



NDM Algorithm Performance – Strand 1

Weather Correction Factor (WCF) & Scaling Factor (SF)

Supporting Document: Gas Year 0607 WCF SF Assessment.pdf

DESC 8th November 2007

NDM Algorithm 2007 Performance Evaluation

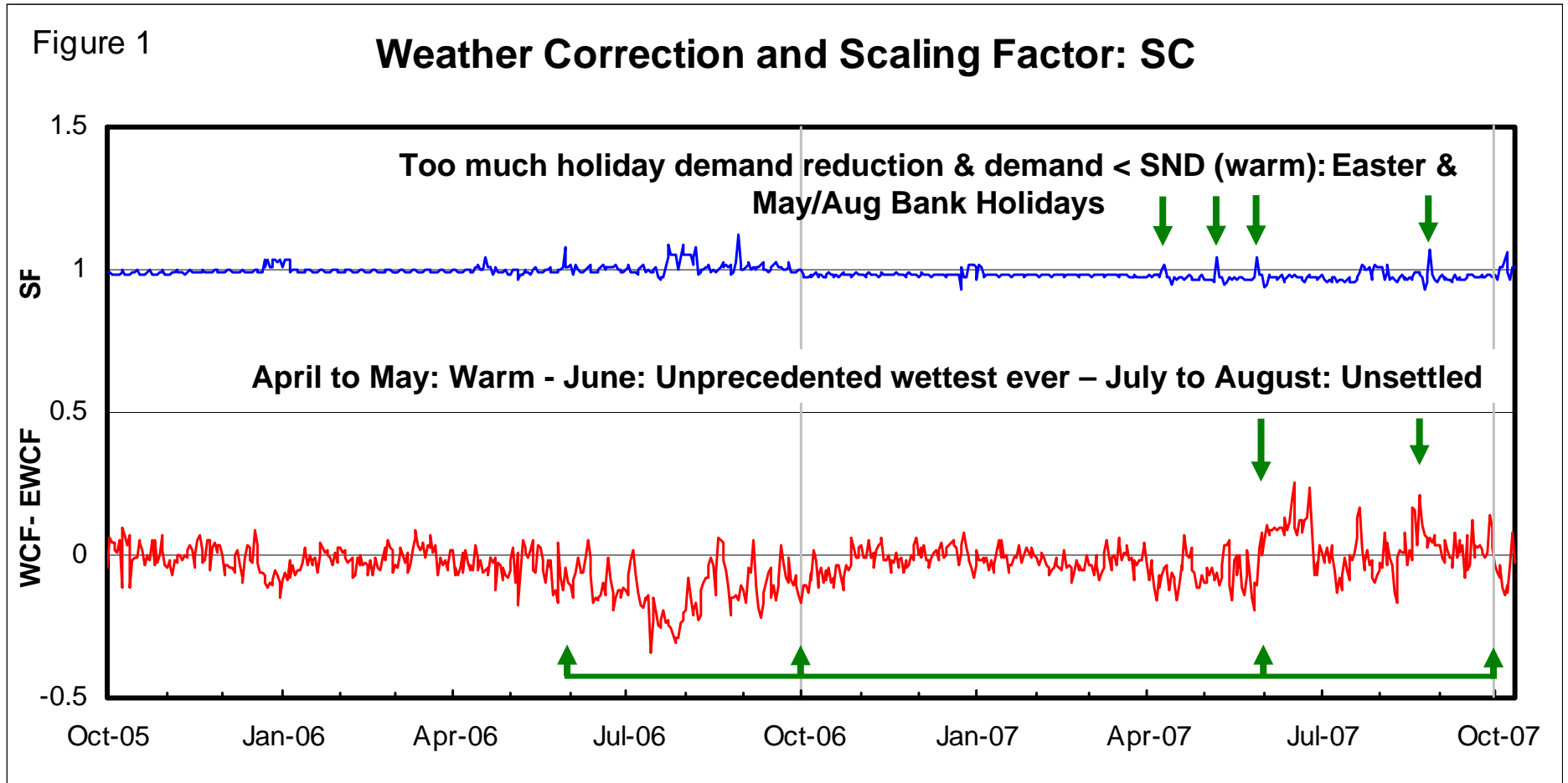
- Assess 2006/07 Gas Year NDM algorithm performance
- By considering three sources of information:
 - [Daily values of Scaling Factor \(SF\) & Weather Correction Factor \(WCF\)](#)
 - Reconciliation Variance data for each EUC
 - Daily consumption data collected from the NDM sample
- This presentation covers the first of these strands: Strands 2&3 – Jan 07

Analysis of Scaling Factor (SF) & Weather Correction Factor (WCF) – Estimated Weather Correction Factor (EWCF)

- Analysis: Data graphs represent daily trends for SF and WCF-EWCF
 - WCF - EWCF isolates the non weather component and impacts of demand
 - SF ensures total aggregate NDM Demand = Allocated Demand
 - Dependent on impact of AQ, SND, actual demand and modelling parameters (ALP, DAF, Holiday Factors)
 - Opposing effect of strong WCF bias can result in reduced SF impact
- Two gas years depicted for comparison:
 - 2005/06 and 2006/07 (+ first 10 days of October 2007)
- 3 LDZ specific examples of SF and WCF-EWCF – highlight key points
 - All LDZ's and full explanatory detail contained in supporting document

Weather Correction & Scaling Factor: SC

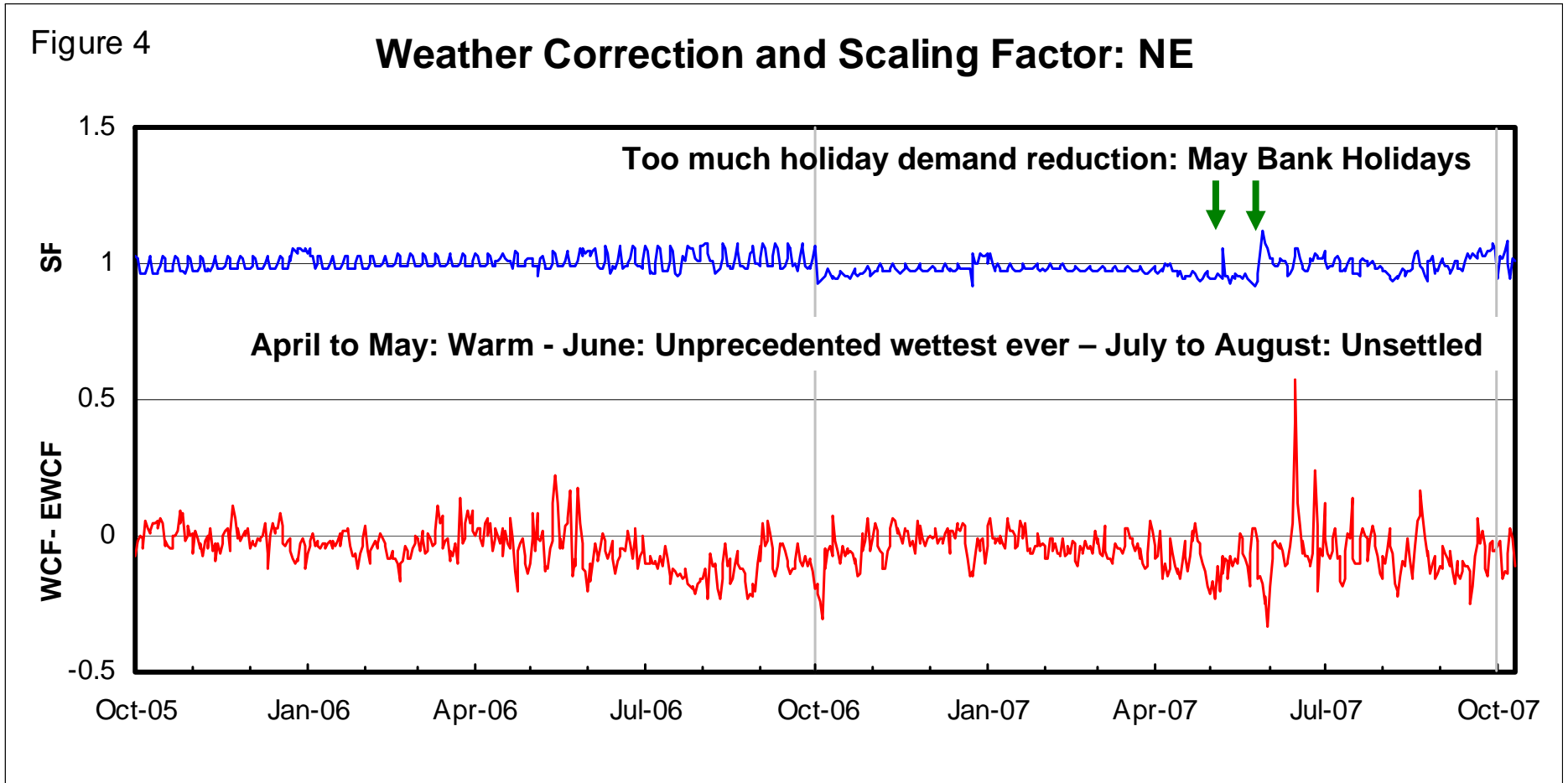
Example 1



- Comparison of Summer 2006 to Summer 2007 (June – September)

Weather Correction & Scaling Factor: NE

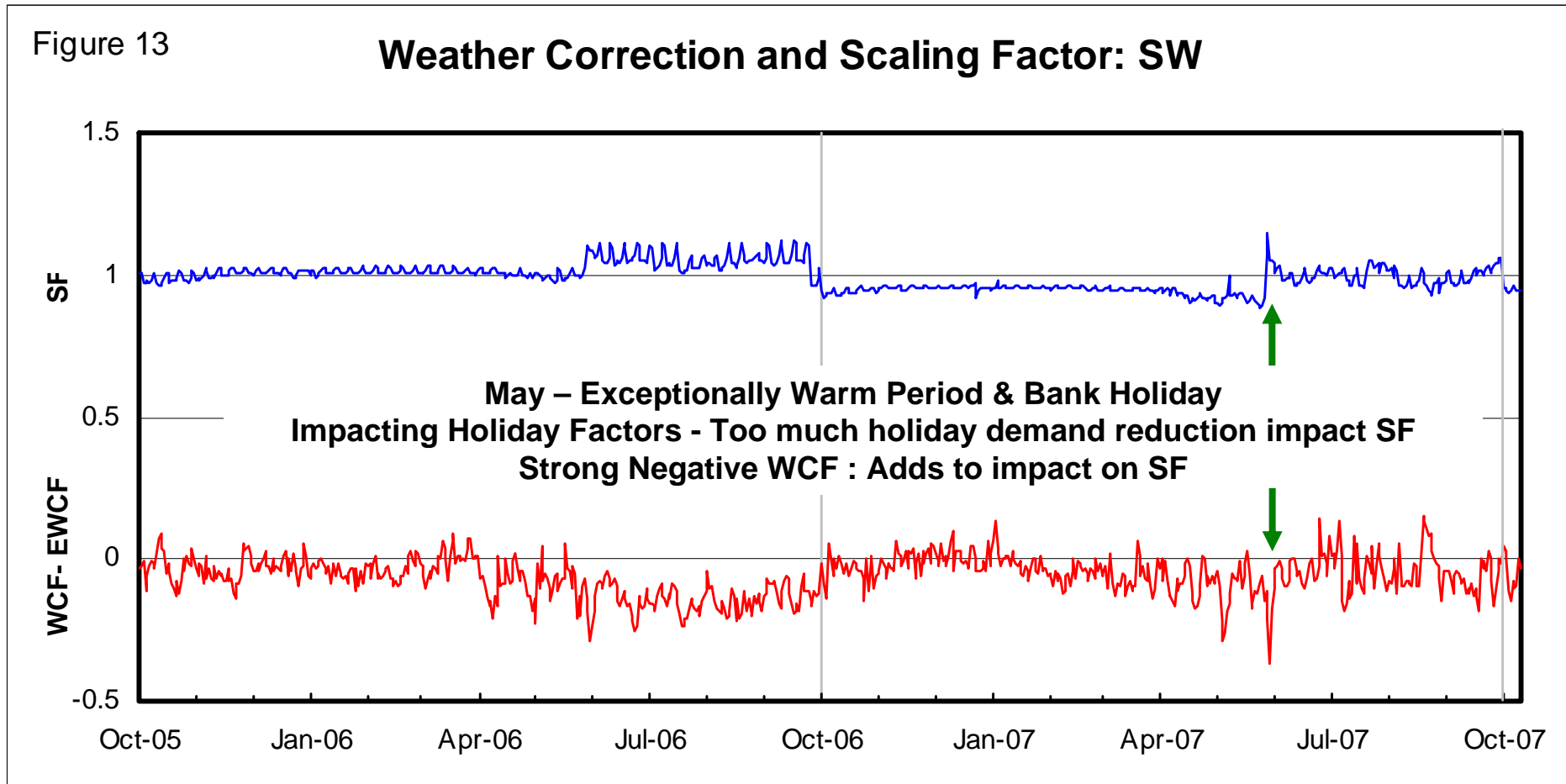
Example 2



- Similar profile to SC – More pronounced June : Less SF deviation from 1 (at times)

Weather Correction & Scaling Factor: SW

Example 3



- Comparison of Summer 2006 to Summer 2007 (June – September)

Analysis: Comparison Values 2005/06 to 2006/07

- Further analysis of algorithm performance considers:
- Change in average values of SF (05/06 to 06/07)
 - RMS deviation of SF from 1 – measures variability of SF
- Change in average values of WCF – EWCF
- Compare actual Weather Corrected Demand to SND
 - Impact of SND forecasts
- Impact of AQ
 - Over or under statement impacts and recent changes reflecting this

Average Values of SF

Difference between Gas Year 2005/06 & Gas Year 2006/07

Red: Greater SF deviation from 1 in 2006/07 – Green: Lower SF deviation from 1 in 2006/07

LDZ	MON-THUR	FRIDAY	SATURDAY	SUNDAY	WINTER	SUMMER
SC	-0.019	-0.029	-0.021	-0.003	-0.014	-0.019
NO	-0.029	-0.031	-0.018	-0.032	-0.033	-0.032
NW	-0.023	-0.029	-0.019	-0.026	-0.010	-0.026
NE	-0.014	-0.010	0.039	0.020	-0.022	0.000
EM	-0.024	-0.029	-0.045	-0.045	-0.024	-0.017
WM	-0.046	-0.051	-0.028	-0.023	-0.036	-0.058
WN	0.021	0.019	0.045	0.040	0.030	0.024
WS	-0.019	-0.019	-0.023	-0.022	-0.019	-0.022
EA	-0.031	-0.034	-0.039	-0.050	-0.041	-0.030
NT	-0.043	-0.031	0.000	0.007	-0.047	-0.005
SE	-0.054	-0.052	-0.026	-0.030	-0.048	-0.046
SO	-0.039	-0.033	-0.030	-0.027	0.002	-0.066
SW	-0.030	-0.018	0.018	0.024	-0.041	0.014

- Average values of SF are generally further away from ideal 1 compared to 2005/06
- Exceptions exist: WN and some weekends

Average Values of Root Mean Square Deviation of SF from 1 DIFFERENCE between Gas Year 05/06 & 06/07

Red: Greater SF deviation from 1 in 2006/07 – Green: Lower SF deviation from 1 in 2006/07

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	-0.0050	-0.0070	-0.0050	-0.0070	-0.0140	-0.0170	-0.0160	-0.0150	-0.0200	0.0050	0.0010	-0.0160
NO	-0.0170	-0.0220	-0.0130	-0.0140	-0.0200	-0.0210	-0.0220	-0.0330	-0.0180	-0.0150	-0.0210	-0.0130
NW	-0.0110	-0.0020	0.0080	0.0090	0.0030	-0.0020	-0.0240	-0.0230	-0.0250	0.0130	-0.0290	-0.0020
NE	-0.0160	-0.0030	0.0030	0.0030	-0.0030	-0.0070	-0.0190	-0.0310	0.0070	0.0210	0.0010	0.0060
EM	-0.0500	-0.0160	0.0010	-0.0010	-0.0020	-0.0130	-0.0570	-0.0610	0.0000	0.0190	-0.0270	0.0020
WM	-0.0310	-0.0260	-0.0240	-0.0220	-0.0210	-0.0250	-0.0380	-0.0370	-0.0400	-0.0300	-0.0530	-0.0280
WN	0.0170	0.0210	0.0340	0.0350	0.0360	0.0390	0.0550	0.0390	0.0250	0.0360	0.0250	0.0270
WS	-0.0200	-0.0150	-0.0160	-0.0360	-0.0160	-0.0190	-0.0250	-0.0280	-0.0170	-0.0110	-0.0120	-0.0080
EA	-0.0340	-0.0080	0.0020	0.0010	-0.0040	-0.0200	-0.0820	-0.0330	-0.0090	-0.0090	-0.0520	0.0240
NT	-0.0500	-0.0250	-0.0260	-0.0230	-0.0240	-0.0330	-0.0780	-0.0670	0.0220	0.0140	0.0060	0.0180
SE	-0.0330	-0.0330	-0.0350	-0.0340	-0.0360	-0.0410	-0.0590	-0.0480	-0.0140	-0.0400	-0.0430	0.0080
SO	-0.0540	0.0090	0.0190	0.0240	0.0250	0.0150	-0.0480	-0.0620	-0.0620	-0.0290	-0.0450	-0.0380
SW	-0.0380	-0.0300	-0.0320	-0.0270	-0.0290	-0.0350	-0.0610	-0.0490	0.0490	0.0260	0.0210	0.0430
AVG	-0.0263	-0.0121	-0.0065	-0.0071	-0.0081	-0.0138	-0.0365	-0.0345	-0.0078	0.0000	-0.0175	0.0018

- RMS value shows SF variability in 06/07 was overall worse than in 05/06 (71% of cases)
- Exceptions exist (29% of cases were better)

Scaling Factor Values 2005/06 - Conclusions

- In 2006/07, SF values generally further from one in majority of LDZs (compared to 05/06)
- SF are consistently below 1
- Accounted for by two compensating effects:
 - AOs still being too high driving SF further from 1
 - Supported by AO values pre and post October 07 show overall reduction in AO of 4% (3.1 to 4.5% across all LDZs)
 - Negative WCF bias is present tending to inflate SFs closer to 1
 - Caused by aggregate NDM SND being too high (not as high as 05/06)
- Result: SF below 1, but closer to 1
- Compare WCF...

Average Values of WCF-EWCF Difference between Gas Year 2005/06 & Gas Year 2006/07

Red: Greater WCF Bias in 2006/07 – Green: Lower WCF Bias in 2006/07

LDZ	MON-THUR	FRIDAY	SATURDAY	SUNDAY	WINTER	SUMMER
SC	0.038	0.062	0.055	0.043	-0.006	0.096
NO	-0.007	0.003	-0.010	-0.007	-0.029	0.022
NW	-0.017	0.004	0.009	0.009	-0.003	-0.010
NE	-0.017	0.007	0.003	0.006	-0.017	0.002
EM	0.001	0.030	0.017	0.023	-0.010	0.032
WM	0.028	0.053	0.027	0.042	0.009	0.058
WN	0.053	0.041	0.044	0.018	0.010	0.033
WS	0.018	0.034	0.018	0.037	0.015	0.031
EA	0.062	0.065	0.046	0.060	0.026	0.093
NT	0.072	0.064	0.046	0.068	0.028	0.086
SE	0.057	0.047	0.033	0.047	0.016	0.085
SO	0.065	0.069	0.044	0.047	0.029	0.088
SW	0.030	0.042	0.027	0.033	0.001	0.062

- WCF bias improved in 06/07 is still negative but to a lesser extent than 05/06
- SND levels in 06/07 were lower (closer to actual) then 05/06 creating improved WCF bias
- BUT: WCF bias still negative thus SND for 06/07 still too high, supported by...

NDM Weather Corrected Demand as % of NDM

Seasonal Normal Demand: Gas Year 2006/07

Red: SND > WCD – Green: SND < WCD

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	94.63%	99.64%	100.51%	99.36%	96.65%	98.48%	93.04%	94.36%	109.64%	97.86%	103.51%	102.02%
NO	93.96%	97.93%	99.51%	96.08%	96.04%	97.47%	91.37%	90.76%	103.73%	92.20%	88.77%	96.24%
NW	96.98%	98.97%	97.73%	98.84%	98.41%	96.93%	91.06%	89.26%	93.28%	98.58%	94.13%	92.65%
NE	92.80%	98.84%	97.60%	99.16%	95.14%	95.62%	91.17%	88.03%	99.54%	94.65%	92.50%	91.41%
EM	91.74%	98.31%	97.91%	99.26%	97.48%	96.19%	90.73%	90.85%	96.68%	95.47%	91.26%	88.48%
WM	94.60%	98.52%	97.02%	98.30%	96.73%	95.51%	91.29%	91.32%	94.53%	98.67%	94.41%	94.43%
WN	95.91%	97.59%	99.56%	97.97%	97.26%	97.57%	96.85%	93.13%	109.92%	114.98%	111.65%	100.34%
WS	100.24%	101.53%	100.07%	99.71%	97.12%	96.25%	85.91%	90.46%	96.24%	108.58%	96.56%	92.94%
EA	93.15%	100.79%	99.14%	99.73%	99.73%	97.55%	98.19%	99.45%	101.04%	101.71%	100.15%	91.35%
NT	95.37%	99.59%	99.47%	100.23%	98.21%	96.92%	95.16%	96.99%	100.27%	107.50%	107.66%	95.40%
SE	94.16%	99.59%	99.31%	100.22%	97.48%	97.01%	94.30%	93.96%	97.08%	103.94%	103.66%	95.46%
SO	97.98%	100.99%	98.87%	100.65%	98.58%	97.54%	98.26%	99.34%	99.51%	102.03%	103.57%	97.60%
SW	95.66%	99.71%	100.31%	98.81%	94.77%	93.64%	91.76%	88.01%	96.59%	95.63%	97.23%	93.19%
AVG	94.88%	99.39%	98.81%	99.27%	97.39%	96.69%	93.01%	92.90%	99.03%	99.88%	98.20%	94.34%

- 2006/07: 127 of 156 cases aggregate SND considered too high (% WCD of SND <100%)
- 2005/06: 146 Cases

WCF-EWCF Values in 2006/07 - Conclusions

- Majority LDZs: Still some negative WCF bias for gas year 2006/07
- BUT is better in 2006/07 than in 2005/06 (Exceptions: North)
- A negative WCF bias may lead to SFs tending to be higher than the ideal value
 - However compensating AQ values will have reduced SFs below 1
- Over gas year 2006/07 monthly average values of weather corrected demand as % of aggregate NDM SND are below 100%
 - Indicates aggregate NDM SNDs for gas year 2006/07 too high
- Overall: Some improved performance but impacts of AQ and SND impacting WCF and SF values

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Possible Outlook for Scaling Factor Values 2007/08 (Speculative)

- Aggregate NDM AQs decreased at start of gas year (~ 4%)
- In general Agg. NDM SND for 07/08 somewhat greater than for 06/07
- Initial October 2007 SF values (1st to 10th) are mixed:
 - 4 LDZs above 1
 - 3 LDZs close to 1 but lower
 - 6 LDZs clearly lower than
- Early signs of negative WCF bias (SND error) inflating some SFs
- October 2007 to date has been warmer than current average
- Aggregate NDM demand has been depressed (unexceptional)
- Potential impact of SND (Review Group 176)