



DESC: NDM Algorithm Performance (Gas Year 2014/15)

Strand 3: NDM Sample Analysis

16th February 2016

Algorithm Performance 2014/15: Strand 3

- Strand 1 (**SF and WCF analysis**) & Strand 2 (**RV analysis**)
 - Not completed for Gas Year 2014/15 as per decision at July 2015 DESC meeting
- Strand 3: **NDM Sample Analysis**
 - Compare the actual demand from the NDM sample data *with*
 - Allocated demand for the sample

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Strand 3: NDM Sample Analysis

- Using the actual NDM Sample consumption for 2014/15
 - Compare the % error of sample consumption against three models:
 - Allocated using 14/15 ALPs & DAFs, real system WCF and SF - (As Used)
 - Allocated using 14/15 ALPs & DAFs, EWCF and SF=1 - (Best Estimate '14)
 - Allocated using 15/16 ALPs & DAFs adjusted to 2014/15 day/holiday pattern, 14/15 EWCF and SF=1 - (Best Estimate '15) **NOTE: Revised Seasonal Normal Weather basis applied**
 - This is completed by EUC for all LDZs and also by month by LDZ
- Supporting document – detailed explanation with full examples

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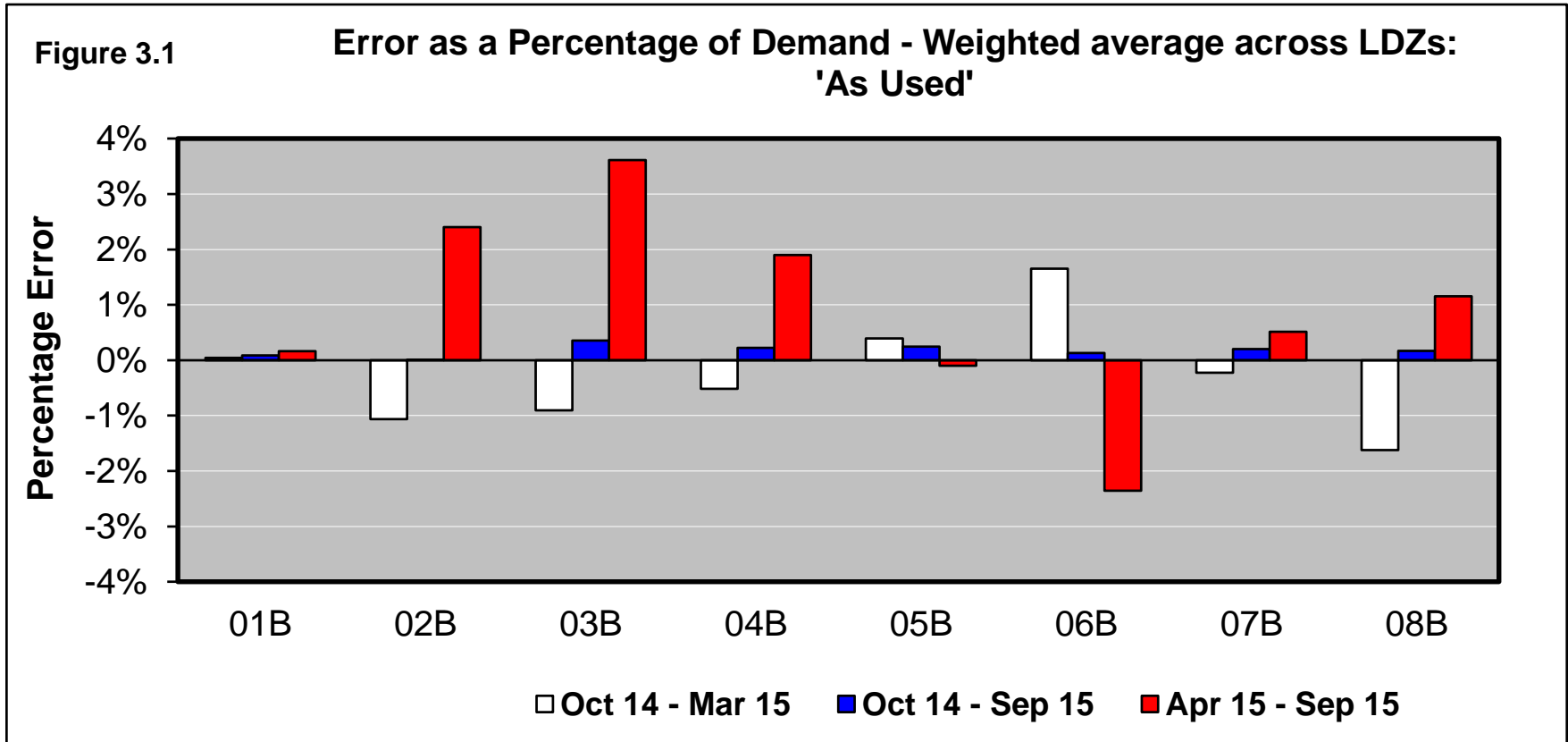


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Strand 3: NDM Sample Analysis

Allocated Error As % of Actual Demand – ‘As Used’

NOTE: 14/15 ALPs & DAFs; real system WCF and SF; NDM Sample derived AQs (not system AQs)



- Positive errors = Under allocation; Negative errors = Over allocation
- Over year: Small positive errors across all consumption bands (indicate population AQs are slightly too high)
- ‘As Used’ model uses real system SFs which have taken population AQs into account
- ‘As Used’ model does not assess EUC profiles, however it can provide indicator of system AQ excess or deficit

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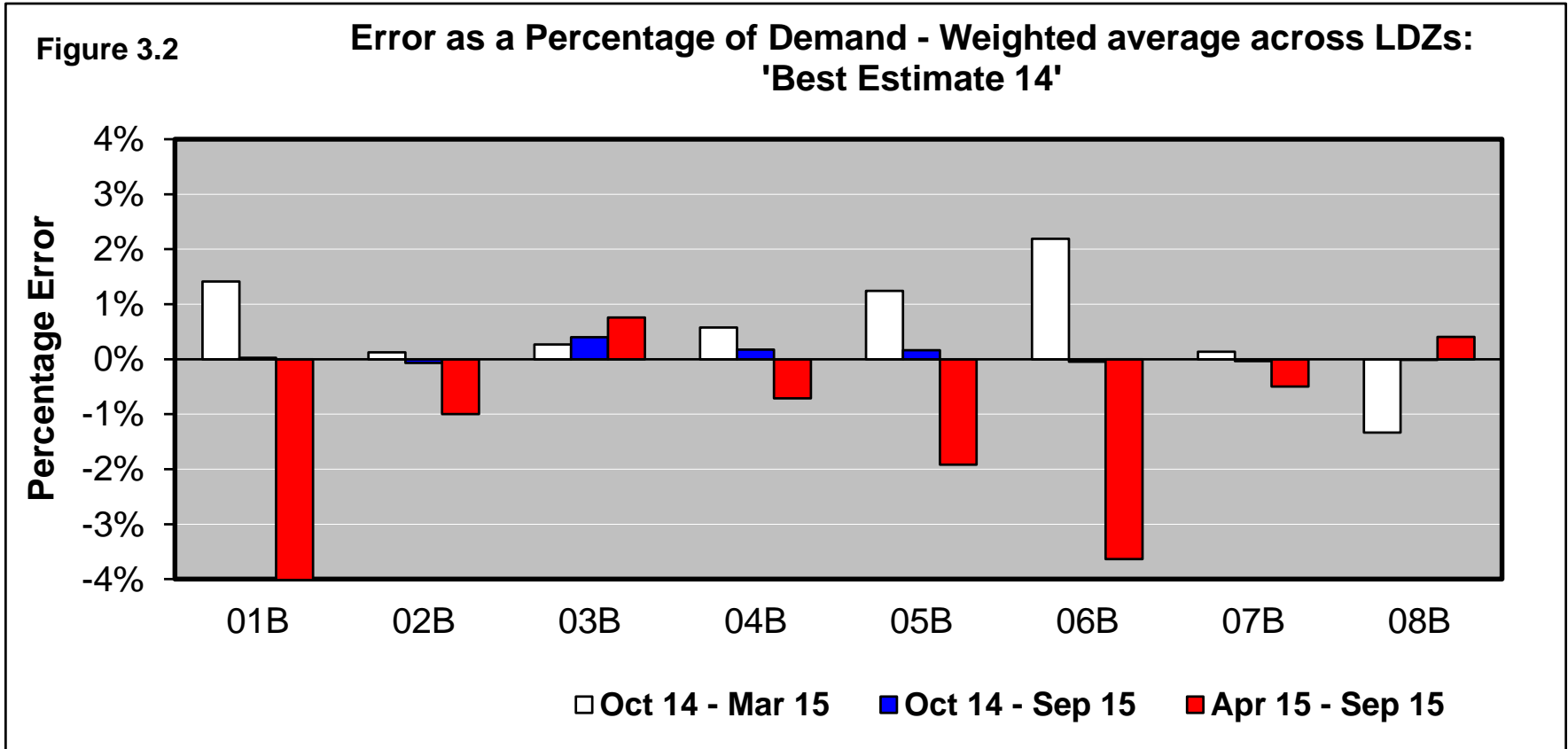
Strand 3: NDM Sample Analysis As Used Model – AQ Assessment

LDZ	Estimated AQ Excess (+) or Deficit (-) (‘as used’ analysis full year errors)	Observed AQ Changes in Gemini at start of gas year 2015/16
SC	0.8%	-2.3%
NO	0.1%	-2.9%
NW	0.4%	-2.8%
NE	-0.1%	-1.5%
EM	0.6%	-0.6%
WM	0.1%	-1.3%
WN	-	-
WS	0.4%	-1.4%
EA	0.04%	-2.3%
NT	-0.7%	-1.8%
SE	0.1%	-2.1%
SO	-0.1%	-0.2%
SW	0.8%	-2.2%
Overall	0.2%	-1.8%

Strand 3: NDM Sample Analysis

Allocated Error As % of Actual Demand – ‘Best Estimate 14’

NOTE: 14/15 ALPs & DAFs; EWCF and SF=1; NDM Sample derived AQs (not system AQs)



- Removes SF impact and uses EWCF which avoids potential bias in WCF
- Positive errors = Under allocation; Negative errors = Over allocation
- Winter/Summer analysis indicates bands 01, 02, 04, 05, 06 & 07 too flat and bands 03 & 08 too peaky
- Over year: Very little overall error in each band (Range -0.07% to +0.4% for all bands)

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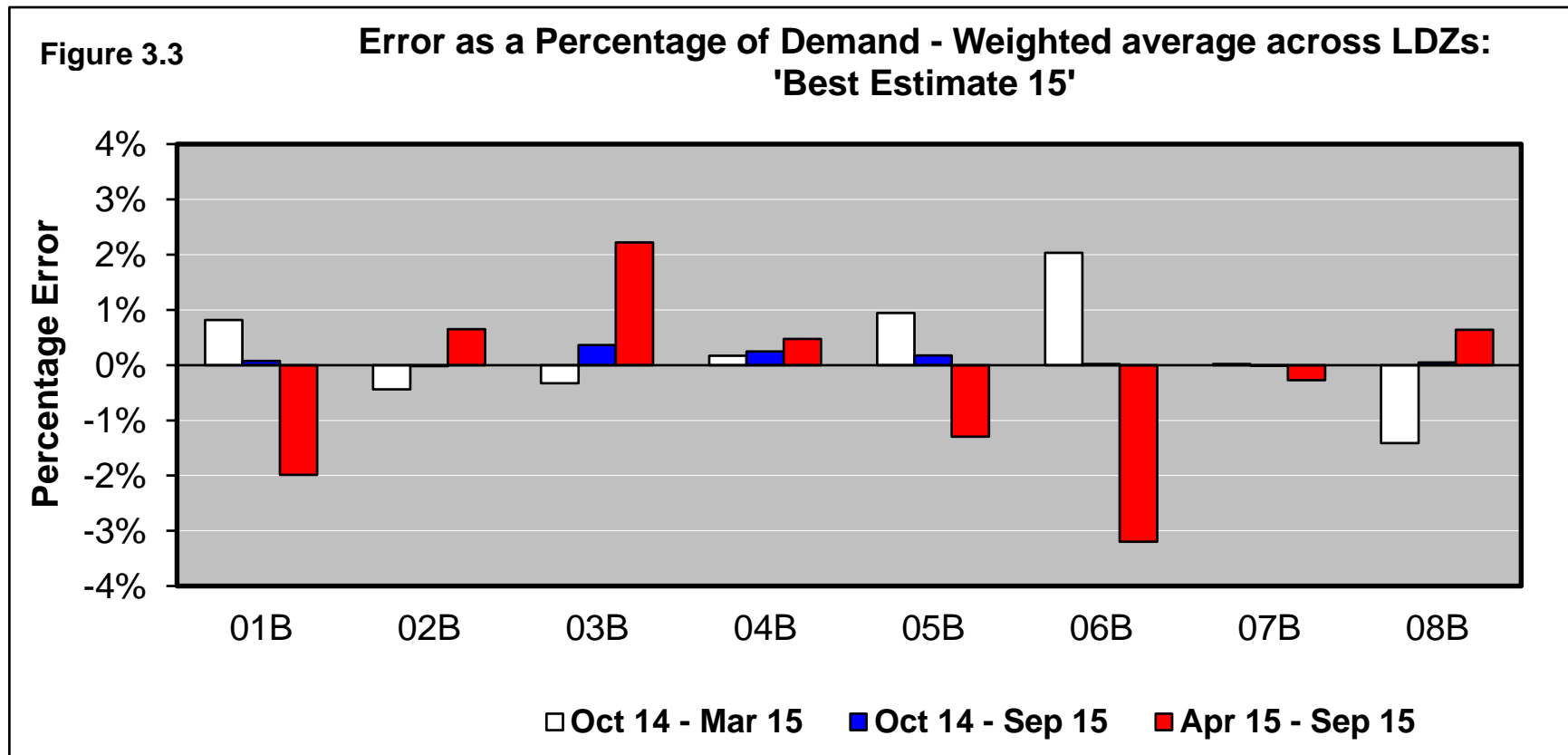


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Strand 3: NDM Sample Analysis

Allocated Error As % of Actual Demand – 'Best Estimate 15'

NOTE: 15/16 ALPs & DAFs; 14/15 EWCF and SF=1; NDM Sample derived AQs (not system AQs)



- ALPs and DAFs for 2015/16 applied to 2014/15 consumption data
- Should provide less error as ALPs and DAFs were partly derived from this consumption data
- Winter / Summer errors are slightly improved in bands 01, 02, 04, 05, 06 & 07 and slightly worse in 03 & 08
- Over whole year, on average, extent of error across all EUCs is slightly reduced using models developed in Spring 2015
- Monthly analysis also completed...

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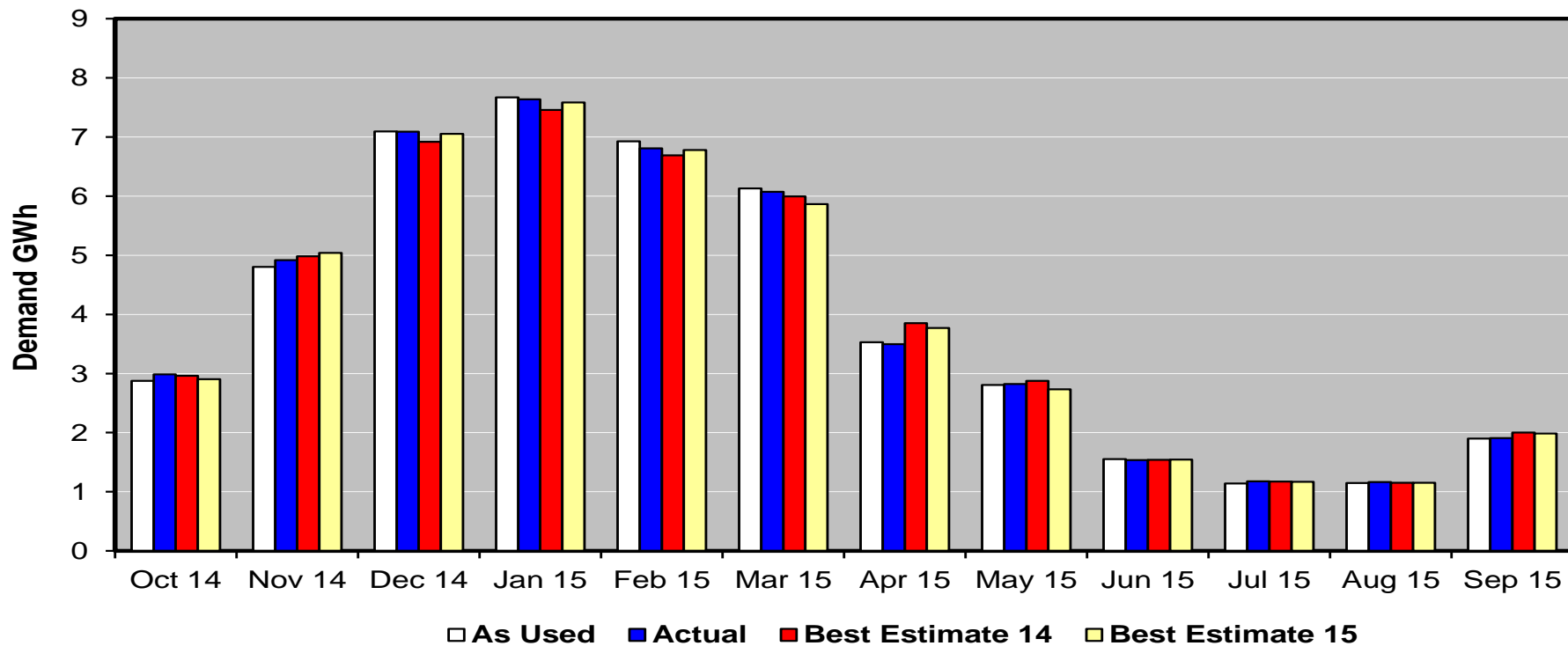
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Strand 3: NDM Sample Analysis

Monthly Actual & Deemed Demand – 01B (All LDZs)

Figure 3.4

Monthly Actual & Deemed Demands for 01B (across all LDZs)



- Results also provided for previous models but by EUC Band and Month – Equivalent charts for all consumption bands included in supporting document
- Band 01B profile – indicates winter under allocation (except Nov 2014) and summer over allocation (except July & August 2015)
- Relevant to recall weather conditions in 14/15 when interpreting results
 - During Winter months, November was warmer than seasonal normal (3rd warmest in last 50 years)
 - Summer months were fairly average except for a warm April (which ranked 7th warmest in last 50 years) and a colder than normal August

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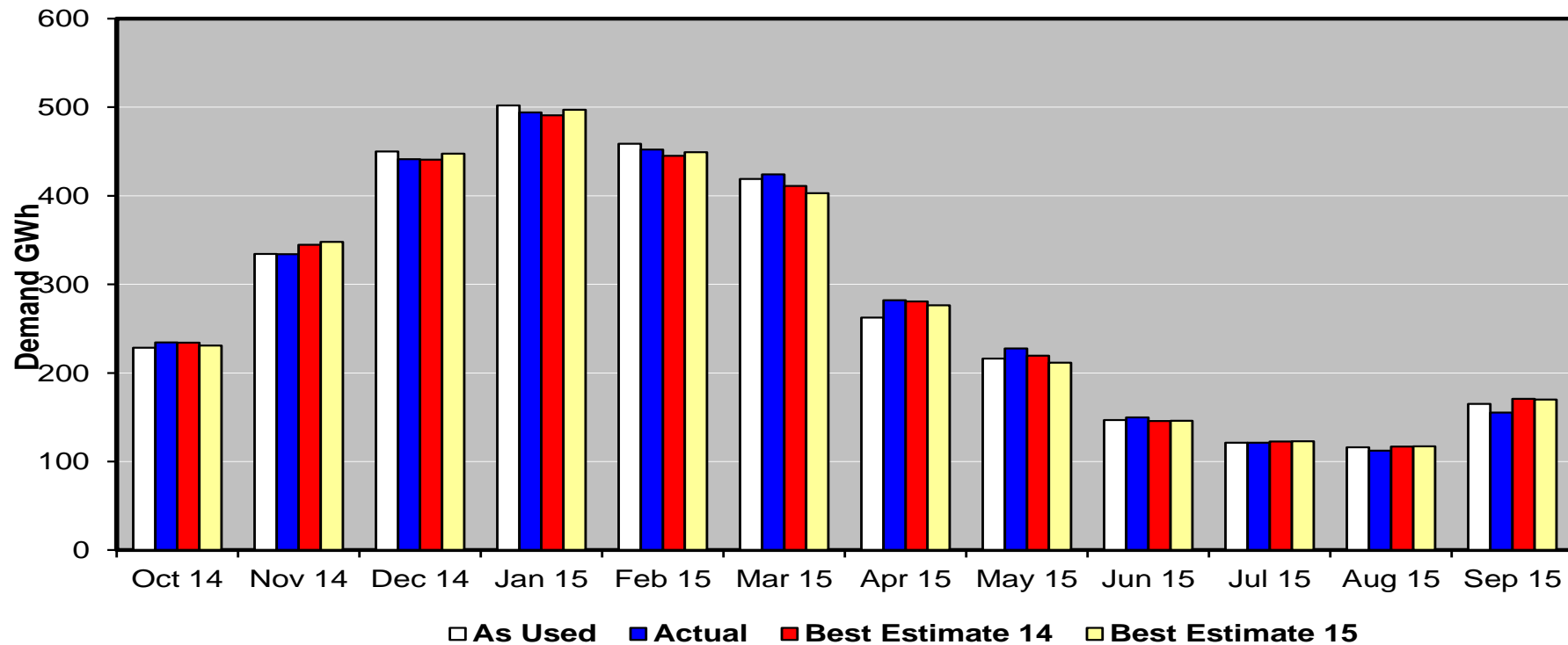
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Strand 3: NDM Sample Analysis

Monthly Actual & Deemed Demand – 04B (All LDZs)

Figure 3.7

Monthly Actual & Deemed Demands for 04B (across all LDZs)



- Band 04B profile indicates:
 - Small under allocation in winter months (except in November)
 - Slight summer under allocation in April to June but also shows over allocation in July, August and September

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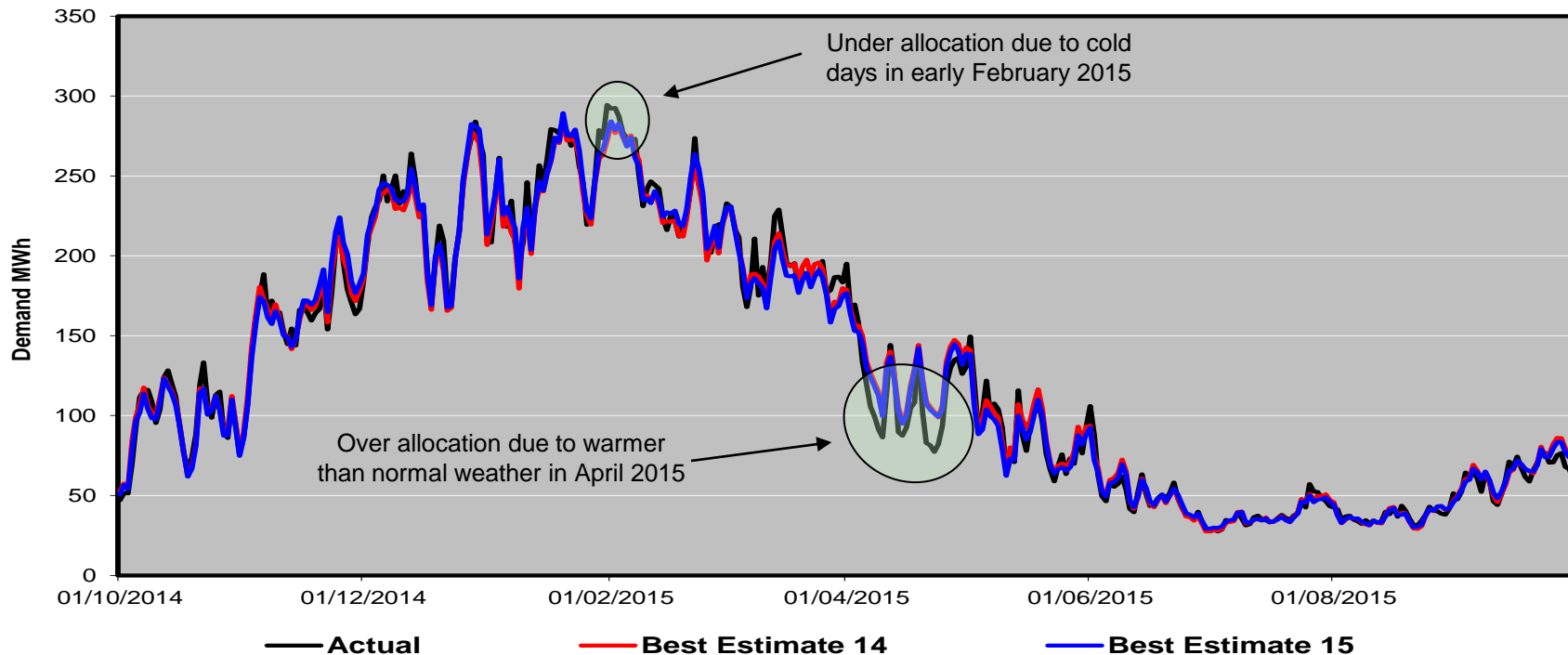
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Daily Actual & Deemed Demand – 01B (All LDZs)

Figure 3.19

Daily Actual and Deemed Demands for 01B (across all LDZs)



- The daily chart for Band 01 shows that allocated demand was generally close to actual demand. The most notable exception to this occurred during the particularly cold days in late January and early February 2015 and the generally warmer period in mid April 2015.

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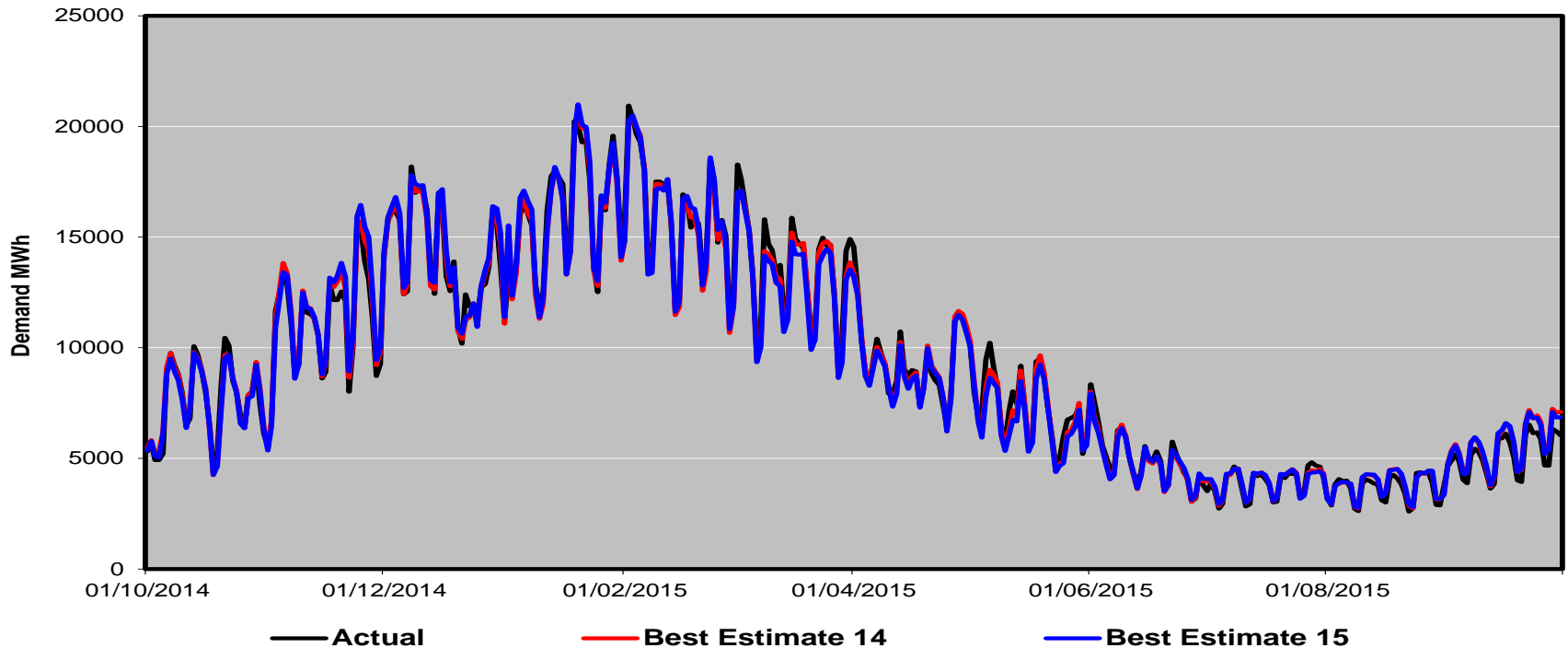
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Strand 3: NDM Sample Analysis

Daily Actual & Deemed Demand – 04B (All LDZs)

Figure 3.22

Daily Actual and Deemed Demands for 04B (across all LDZs)



- The daily chart for Band 04 shows that allocated demand was generally close to actual demand.
- There appears to be a general tendency for slight under allocation in the winter months and slight over allocation in the summer months.

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Strand 3: NDM Sample Analysis Summary

- The “best estimate 14” analyses suggest:
 - For bands 01, 02, 04, 05, 06 & 07; under allocation (+ve errors) in the winter and over allocation (-ve errors) in the summer. Profile too flat.
 - For bands 03 & 08; over allocation (-ve errors) in the winter and under allocation (+ve errors) in the summer. Profile too peaky
- The “best estimate 15” analyses suggest:
 - For bands 01, 05, 06 & 07; under allocation (+ve errors) in the winter and over allocation (-ve errors) in the summer. Profile too flat.
 - For bands 02, 03, 04 & 08; over allocation (-ve errors) in the winter and under allocation (+ve errors) in the summer. Profile too peaky

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Strand 3: NDM Sample Analysis Conclusions

- Considerations
 - NDM sample analysis is based on validated NDM SAMPLE data, which despite our attempts, may not necessarily be representative of the population as a whole
 - Sample suffers from small numbers of contributing meter/supply points at the higher consumption bands
- Important Point: NDM Sample Analysis, subject to its limitations, suggest only small inaccuracies over the year as a whole
- Full explanatory document on Joint Office website:
 - [‘Algorithm Performance Strand 3 Evaluation 2014-15.pdf’](#)

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