Demand Estimation Technical Work group

Gas Demand EUC Modelling Results
Analysis Year 2021/22
Supplemental – 01BPD

Background

- When the single year modelling results were presented at DESC TWG on the 24th May, we raised the potential for significant changes to the ALPs, DAFs and Peak Load Factors for Domestic Prepayment EUC (i.e. “01BPD” and “02BPD”)
  - This is a result of moving to Class 3 data for 2021/22 from the existing model which is based on ‘MOD451AV data’ from 2012/13
  - Models for other EUCs are smoothed over 3 years to avoid unusual consumption patterns having too much impact on the profiles from one year to the next
  - This is not possible for 01BPD at present as we only have one year of recent data
- Whilst the use of more up to date information is likely to be beneficial, we need to understand the downstream impacts of moving from one model to another which are 10 years apart

Peak Load Factor Values Comparison

- The table on the right shows the current (MOD451AV) and draft (Class 3) Peak Load Factors for 01BPD
- Using the new data in isolation results in significant changes
- The values for SW in particular is over 4 percentage points lower than previously and is now lower than the value for 01BND
- Adopting these new values could result in higher charges for PPM users when compared to credit meter users

LDZ	MOD451AV 2012/13	Class 3 2021/22	Movement
SC	38.0	35.5	-2.5
NO	37.4	36.6	-0.8
NW	35.0	33.5	-1.5
NE	35.6	34.1	-1.5
EM	34.2	31.6	-2.6
WM	33.5	31.6	-1.9
WN	35.6	32.7	-2.9
WS	34.2	31.5	-2.7
EA	33.4	31.4	-2.0
NT	34.6	32.0	-2.6
SE	33.0	30.1	-2.9
SO	30.7	28.2	-2.5
SW	32.0	**27.8**	-4.2

Impacts to Class 3 / 4 SOQ

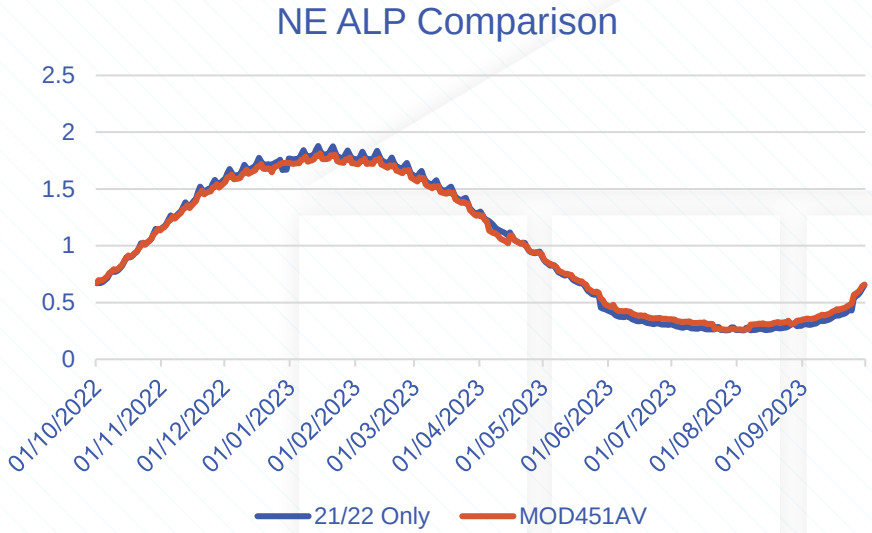
- An SOQ represents a supply meter points expected peak daily consumption and is a key component used in Transportation Invoicing (LDZ Capacity).
- The SOQ is calculated using the following formula:

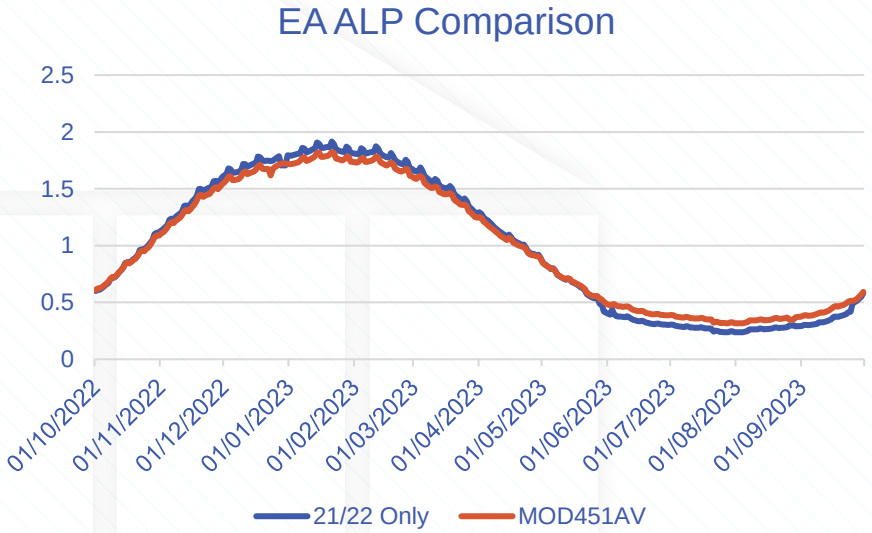
  SOQ = AQ / 365 / PLF

- This means any changes in the PLF from year to year will result in movement in SOQ.
- The SOQs on the right have been calculated using the draft Peak Load Factors from the previous slide and the current average AQs
- The increase in SOQ is significant for some and the capacity charges would increase as a result (from April 2023 when annual Fixed AQ and SOQ changes take effect), which in the current economic climate is undesirable

LDZ	SOQ Movement
SC	+7%
NO	+2%
NW	+4%
NE	+4%
EM	+8%
WM	+6%
WN	+9%
WS	+9%
EA	+6%
NT	+8%
SE	+10%
SO	+9%
SW	+15%

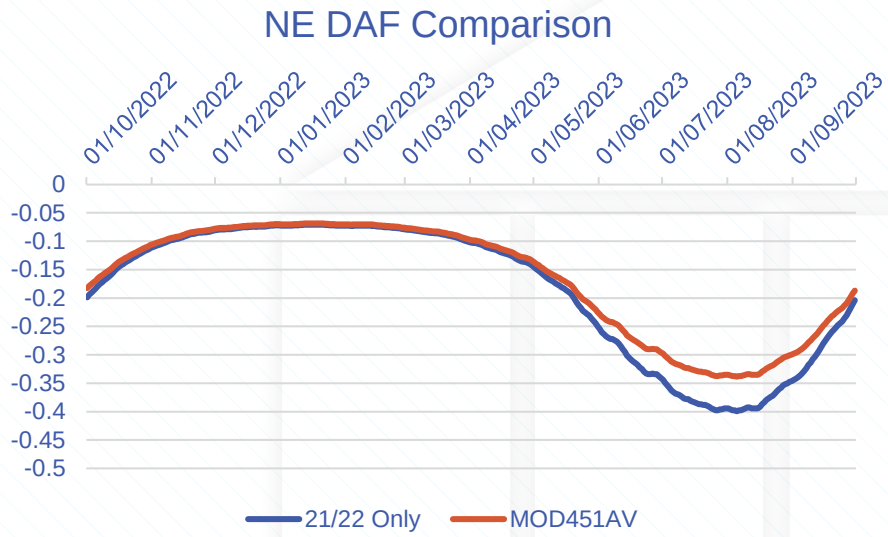
ALPs Comparison

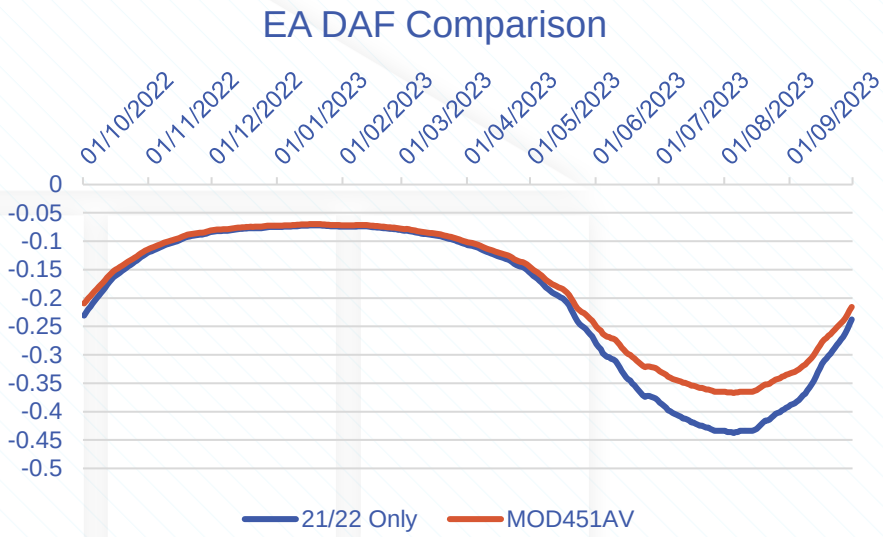




- For many of the LDZs the ALPs are quite similar, with the newer values producing a slightly peakier ALP, with more of a weekend and holiday effect.

DAFs Comparison

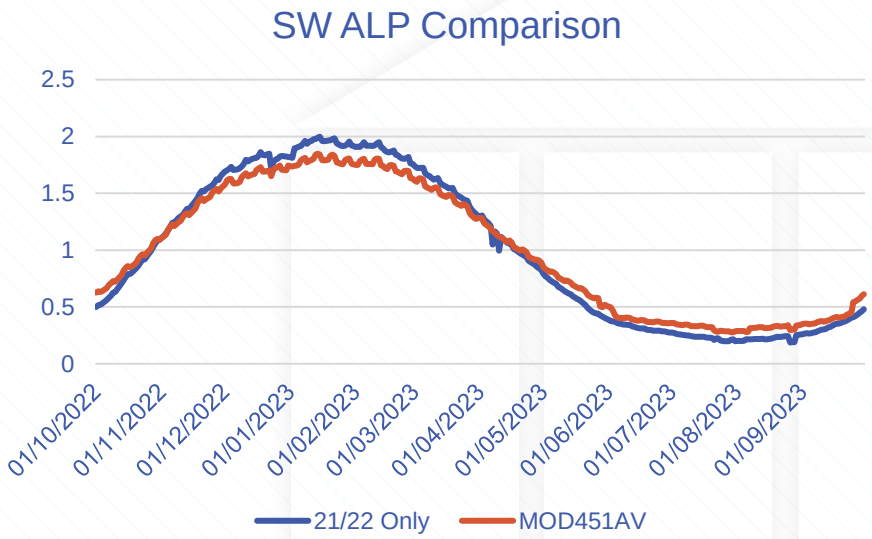


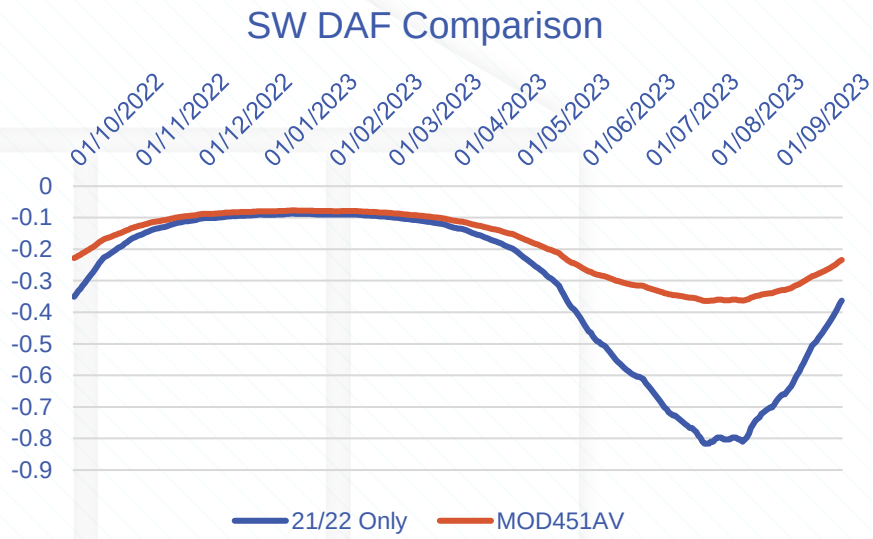


- For many of the LDZs the DAFs are showing an increased weather sensitivity in the summer months.

SW - ALPs and DAFs

- SW has seen more significant changes in the ALP, DAF and PLF.





- The main differences seen between the two analysis periods is:
  - The MOD451AV data produces a summer reduction model
  - The 21/22 derived ALP is much peakier
  - The holiday factors are more pronounced for 21/22 analysis

Options

The following options are for DESC to consider:

1. Adopt the new values as a single year model (i.e. draft profiles currently published)
2. Adopt the new values as the 3rd year of a 3 year smoothed model, using the MOD451AV data for the other 2 years (i.e. 66% current / 34% new)
3. Do not use the new values and revert back to the MOD451AV data

The following slides cover 01BPD, however any decision will also impact 02BPD as this EUC uses the 01BPD model. There is insufficient data for 02BPD to produce separate models.

Transition from MOD451AV to New Data ("Option 2")

- Transition to the new data can be done over 1 year, 2 years or 3 years.
- The benefit of a faster move to new data is the profile is likely to be closest to the actual, but moving to the new data over a longer period smooths out any unusual activity, and lessens the impact of changes in any single year.
- The table below shows the proposed transition to new data, with Domestic Credit ("01BND") included for comparison. By Gas Year 2024/25 the analysis years used would be aligned.

Gas Year	EUC	MOD451AV	2019/20	2020/21	2021/22	2022/23	2023/24
2022/23	**01BPD**	**66%**			**34%**		
	01BND		33%	33%	34%		
2023/24	**01BPD**	**33%**			**33%**	**34%**	
	01BND			33%	33%	34%	
2024/25	**01BPD**				**33%**	**33%**	**34%**
	01BND				33%	33%	34%

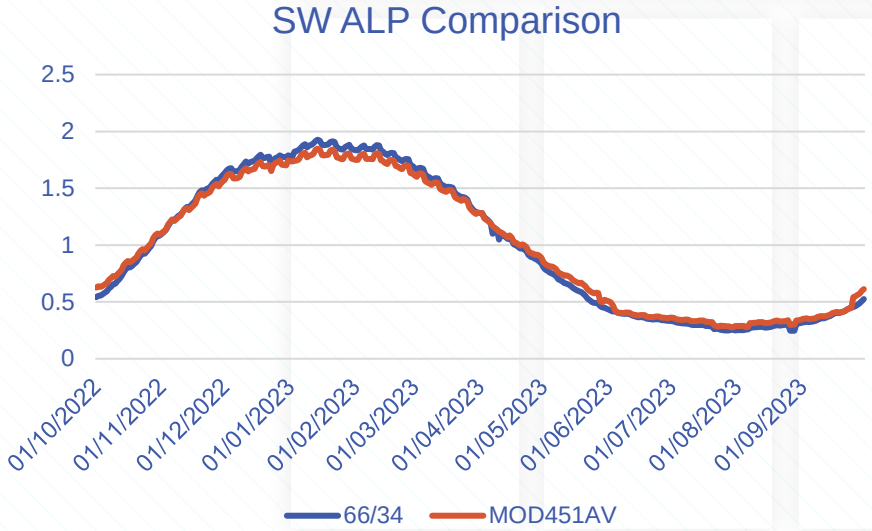
Peak Load Factor Values Comparison

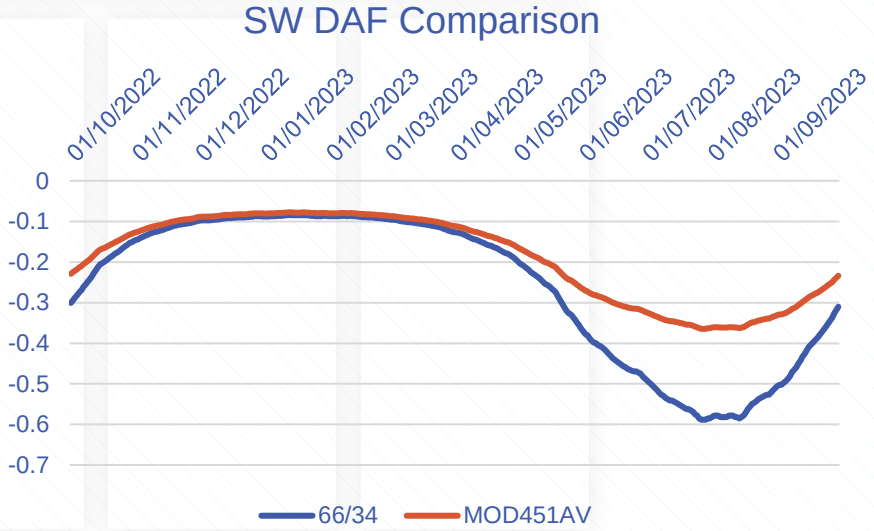
- The table on the right shows the Peak Load Factors for the different 01BPD scenarios: Current (MOD451AV), Draft (01BPD 2022/23) and Smoothed (66%/34%)
- The 66% / 34% weighting is recommended as it:
  - Smooths the transition to the new data
  - Keeps the PLF for 01BPD 'above' that of 01BND i.e. less weather sensitive
  - Reduces the increases in SOQ to a maximum 5% (down from 15%)
- Note: "Movement" compares MOD451AV to Smoothed Model

LDZ	Single Year Model		Smoothed Model	
	MOD451AV 2012/13	01BPD 2021/22	01BPD 66%/34%	Movement
SC	38.0	35.5	37.2	-0.8
NO	37.4	36.6	37.1	-0.3
NW	35.0	33.5	34.5	-0.5
NE	35.6	34.1	35.1	-0.5
EM	34.2	31.6	33.4	-0.8
WM	33.5	31.6	32.9	-0.6
WN	35.6	32.7	34.8	-0.8
WS	34.2	31.5	33.3	-0.9
EA	33.4	31.4	32.6	-0.8
NT	34.6	32.0	33.8	-0.8
SE	33.0	30.1	32.0	-1.0
SO	30.7	28.2	29.9	-0.8
SW	32.0	**27.8**	30.6	-1.4

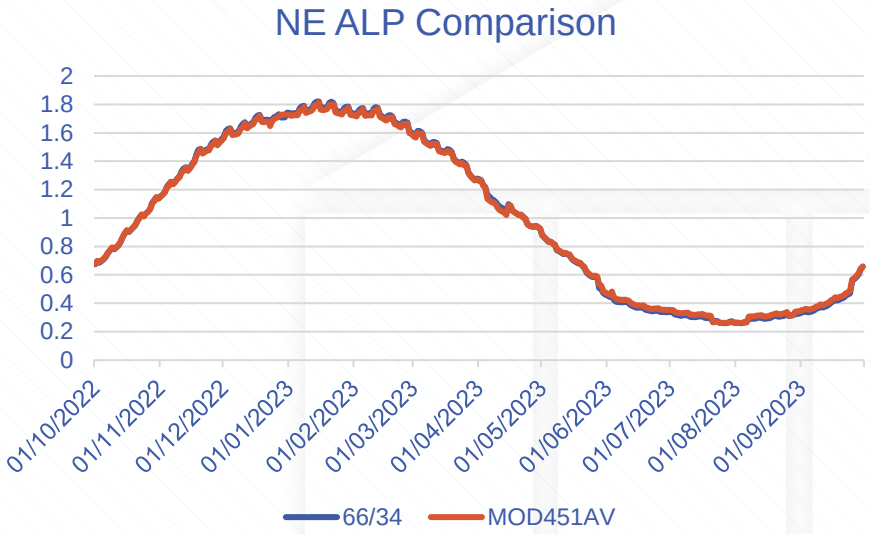
ALPs and DAFs – Smoothed Models

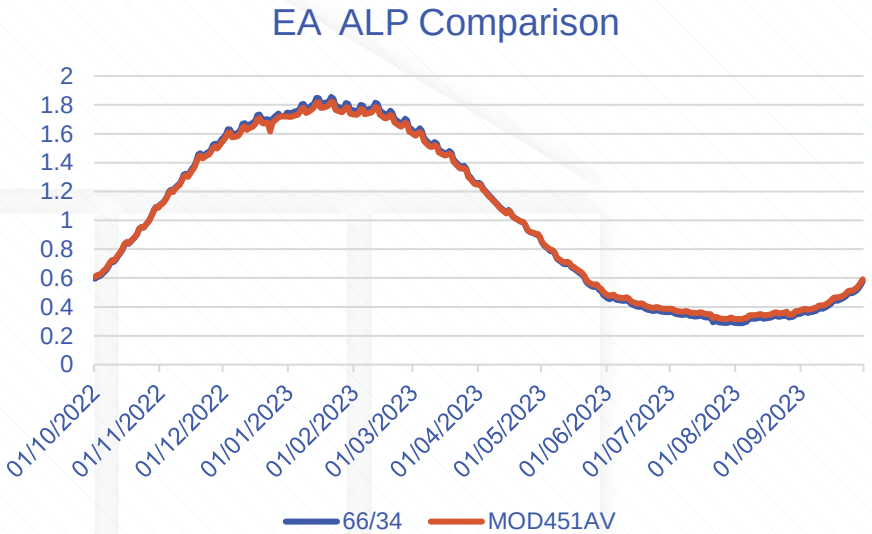
- Smoothing the two single year models allows a more gradual transition to the new data. A 66%/34% weighting (MOD451AV / 2021/22) keeps the PLF for all LDZs (including SW) ‘above’ that of credit meters i.e. less weather sensitive.





ALPs Comparison





- As the ALPs for most LDZs are already very similar to those derived from MOD451AV, applying a transitional weighting doesn't have a significant impact

Recommendation

- The recommendation is a smoothed model for Gas Year 22/23 weighted 66% MOD451AV and 34% 21/22 for 01BPD
  - This will help reduce the impact to SOQs and subsequent Transportation charges for the Prepayment sector
- Next year there will be an additional year's data available and a decision can be made whether to continue to transition or move wholly to the latest data using a 50/50 split
- There is still a chance that the additional data in later years will produce similar results

The draft values for this recommendation are available in files "ALPDAF22_PPM_Option".txt and "LF22_PPM_Option".txt