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Renewables – Regulatory Responses Semi-Scheduled Regime

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National Electricity Objective (s7 NEL)

To promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—

- a) price, quality, safety, reliability and security of supply of electricity; and
- b) the reliability, safety and security of the national electricity system.

Overview - Regulatory Response

- The responses to date, including registration of semi-scheduled generators
- Regulatory responses on the horizon
- What does this mean for developers of renewable energy generation?

Likely types of generation

- Renewables:
 - Wind
 - Solar thermal
 - Geothermal
 - Biogas
- Typical features:
 - Intermittent generation
 - Remote locations

What led to the semi-scheduled classification?

- Coordinated central dispatch system provides system security
- Issues:
 - intermittent output can cause frequency variation
 - located in rural areas with weak networks
 - weak regional interconnectors
 - resultant price variation/separation
- Commercial, regulatory and technical challenges

**But Denmark
has 25%
wind power**

**and is
ramping up
to 50% by
2025!**

Different circumstances

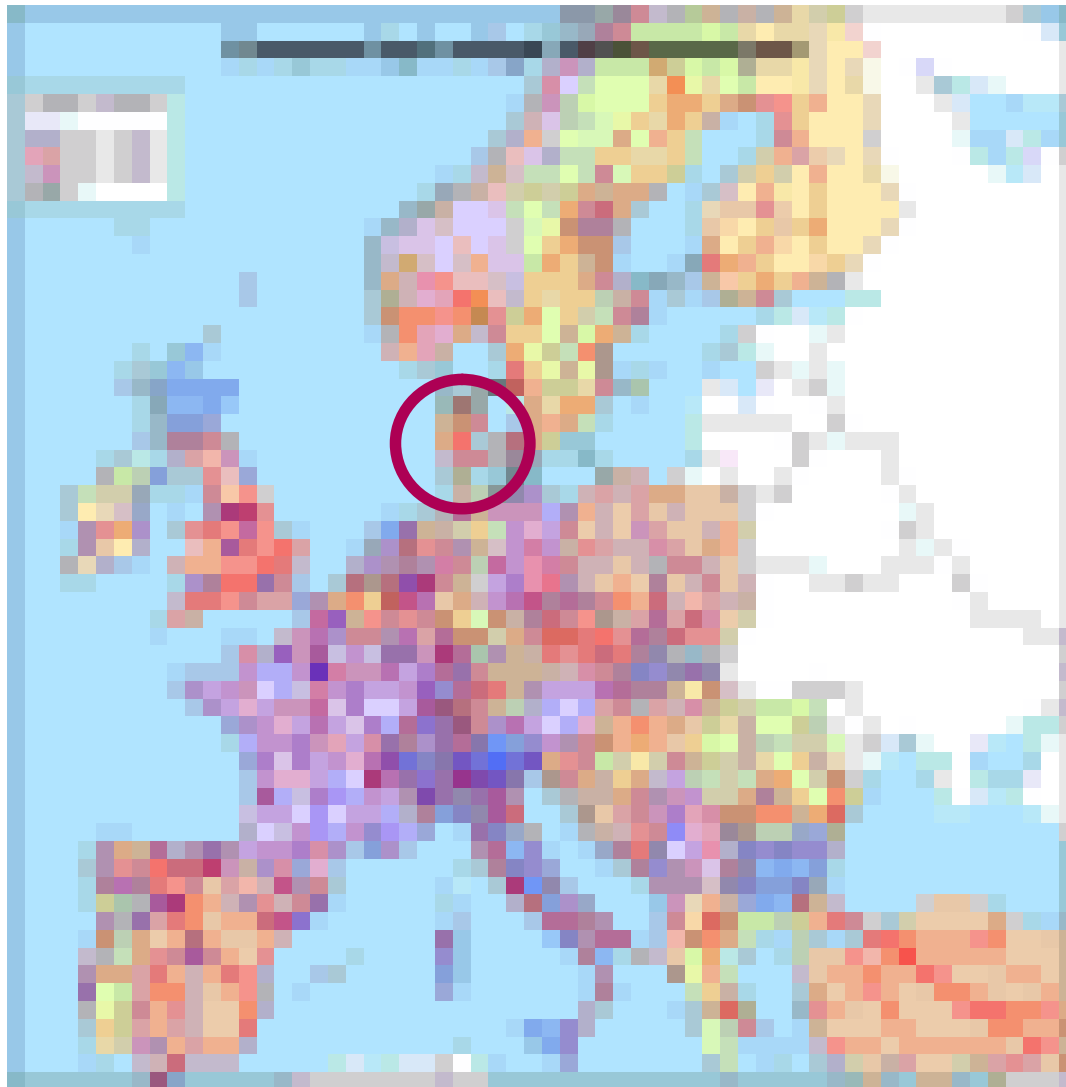
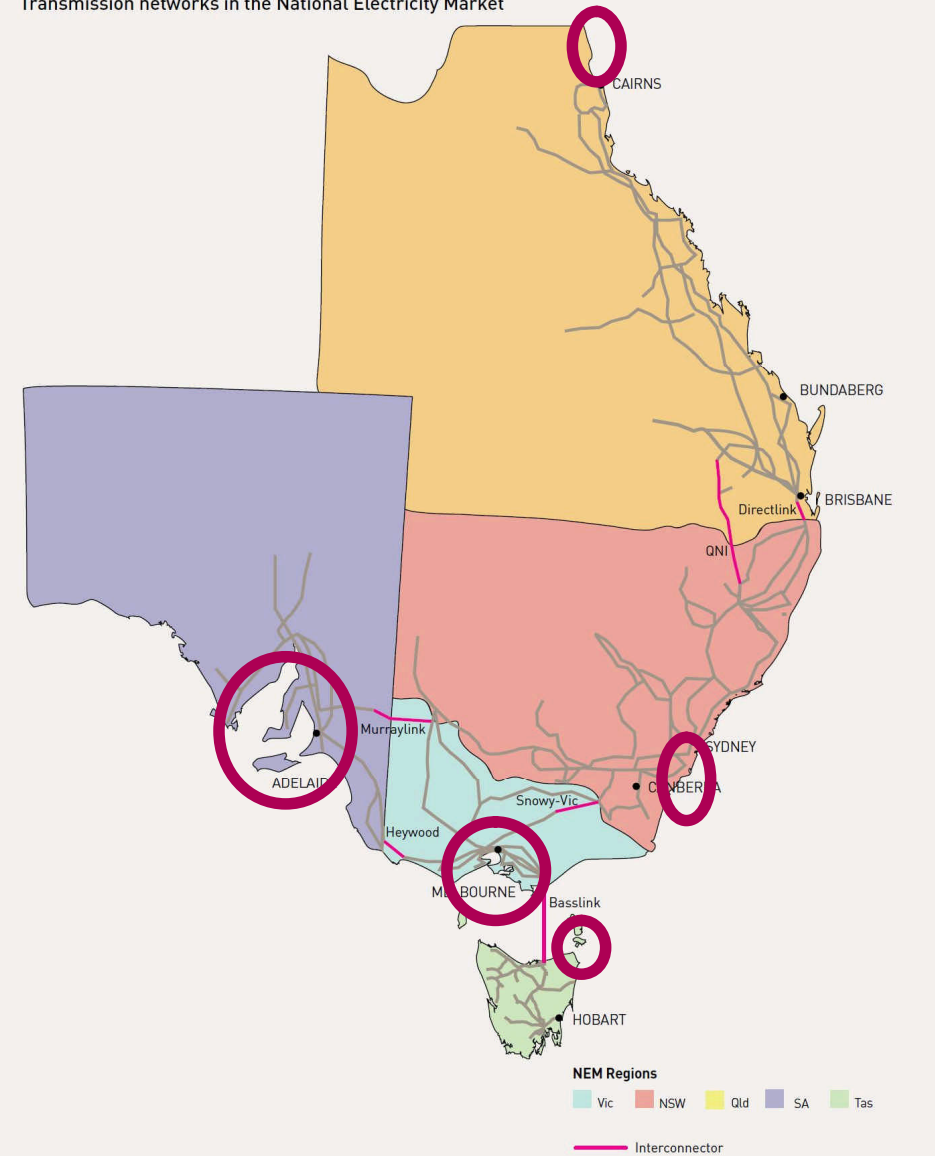


Figure 4.1
Transmission networks in the National Electricity Market



QNI, Queensland-New South Wales Interconnector; NEM, National Electricity Market.

How is AEMO managing the dispatch issue?

- Planning mechanisms
- Dispatch structure
 - non-scheduled – no directions re generation
 - scheduled – directed exactly what to generate
 - semi-scheduled – directed to ramp down only
- Licence requirements
- FCAS
 - more FCAS required for variable generation
 - straight-line reference trajectory
 - causer pays (and ultimately consumer?)

Core principles of semi-scheduled

- Registration:
 - default for intermittent generating systems ≥ 30 MW
 - exceptions for local use and mostly < 30 MW export
- Obligations:
 - provide forecast data 6 weeks in advance
 - notification when varies from nameplate capacity
 - provide dispatch offers
 - cap on dispatch only in "semi-dispatch intervals"
 - where network constraint would be violated if generation levels exceeded specified level; or
 - where specified level $<$ nameplate capacity

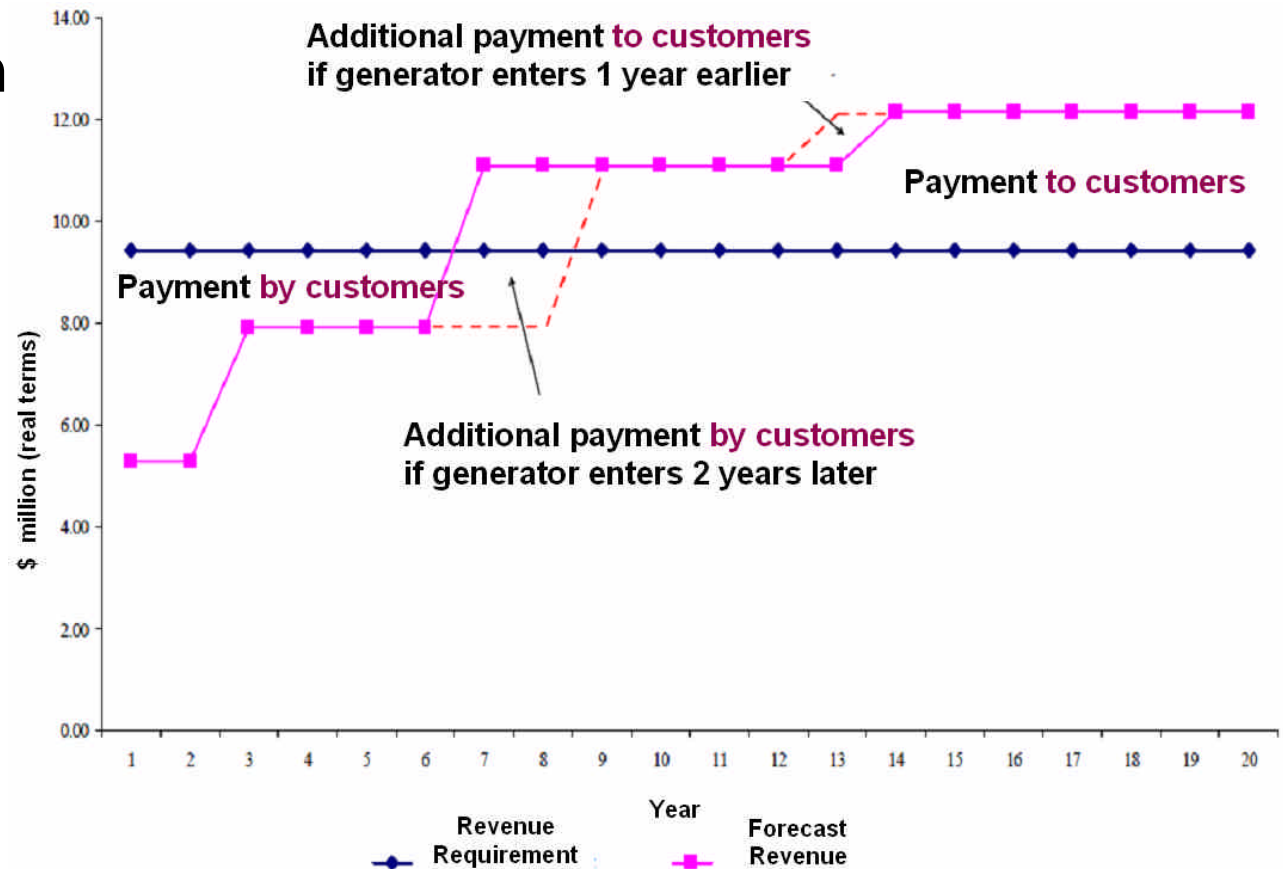
Network Issues

Currently

- New generator funds connection works and augmentations
- Current participants obtain the benefit of the augmentation but do not pay
- Augmentation may not be efficient
- Need for sufficient reliable reserve capacity
- Limited opportunity for recovery of costs from new entrants
- Distribution NSPs are not well resourced to deal with embedded generator connections

Potential Response

- Network Extension for Remote Generation (NERG)
 - Zone or hub identification
 - Plan augmentation for multiple connections
 - Customers bear initial cost but recover over time from generators
- Generator TUOS



**A question
to ponder ...**

**... National Electricity
Market Objective vs
CPRS and RET:**

**who should pay, and
how?**