

# Commissioning Wind Generation in NZ

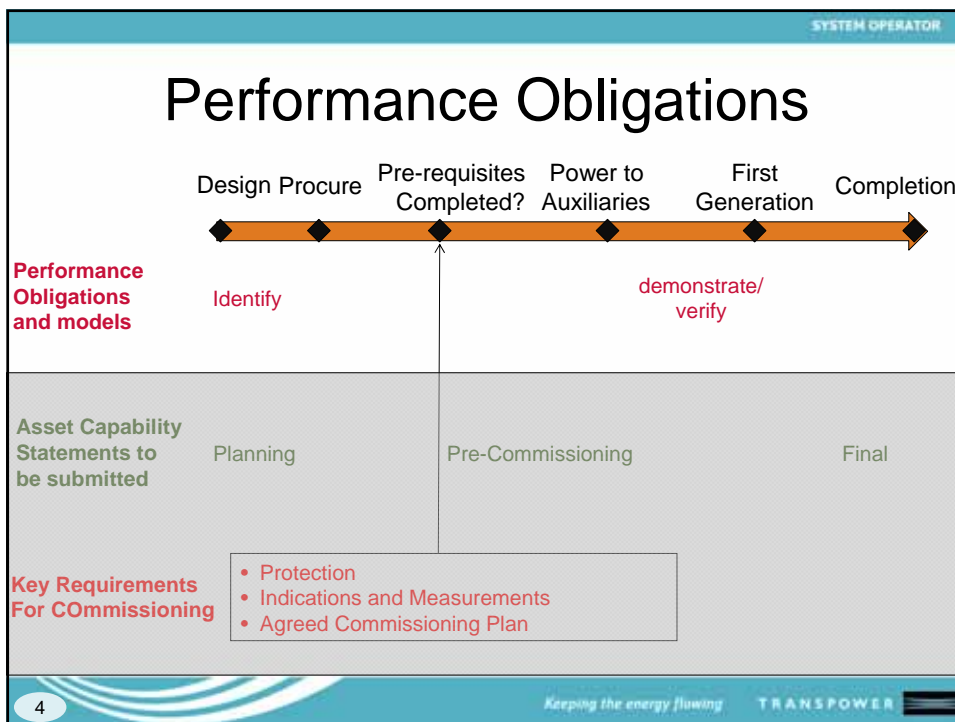
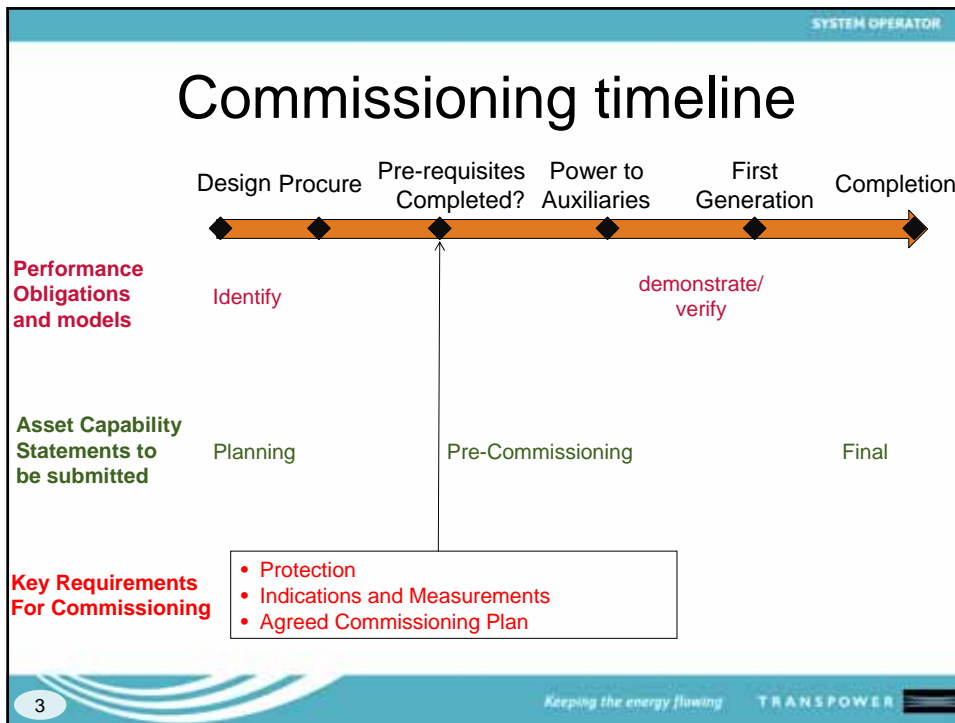
## A review of Obligations and Requirements

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## What we will be covering ..

- Commissioning Timeline
- Summary of Asset Owner Performance Obligations that may apply
- Key Requirements for Commissioning
- How Transpower can help
- Recent Experiences



## Can you influence grid voltage?

- If yes, then you may have **voltage** obligations, these are:
  - *Voltage range obligation*
    - be able to connect and remain connected
  - *Voltage support obligation*
    - be able to import and export sufficient reactive power

both over the range of voltages applicable at the point of connection

## Is station output $\geq 30\text{MW}$ ?

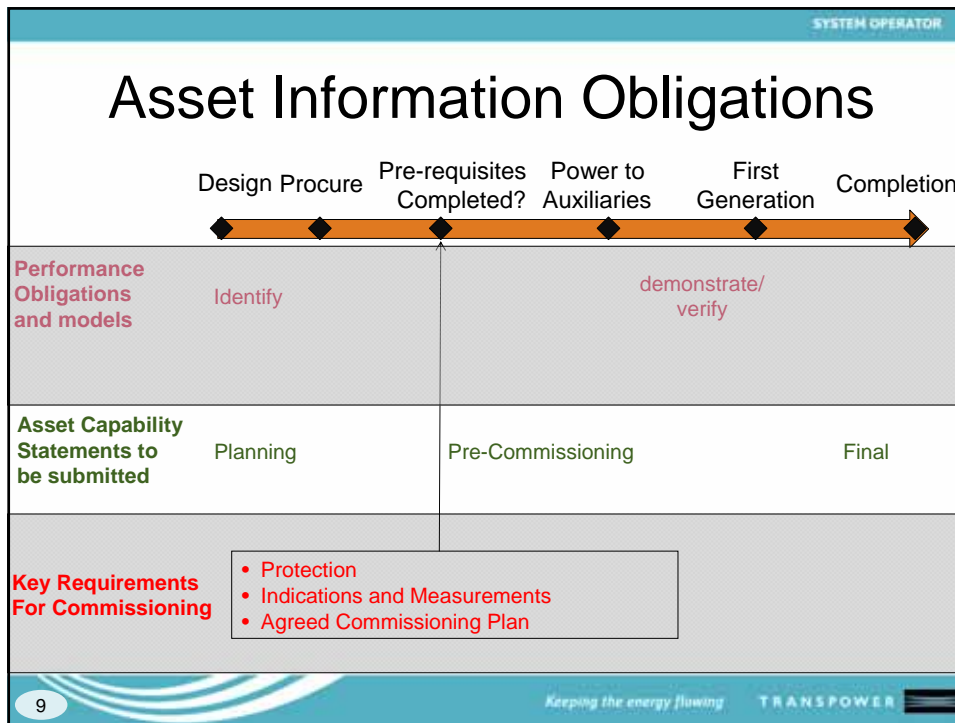
- If yes, then you will have **frequency** obligations:
  - *Frequency support*
    - units must make maximum possible injection contribution to maintain frequency in the normal band, and
  - *Under-frequency support*
    - remain synchronised and at a minimum maintain pre-event power output to contribute to frequency support in the case of under-frequency events
- *If no, in some circumstances this can be directed by the Electricity Commission*

## Is station output $\geq$ 30MW?

- If yes, then you will have **Operational Communications** obligations:
  - *Types of Communication*
    - Voice, document and data
  - *Performance Requirements*
    - Primary and backup for each type
    - Data
      - Minimum requirements
      - Accuracy
      - Refresh rate
- *If no, in some circumstances this may be required by the System Operator*

## What if you cannot meet an obligation?

- During Commissioning
  - You can seek agreement from the System Operator for a Special Provision in your Commissioning or Test plan
- For the life of the asset
  - Other methods of compliance need to be considered such as:
    - Dispensations
    - Equivalences



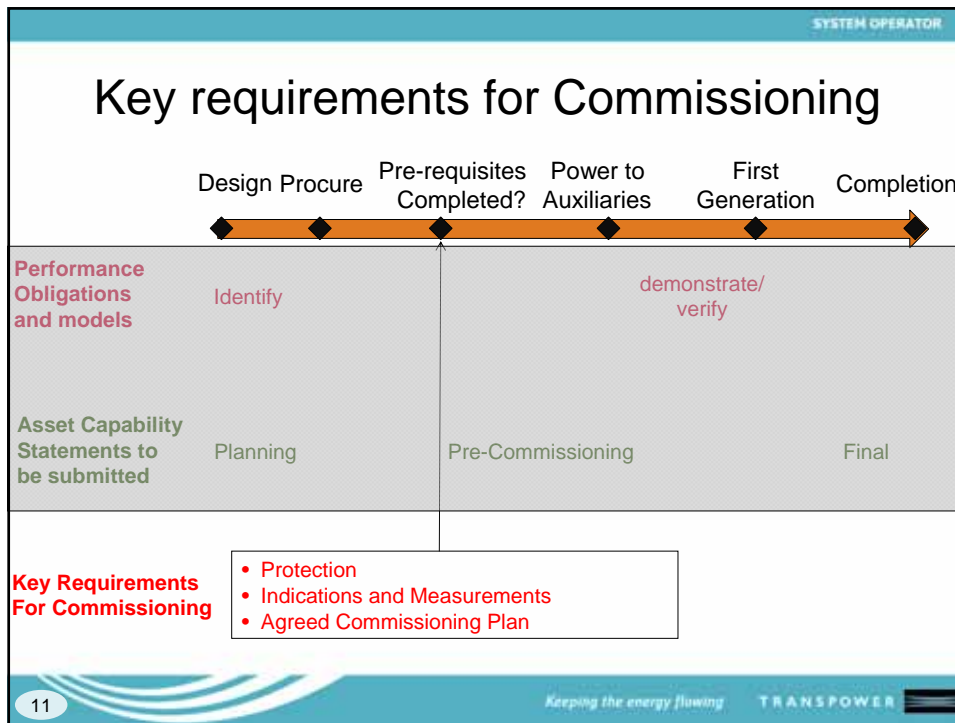
SYSTEM OPERATOR

## Is unit output > 1MW?

- If yes, then you must provide Asset Capability Statements over the life of the asset
  - They must be submitted
    - During the planning stage
    - Prior to commissioning
    - On completion of commissioning
  - Be up-to-date at all times
  - And are entered and maintained by you into an on-line database administered by the System Operator at <http://acs.redspider.co.nz/>

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SYSTEM OPERATOR

## Key Requirements for Commissioning

- Prior to Commissioning agreement should have been reached on:
  - Protection Coordination:
    - Disconnect any faulted asset in minimum practical time .. and minimum disruption to the grid or other assets
    - Be selective when operating
    - Preserve power system stability
  - Indications and Measurements:
    - Must be operative prior to first livening
  - An agreed Commissioning Plan detailing
    - Timeline showing a sequence of events
    - Consideration of testing to illustrate required performance of assets
    - Any special control or protection settings required

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## How Transpower can help?

- Talk to the us early at the concept stage
- The Grid Owner will help develop connection options
- The System Operator can:
  - comment on options with respect to existing market issues
  - assist with testing methodologies
- A Transpower Customer Relationship Manager will facilitate you through this process

## Our Recent Experiences

- There is room for improvement
- Both parties need to identify project team members, clarify roles and responsibilities and escalation points early
- System Operator needs to understand who owns and who will operate the generation station
- Critical dates and deliverables need to be agreed well in advance of commissioning and adhered to

## Useful links

- **EC Information Sheet – Embedded Generation**  
<http://www.electricitycommission.govt.nz/pdfs/infopapers/infopdfs/embedded-generation-2008.pdf>
- **Connecting new generation in New Zealand**  
<http://www.transpower.co.nz/f1221,149104/connecting-new-generation.pdf>
- **Connecting and Dispatching new generation in New Zealand**  
<http://www.systemoperator.co.nz/f1684,28037667/connecting-dispatching-new-generation-nz.pdf>
- **Commissioning Process**  
<http://www.systemoperator.co.nz/n2100>
- **Test Plan Process**  
<http://www.systemoperator.co.nz/asset-testing>
- **Companion Guide to Asset Testing**  
<http://www.systemoperator.co.nz/f1684,28037597/companion-guide-testing-assets-300807-1.pdf>



## Questions?