

Dispatch of DSM – February 2011 (Varanus Island disruption)

Greg Ruthven

Dispatch of DSM February 2011

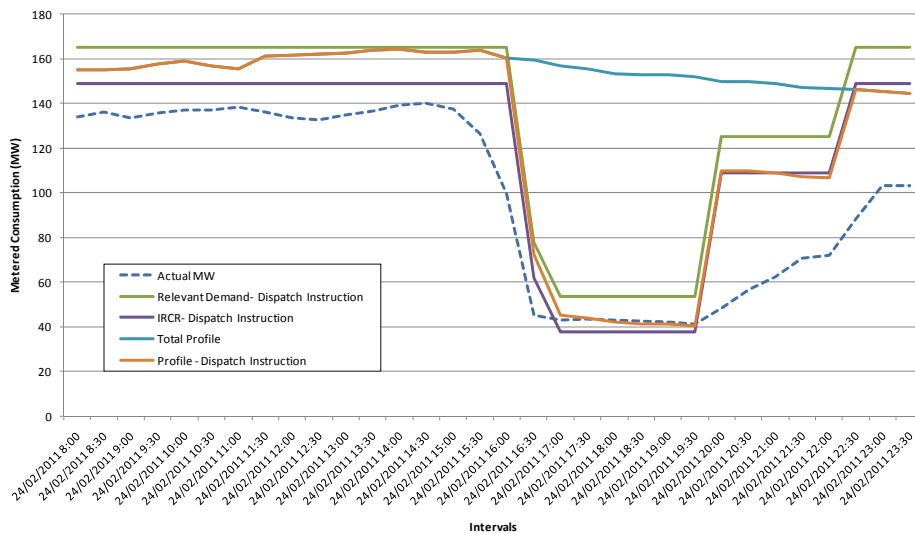
- Tropical Cyclone Carlos forced temporary closure of Varanus Island gas plant in late February
- Gas supply disruption affected generation, led to declaration of High Risk Operating State
- Curtailable Loads dispatched on February 24, 25, 26 and 28 to maintain Power System Adequacy

Assessment of DSM Performance

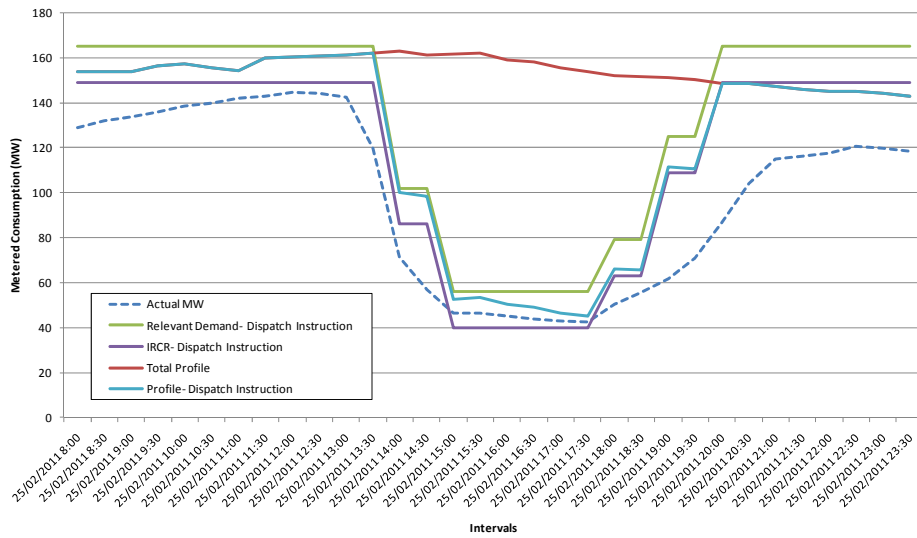
- All DSM facilities that were dispatched have been aggregated to protect confidentiality
- Facilities operating under Stipulated Default Load mechanism have been excluded from assessment
- Following graphs show:
 - *Metered consumption*
 - *Required dispatch performance based on:*
 - Static Relevant Demand – current method
 - Static Relevant Demand – IRCR-based (as proposed in RC_2010_29)
 - Dynamic “High 5 of 10” profile (with and without “Day-of Adjustment”)



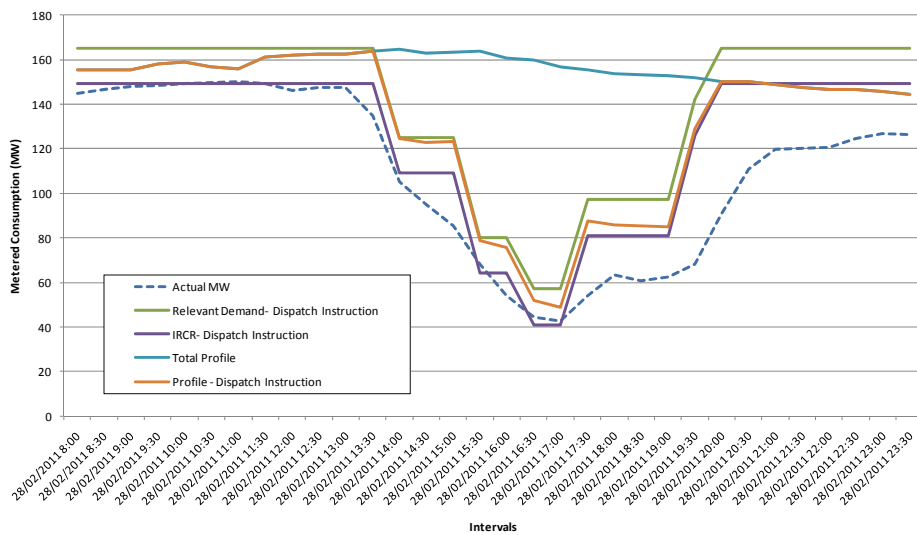
Aggregated DSM Performance – 24 Feb 2011



Aggregated DSM Performance – 25 Feb 2011



Aggregated DSM Performance – 28 Feb 2011



Observations

- Current baseline method (32 intervals):
 - Highest baseline, 15-25MW above pre-dispatch consumption
 - Dispatch achieved under current baseline method in all intervals
- IRCR-based method:
 - Lowest baseline during dispatch, 0-10MW above pre-dispatch consumption
 - Failed to reach IRCR baseline in intervals of maximum dispatch (note current incentives in market)
- Dynamic profile:
 - Dispatch achieved for most intervals with dynamic baseline
 - Dynamic baseline above IRCR
 - Asymmetric "Day-of Adjustment" results in baseline 5-25MW above pre-dispatch consumption
 - Tracks with consumption during dispatch

Dispatch performance

- Table shows proportion of intervals in which individual loads failed to satisfy dispatch instruction quantity

Baseline Method	Proportion of Intervals
Current method (32 interval)	23.0%
IRCR-based Relevant Demand	59.2% *
Dynamic High 5 in 10	38.5%

Questions



Dynamic Relevant Demand methodology – Discussion Points

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Limitations of static Relevant Demand methodologies

- May not provide accurate measurement of dispatch performance
- Unresponsive to changes in consumption patterns since previous summer
- Do not reflect changes in consumption patterns during day

Relationship with Reserve Capacity Mechanism (RCM)

- IMO has conducted review of relationship of Relevant Demand methodology with other elements of the RCM
- Choice of baseline method has minimal or no impact on:
 - *Maximum Reserve Capacity Price*
 - *Load Forecasting (Statement of Opportunities)*
 - *Bilateral Trade Declaration and Reserve Capacity Auction*
 - *Provision of Reserve Capacity Security*
 - *Special Price Arrangements*
 - *Reserve Capacity Performance Monitoring*

Individual Reserve Capacity Requirement (IRCR)

- IRCR is the mechanism that determines the capacity required to serve, and be purchased by, each Load
- RC_2010_29 links the capacity purchased by a Load (IRCR) with the capacity that it can offer back to the market (Relevant Demand)
- Alternative methods allow Load to offer more capacity than it is purchasing
- IRCR methodology being considered during Reserve Capacity Mechanism review

Certification of Reserve Capacity

- Currently:
 - *exact composition of Demand Side Programme (DSP); and*
 - *Relevant Demand for a future summer*may not be known at the time of certification.
Where a specific Load is known, Relevant Demand is computed for most recent summer for assurance of future capability.
- With dynamic Relevant Demand profile:
 - *visibility of future capability is not reduced*
 - *where a specific Load is known, method required to estimate future capability for certification and Capacity Credit assignment (e.g. lowest profile value during hours of availability)*

Reserve Capacity Testing and Return of Security

- Return of security based on assurance of availability for the remainder of the Capacity Year
- Similarly, Facility that passes a test is considered likely to be available for remainder of testing cycle/Capacity Year
- Impact of dynamic Relevant Demand profile:
 - *As "High 5 in 10" profile varies throughout year, security could be returned or a test could be passed based on a high profile but curtailable capacity not available at other times if profile reduces*
 - Moreover, a participant could increase demand at its sites to increase its profile, then self-schedule a test to demonstrate performance for return of security and to satisfy testing obligation*

RCOQ and Reserve Capacity Refunds

- Each Participant must make its capacity available for dispatch by System Management up to its RCOQ and must pay refunds if it fails to make its capacity available
- Specifically, DSM provider must pay refund if it fails to fully satisfy Dispatch Instruction
- RC_2010_29 would require that DSM provider pay refund at any time when the Demand Side Programme is not filled to Capacity Credit level
- Impact of dynamic Relevant Demand profile:
 - *As "High 5 in 10" profile varies throughout the year, Relevant Demand for a DSP may drop below the Capacity Credit level (and RCOQ) at times and thus the capacity is not available for dispatch*

Supplementary Reserve Capacity (SRC)

- IMO must procure SRC if it considers that inadequate Reserve Capacity will be available to satisfy the Planning Criterion in the near future
- In doing so, IMO may consider level of Certified Reserve Capacity less any predicted plant outages
- Impact of dynamic Relevant Demand profile:
 - *As "High 5 in 10" profile varies throughout year, the Relevant Demand for a Demand Side Programme may drop below the Capacity Credit level. Some of the capacity is thus unavailable but not accounted for in the current SRC determination.*

Questions