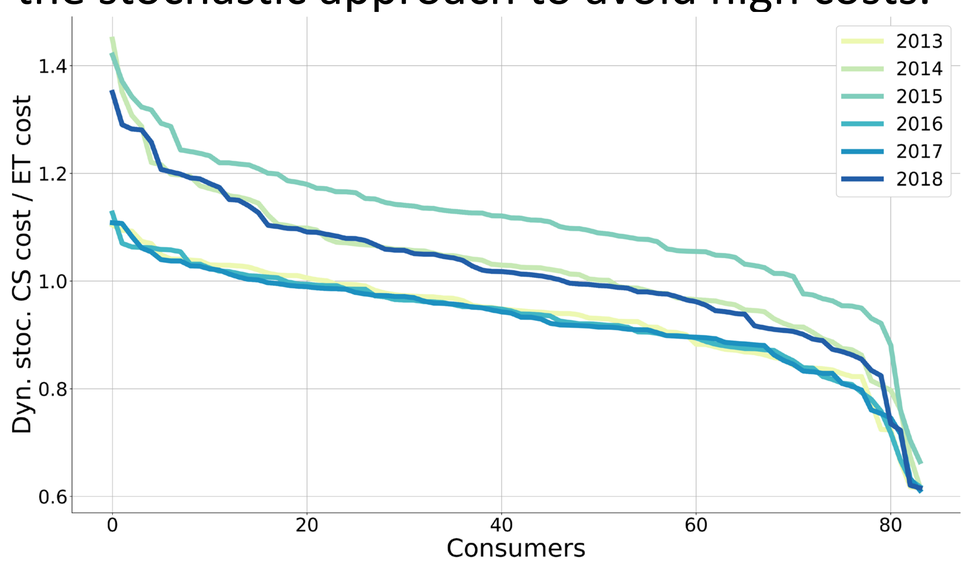
Static subscribed capacity:

More cost-reflective than energy-based tariffs, easy to find optimal subscription level. Less cost-reflective than the dynamic version.



Dynamic subscribed capacity:

Dynamic tariff is more cost-reflective than static, but also more volatile. Very important to use the stochastic approach to avoid high costs.



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