Calculation of Large EUC Peak Load Factors (PLFs) Background

- The formula for Peak Load Factor (PLF) is:

  - $\dfrac{\text{Average Daily Demand}}{\text{1 in 20 peak demand}}$

- For Small EUCs <2,196 MWh (90% of NDM Load) the PLFs are directly calculated from the EUC models based on the NDM sample data (i.e. UNC Section 4.3.1 states 1 in 20 peak demand is determined by simulation)

- For Large EUCs >2,196 MWh (10% of NDM Load) UNC Section H 4.3.2 states the 1 in 20 value is estimated directly from the NDM profiling formula. i.e.

  - $AQ/365 * ALP_t (1 + \mathbf{WCF_p} * DAF_t)$

- For the day of max Seasonal Normal Aggregate NDM demand ($SNDN_m$) in the LDZ for the applicable gas year use corresponding ALP and DAF values for the EUC along with the max Weather Correction Factor (WCF_p)

  - Where $WCF_p = (PDN / SNDN_m) - 1$
  - PDN = 1 in 20 peak day aggregate NDM demand for LDZ
  - $SNDN_m$ = maximum seasonal normal aggregate NDM demand

Calculation of Large EUC Peak Load Factors (PLFs) Source Data

- Up until Gas Year 2008/09 PDN and $SNDN_m$ have been sourced from Transporters forecast processes

- From Gas Year 2009/10 onwards DESC agreed that aggregate NDM demand used in calculating DAFs (i.e $SNDN_t$ & $WSENS_t$ values) would be derived from a historical model based on 3 years of Gemini data

- The 'max' SNDN value required for max WCF when calculating Large EUC PLFs will therefore be sourced from this model

- If the PDN value continues to be derived from DN's Forecasting process the modelling basis for PDNs and SNDNs would be different which could lead to inconsistent Large NDM EUC PLFs

- To ensure consistency in approach and more stable PLFs, xoserve propose PDN value should also be sourced from the historical model by simulation

Calculation of Large EUC Peak Load Factors (PLFs) Recommendation

- Over the past 12 months DESC has implemented changes to the calculation of the WCF (UNC MOD204) and the denominator in the DAF formula
  - To remove the reliance on Transporters forecast data to influence Demand Estimation processes
  - Provide an independent source of data not impacted by views of future demand

- This final change to the source data used in the calculation of PLFs for Large NDM EUCs will remove all aspects of Transporters forecast data in the derivation of parameters required for Demand Estimation

- <u>Recommendation to DESC:</u>

- For Gas Year 2009/10 onwards 1 in 20 peak day aggregate NDM demand used in the calculation of WCF as per UNC Section H 4.3.2 para (b) will be derived from simulation using the historical model

- <u>Note:</u> Small NDM PLFs unaffected by this proposal