

# ***REGULATING THE ELECTRICITY SYSTEM OPERATOR: LESSONS FOR GREAT BRITAIN FROM AROUND THE WORLD***

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## **Overview**

System operators are adapting to the changes in load patterns, the integration of more renewables, the introduction of new market participants, and their need to balance the system using different mechanisms (e.g. wholesale, capacity and ancillary services markets) in order to operate the transmission system efficiently in terms of reliability, planning and load dispatch.

National Grid Electricity Transmission (NGET), is currently the system operator<sup>1</sup> - SO (electricity and gas) in Great Britain. It also owns and manages the transmission system in England and Wales (NETS) and the gas transmission system (NTS) in Great Britain. The Office of Gas and Electricity Markets (Ofgem) from GB is looking for a new regulatory framework for the SO that supports the greater independence of the SO function and involves a new SO incentives scheme. This initiative is based on the need to have a more independent SO that helps with the transition towards a smarter, competitive and more flexible electricity system. This requires a set of step-changes over the coming years. The main price control framework that relates to both, the electricity transmission network and the system operation is given by RIIO-T1.

This study explores the international experience with independent system operators (ISOs) with respect to the incentives that these face to operate the electricity network efficiently (from the point of view of society). We look for lessons that we can learn from this experience for the future regulation of the Great Britain System Operator (NGET). We examine seven ISOs from the USA, where the model seems to be successful but with some cost issues within the system operator itself. We also examine system operators from Australia (AEMO), Chile (SIC/SING) and Peru (COES). Our findings are supported by a short survey that was sent directly to our contacts in the system operators from our sample of ISOs. Interviews were also conducted to some specific ISOs from the USA. Against a background of rising distributed renewable generation on the electricity system, we discuss the international experience of ISOs with respect to their incentives to: maximise social welfare; manage the increasing amount of renewables and new participants; manage their overall actions for customers; engage in stakeholder participation and transparency.

The paper is structured as follows. Section 1 discusses the introduction. Section 2 provides a description of the current and future incentive regulation of the GB electricity system operator. Section 3 describes briefly the ISOs that are part of this study. Section 4 discusses the international experience of ISOs with respect to their incentives to: maximise social welfare; manage the increasing amount of renewables and new participants; manage their overall actions for customers and engage in stakeholder participation and transparency. Section 5 identifies lessons for the regulation of the GB System Operator.

## **Methods**

We have designed a short open-ended questionnaire that was sent to the ISOs. In combination with the questionnaire we have visited some ISOs from the USA and interviewed different representatives.

## **Results**

We find that:

- ISOs are themselves regulatory bodies responsible for real time system operation and for taking a view about the future development of the system and hence must be sufficiently resourced.

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<sup>1</sup> This will cease to be the case from April 2019 when the ESO (electricity system operator) will be legally separated from NGET, and made into a new National Grid company

- ISOs tend to be subject to annual budget approval processes for internal costs. This would seem to have advantages in terms of flexibility to respond to new demands on the system in contrast to longer term RIIO-type incentives in GB.
- High levels of internal and external oversight of ISO decision making are associated with impressive amounts of publicly available information on ISO performance.
- Given the lack of stability in the regulation of external costs in GB, moving the monitoring of external costs to wider stakeholders might also have some merits against the current mechanism.
- Stakeholders play a key role in the proposal of and design of detailed implementation rules for new initiatives for the best ISOs. Complex voting rules are observed which attempt to balance out competing interests.
- Some jurisdictions have responded with proposals for radical market redesign of price resolution in order to sharpen signals in the energy market.

## Conclusions

GB is currently in the process of creating a much more independent SO business within National Grid. This immediately suggests that close attention to the experience of ISOs is required and that we seem likely to move away from the presumption that the SO can be incentivised in ways that are more appropriate for distribution and transmission asset based utilities. More flexible and transparent regulation processes are likely to be more suitable to the emerging role of the SO. Strong profit incentives relative to the actual asset base of the SO will be less acceptable/relevant.

## References

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