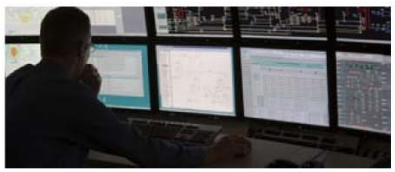
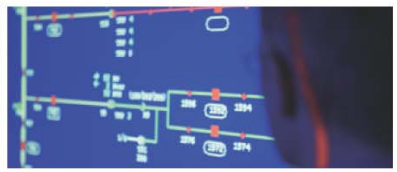
Grid Support Contracts (GSC) and Demand Side Participation (DSP) Trial

SO Workshop - November 2008
Conrad Edwards

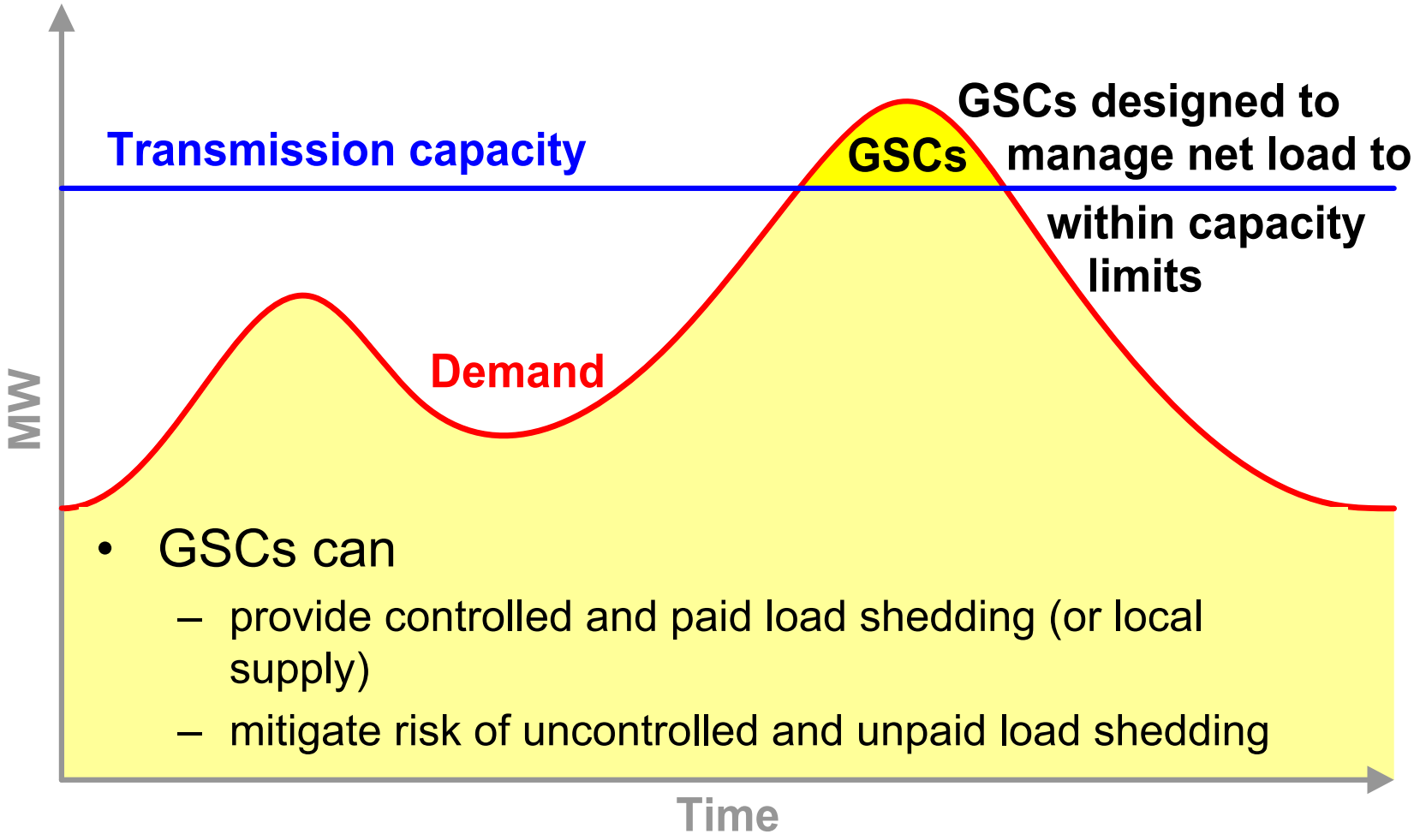
TRANSPOWER





SYSTEM OPERATOR

GSCs can manage peaks



- GSCs can
  - provide controlled and paid load shedding (or local supply)
  - mitigate risk of uncontrolled and unpaid load shedding

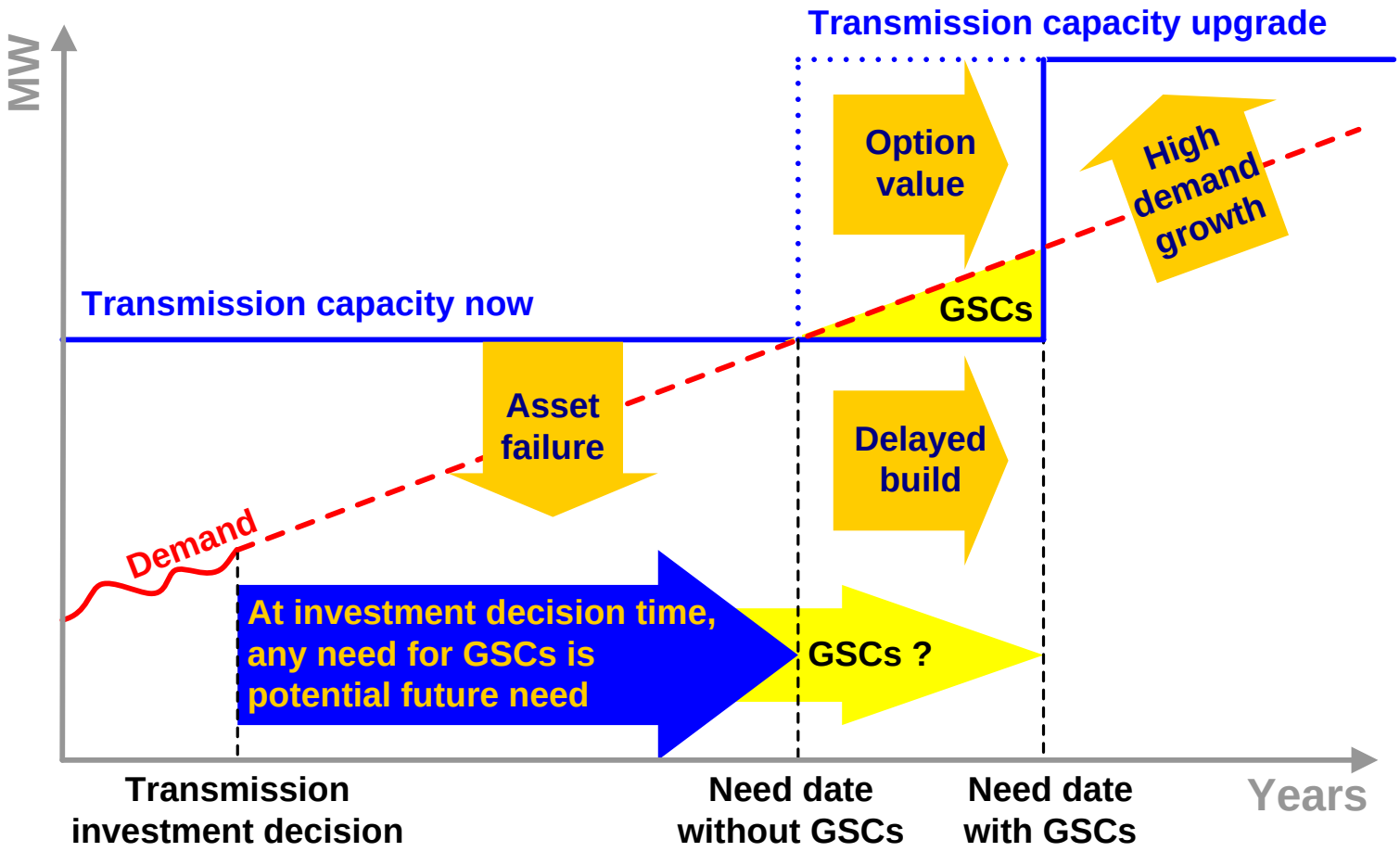
GSC key features

- Specific to transmission capacity problems
  - not for generation adequacy problems
  - offered only for specific regions and periods
- Open to all non-transmission options
  - but, clear qualification and evaluation criteria
- Competitive acquisition
  - RFI and RFP process
- Contract for services
  - not Transpower ownership
  - grid owner as counterparty rather than system operator
- EGR-enabled
  - cost recovery through Part F of the EGRs

GSC timeline to date

2006	**Transpower announces intention to develop GSCs**
2007	**Transpower plans two year DSP trial and consequent development of GSCs** **EC approves recovery of costs** **Transpower conducts "2007 Pilot"**
2008	**Transpower conducts "2008 Trial"** **Transpower plans consultation on GSCs for December**

GSCs can have their uses



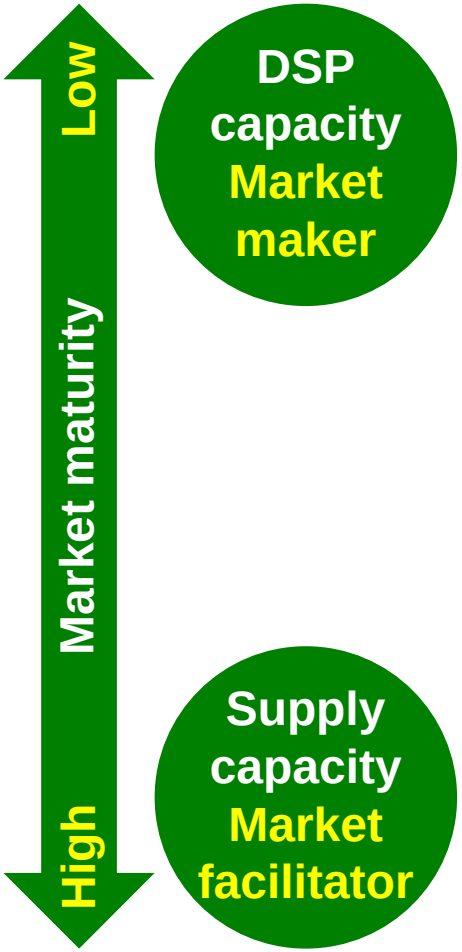
Types of GSCs

- GSCs
  - linked to a transmission reliability investment proposal
  - no ‘double-dipping’ with other security products
  - for MW typically 1-3 years, for MVars longer
- ‘Risk management’ GSCs
  - manage late build, high demand or asset failure risk
  - proxy for missing value-of-lost-load (VOLL) price signals
- ‘Deferral’ GSCs
  - proxy for missing transmission LRMC price signals
  - interconnection investments (multiple beneficiaries) only
  - must be transmission option value to be captured

GSCs for market generation MW could distort that $5+B pa market

	Perverse incentive for GSC $
Under-investment	Generation market stops investing for peak capacity. Transpower becomes energy capacity provider of last resort
Delay	Proponent would have invested in constrained region, but delays for GSCs
Withdrawal	Generators offer less at peaks in order to secure GSCs, or demand GSCs to keep plant in service
Scope creep	Market participants demand GSCs for existing 'free' services, e.g. generation capacity adequacy and outage planning

GSC design to maximise benefits and minimise risk and market distortions



- DSP (load and embedded generation)
  - trial demonstrated potential
  - scope will be broadened over time with cumulative, successful experience
- Voltage support
  - GSCs to replace longer-term voltage support ancillary service contracts
  - improved integration in grid planning
- Market generation
  - minimise distortion to the investment market
  - no overlap with the real-time market

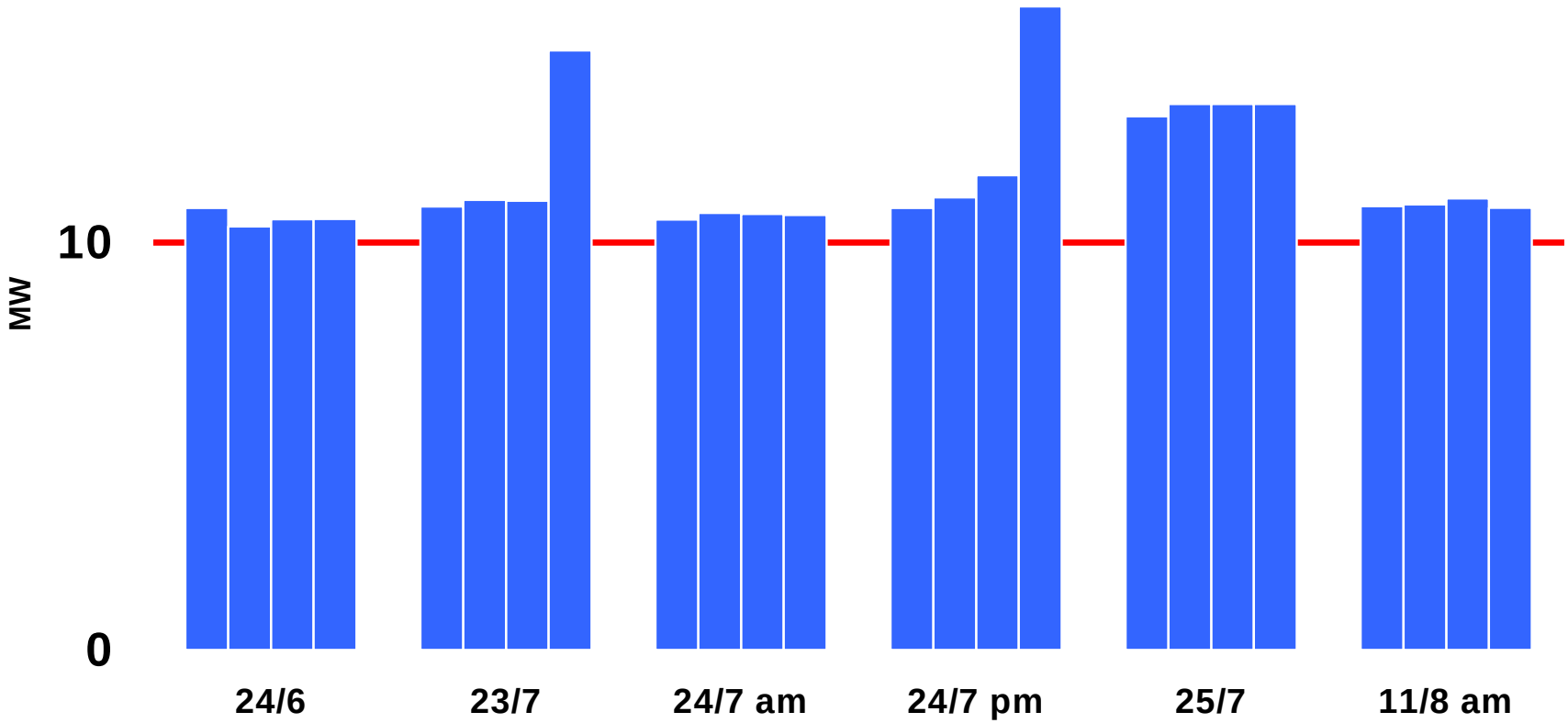
DSP - Transpower as aggregator

- All on www.gridnewzealand.co.nz/dsp-trial
- 2007 Pilot
  - Transpower contracted directly with sources and aggregators
  - five providers, 14 MW from 14 sources
  - reliability 68% indicating significant over-contracting required
- 2008 Trial
  - Transpower sought 10 MW blocks of aggregated DSP
    - aim was for Transpower to contract with one or a few aggregators who in turn contract with a portfolio of sources
  - three blocks, two aggregators, 27 MW from 50+ sources

DSP Trial 2008 – Block information

	Block 1	Block 2	Block 3
Size	**10 MW**	**10 MW**	**7 MW**
Typical sources	**Light industrial**	**Manufacturing plant**	**Diesel generators**
Delivery cost	**$4000 / MW**	**$11000 / MW**	**$5000 / MW**
Availability cost	**$65k / month**	**$130k / month**	**$60k / month**
Call length min - max	**1 to 2 hours**	**2 hours**	**1 to 4 hours**
Maximum consec. days	**3**	**3**	**5**

DSP Trial 2008 – Block 2 results

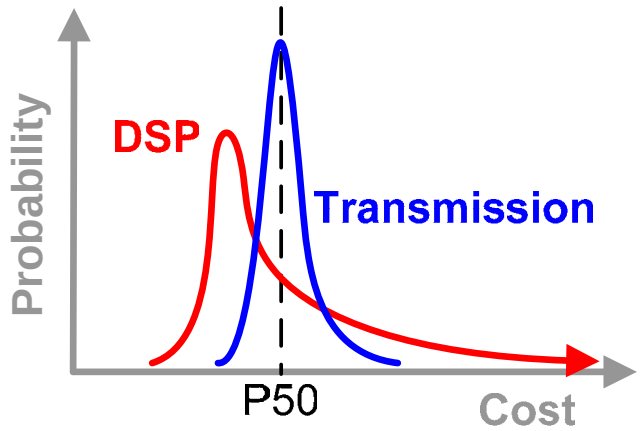


DSP Trial 2008 – Outcomes

- 2008 Trial proved the aggregator concept
  - reliability demonstrated ability to flatten regional load
  - demonstrated reliability (by block 93%, 100% and 72%)
- Provided experience for Transpower, aggregators and sources:
  - establishment time
  - testing
  - call, sourcing and payment (incentive) approaches
  - communications
  - verification of delivery
- Costs well within approved amount

DSP – issues going forward

- Maintaining the momentum for DSP
  - future operational use likely?
  - North Island trials necessary?
- Load forecasting
  - need to significantly improve load forecasting accuracy two or more hours ahead
- Cost estimation and recovery
  - estimates need to allow for false calls
  - cost distribution can be very skewed



GSC development

- Discussion paper released shortly
- Workshops
  - Christchurch Tuesday 2 December
  - Wellington Thursday 4 December
- All on www.gridnewzealand.co.nz/gsc

Questions?