



NDM Algorithm Performance – Strand 1

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

DESC - 6th November 2006

NDM Algorithm 2006 Performance Evaluation

Consider three sources of information:

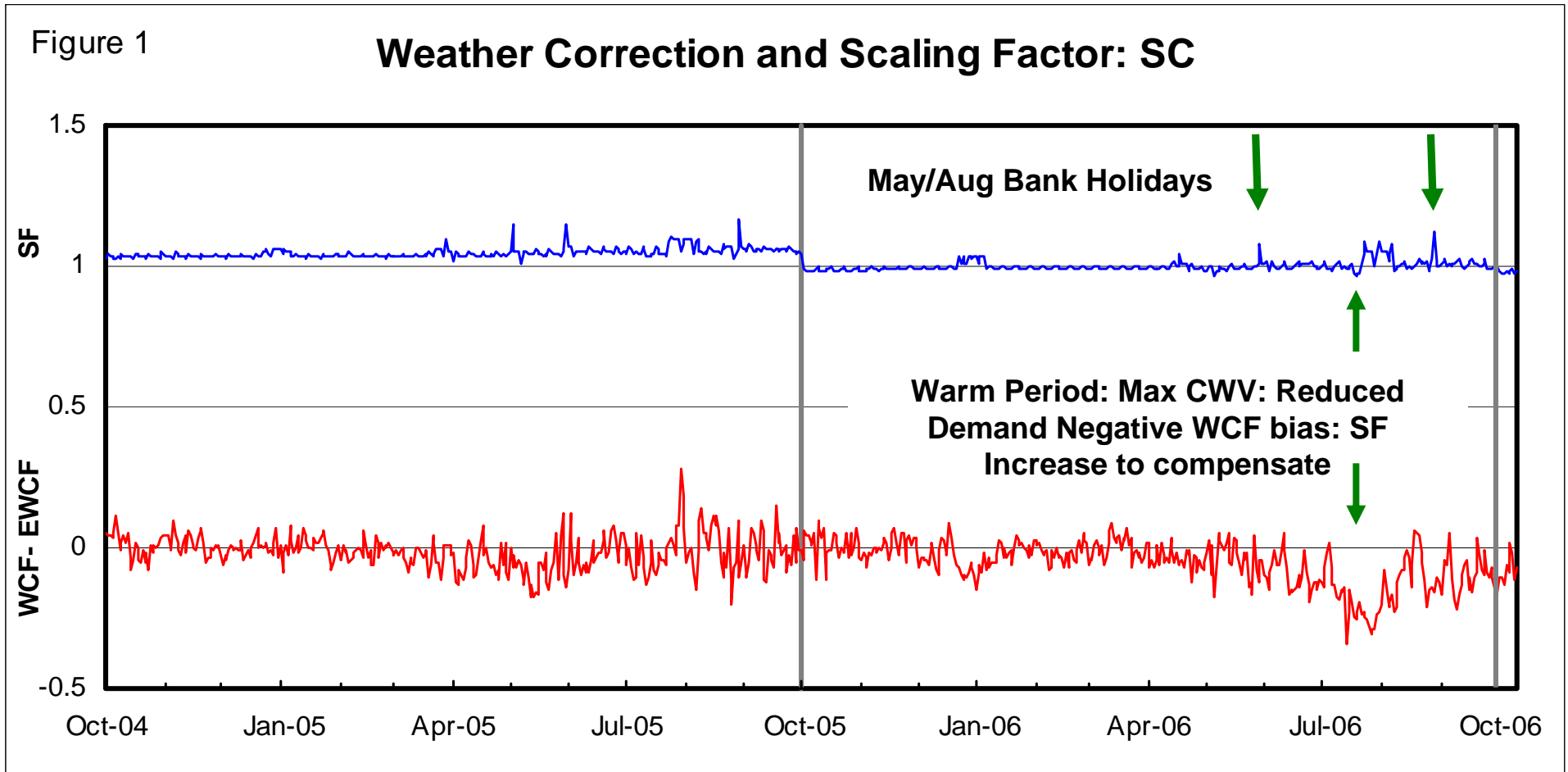
- Daily values of Scaling Factor (SF) & Weather Correction Factor (WCF)
- Reconciliation Variance data for each EUC
- Daily consumption data collected from the NDM sample

This presentation covers the first of these strands (strands 2&3 – Jan 07)

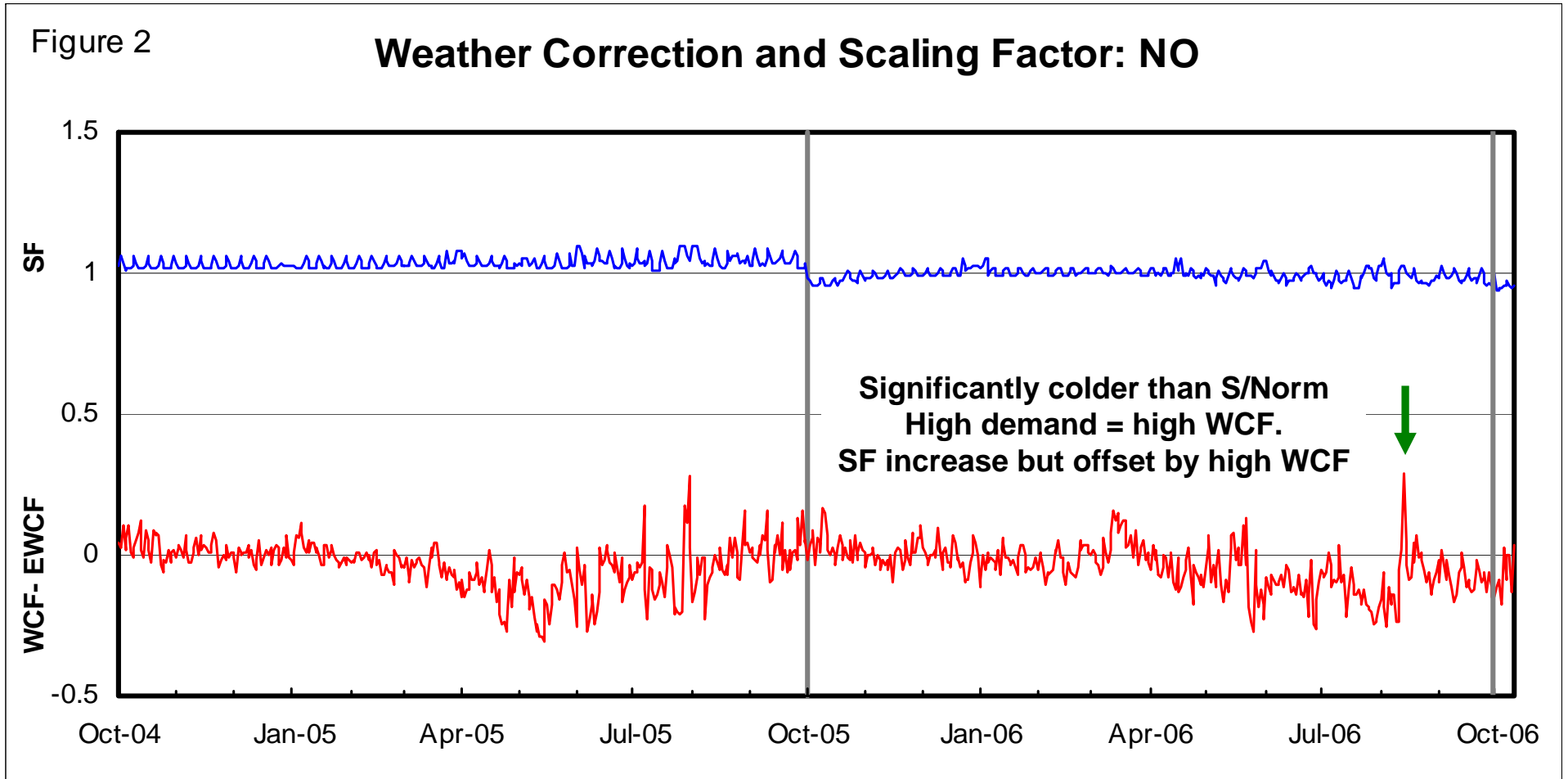
Graphs of SF & WCF - EWCF

- Graphs represent daily trends for SF and WCF-EWCF
- Two gas years depicted for comparison:
 - 2004/05
 - 2005/06 (+ first 10 days of October 2006)
- LDZ specific examples of unusual SF and/or WCF-EWCF
 - Set of 13 graphs, one for each LDZ, will be available

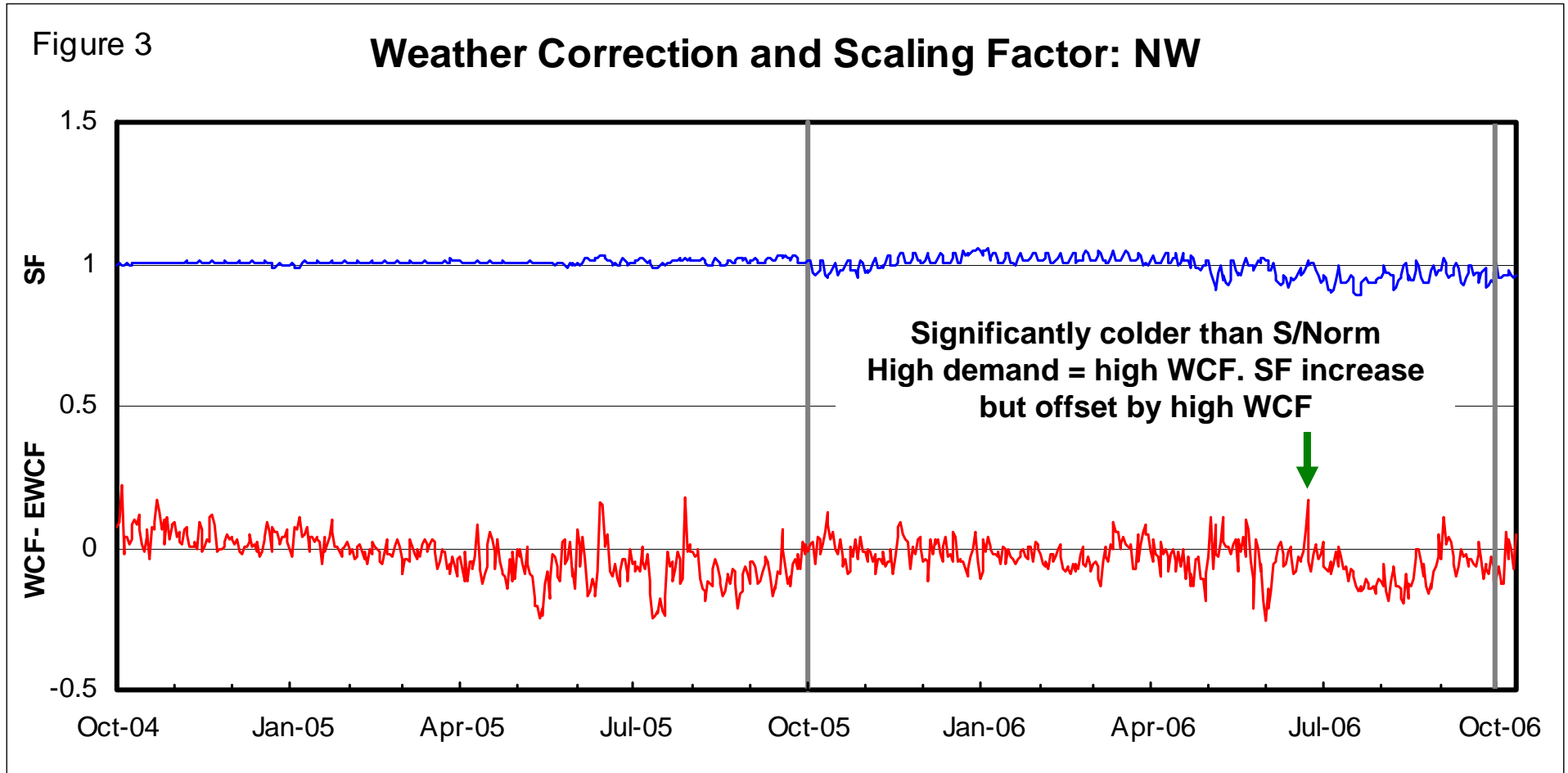
Weather Correction & Scaling Factor: SC



Weather Correction & Scaling Factor: NO



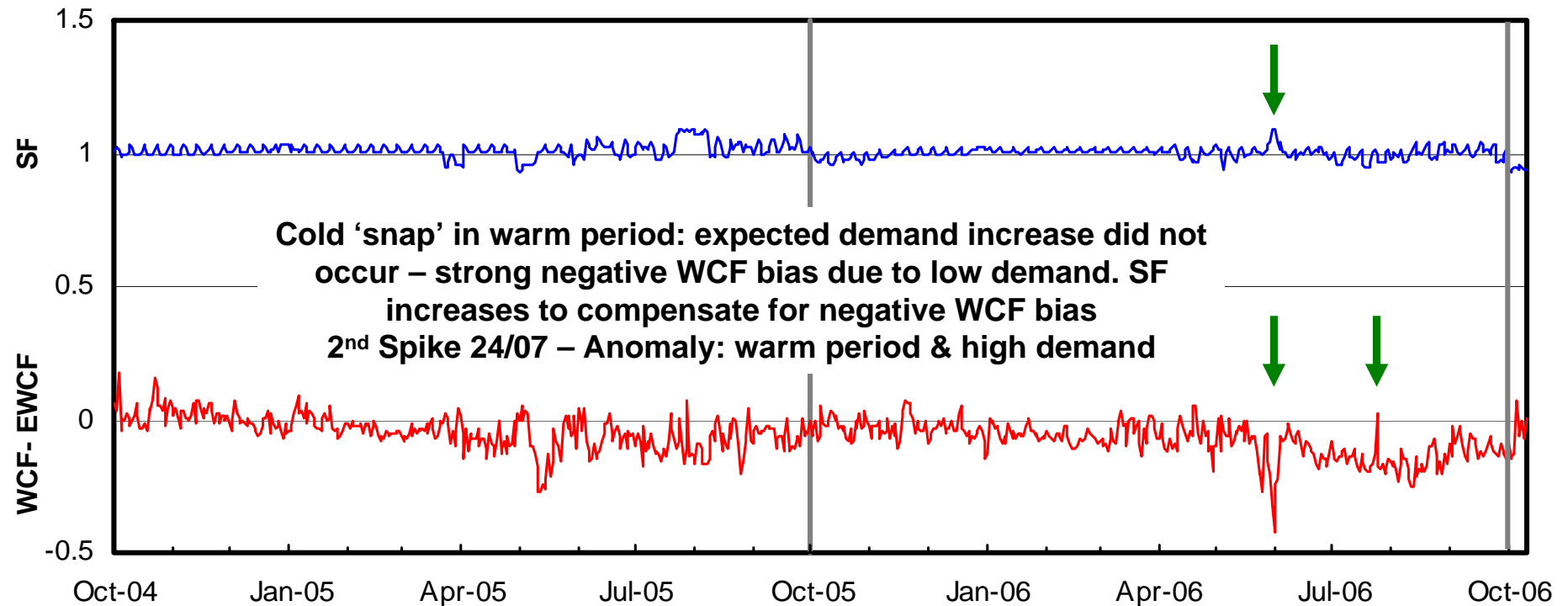
Weather Correction & Scaling Factor: NW



Weather Correction & Scaling Factor: WM

Figure 6

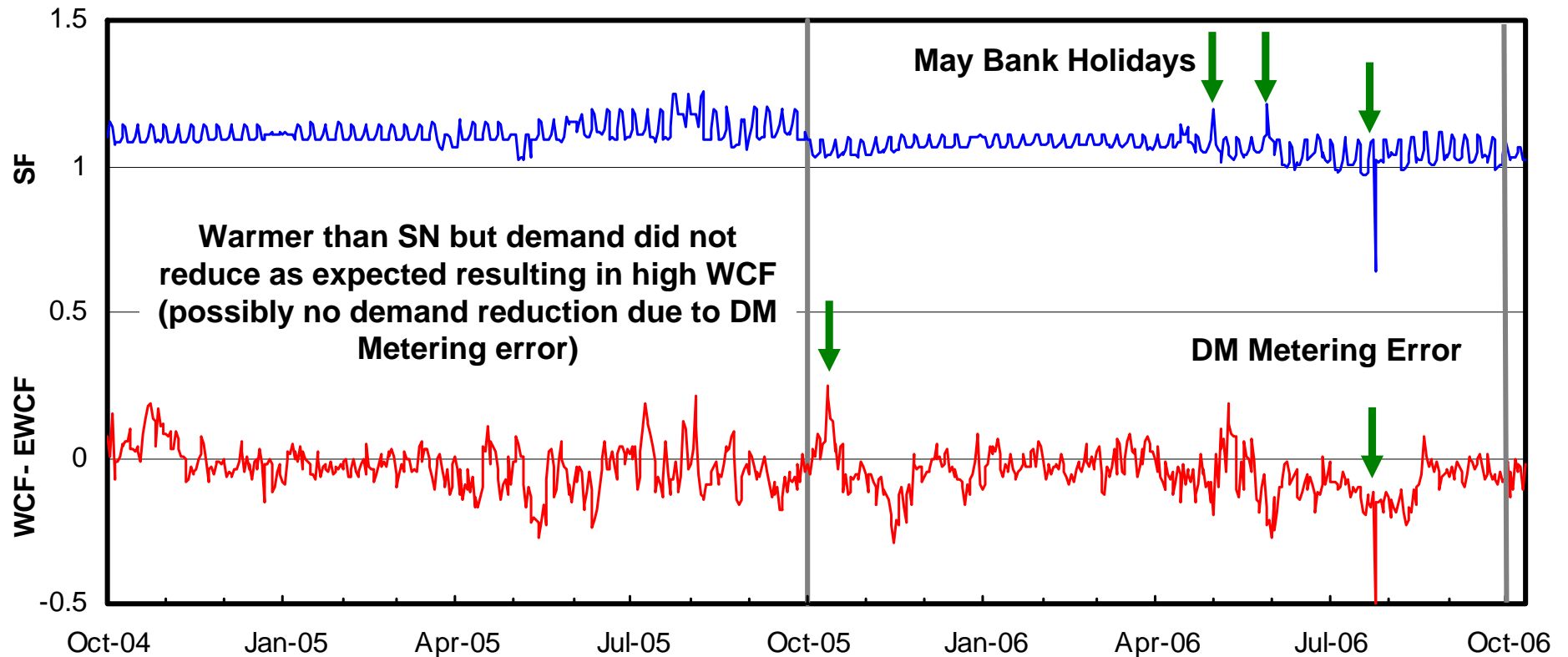
Weather Correction and Scaling Factor: WM



Weather Correction & Scaling Factor: WN

Figure 7

Weather Correction and Scaling Factor: WN



NDM Weather Corrected Demand as % of NDM Seasonal Normal Demand: Gas Year 2005/06

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	100.99	100.47	95.31	97.88	97.89	100.30	95.80	96.33	90.50	81.03	89.44	90.68
NO	102.90	100.16	99.15	97.83	97.61	103.53	94.70	94.11	88.89	87.66	92.93	91.43
NW	99.95	99.01	97.66	98.19	95.03	99.38	94.77	98.49	96.32	90.41	89.95	95.90
NE	101.19	99.21	97.50	96.97	94.53	99.45	97.79	99.30	94.26	87.05	85.92	91.90
EM	97.85	99.29	97.68	97.50	96.30	98.23	96.57	94.51	90.95	82.69	82.39	88.97
WM	97.62	97.93	95.81	95.05	93.18	95.40	93.58	90.78	88.80	85.02	83.52	89.55
WN	100.18	88.14	96.03	98.84	96.60	99.53	93.13	96.26	90.60	86.64	90.76	95.22
WS	96.75	97.59	97.40	97.17	96.59	100.70	93.61	91.53	88.04	92.07	91.12	96.88
EA	93.99	96.68	96.44	95.62	93.96	97.44	93.80	93.00	90.86	84.49	86.72	88.63
NT	96.40	95.26	95.96	95.24	93.86	95.99	93.47	93.51	91.37	87.54	87.37	89.47
SE	94.30	96.96	97.47	96.89	95.13	97.66	94.31	93.91	91.03	84.53	86.96	88.57
SO	100.65	96.84	94.92	95.47	94.03	94.36	93.74	91.16	90.96	87.89	92.14	90.50
SW	97.32	95.63	97.65	95.60	96.14	99.59	91.13	90.68	86.97	84.55	84.47	87.98
AVG	98.21	97.80	96.83	96.64	95.19	98.17	94.51	94.27	91.17	85.98	87.48	90.81

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

Average Values of WCF-EWCF

Difference between Gas Year 2004/05 & Gas Year 2005/06

LDZ	MON-THUR	FRIDAY	SATURDAY	SUNDAY	WINTER	SUMMER
SC	-0.035	-0.046	-0.043	-0.041	-0.009	-0.068
NO	-0.006	-0.016	-0.011	0.011	-0.001	-0.016
NW	0.006	-0.021	-0.034	-0.021	0.001	0.020
NE	-0.034	-0.036	-0.046	-0.045	-0.002	-0.071
EM	-0.053	-0.062	-0.059	-0.042	-0.004	-0.066
WM	-0.032	-0.042	-0.044	-0.034	-0.034	-0.037
WN	-0.025	-0.035	-0.028	-0.024	-0.025	-0.028
WS	-0.016	-0.039	-0.026	-0.012	-0.012	-0.007
EA	-0.053	-0.063	-0.064	-0.061	-0.033	-0.062
NT	-0.034	-0.043	-0.034	-0.034	-0.043	-0.027
SE	-0.045	-0.041	-0.040	-0.042	-0.016	-0.031
SO	-0.037	-0.031	-0.028	-0.031	-0.033	-0.023
SW	-0.041	-0.047	-0.044	-0.045	-0.029	-0.056
AVG	-0.035	-0.046	-0.043	-0.041	-0.009	-0.068

- Predominantly greater negative WCF bias in 2005/06 (WCF further from 0) indicating SNDs too high
- Red: Greater WCF Bias in 2005/06 – Green: Lower WCF Bias in 2005/06

WCF-EWCF Values in 2005/06 - Conclusions

- Majority LDZs: WCF bias is negative for all days of the week, weekends, winter and summer for gas year 2005/06
- Almost universally (all days of week in nearly all LDZs) negative WCF bias is worse in 2005/06 than in 2004/05
- Over gas year 2005/06 most monthly average values of weather corrected aggregate NDM demand as a % of aggregate NDM SND are below 100% (146 of 156 cases)
- Indicates aggregate NDM SNDs for gas year 2005/06 having been too high.
- Ordinarily this negative WCF bias should lead to SFs tending to be higher than the ideal value, but....

Average Values of SF

Difference between Gas Year 2004/05 and Gas Year 2005/06

LDZ	MON-THUR	FRIDAY	SATURDAY	SUNDAY	WINTER	SUMMER
SC	0.045	0.035	0.053	0.040	0.035	0.050
NO	0.018	0.033	0.052	0.039	0.030	0.034
NW	-0.014	-0.003	0.000	-0.005	-0.009	-0.022
NE	-0.001	0.005	-0.004	-0.009	0.002	0.000
EM	-0.008	-0.007	0.010	0.006	0.004	-0.010
WM	-0.001	0.016	0.021	0.003	0.007	0.016
WN	0.050	0.051	0.060	0.056	0.030	0.074
WS	0.012	0.008	0.026	0.022	0.000	0.031
EA	-0.027	-0.026	0.004	0.008	0.019	-0.035
NT	-0.001	-0.011	0.004	-0.011	0.006	-0.002
SE	0.012	0.007	-0.009	-0.012	0.022	-0.005
SO	0.026	0.029	0.033	0.015	0.005	0.041
SW	0.014	0.018	0.032	0.021	0.007	0.029
AVG	0.045	0.035	0.053	0.040	0.035	0.050

- Scaling Factors closer to ideal 1 in 2005/06: Compensating for AQt too high (-SF) & negative WCF (+SF)
- Red: SF further from 1 in 2005/06 – Green: SF closer to 1 in 2005/06

Average Values of Root Mean Square Deviation of SF from 1 DIFFERENCE between Gas Year 04/05 & 05/06

LDZ	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
SC	0.0210	0.0260	0.0270	0.0280	0.0320	0.0410	0.0300	0.0420	0.0460	0.0290	0.0390	0.0480
NO	0.0030	0.0190	0.0130	0.0160	0.0240	0.0340	0.0200	0.0200	0.0300	0.0240	0.0270	0.0260
NW	-0.0230	-0.0160	-0.0240	-0.0210	-0.0180	-0.0160	-0.0150	-0.0340	-0.0260	-0.0560	-0.0330	-0.0250
NE	-0.0090	-0.0050	-0.0110	-0.0070	-0.0020	0.0020	0.0000	0.0120	-0.0040	0.0050	0.0100	-0.0080
EM	-0.0160	0.0010	-0.0010	0.0020	0.0020	0.0010	0.0020	0.0110	0.0030	-0.0160	-0.0090	-0.0180
WM	-0.0080	0.0030	0.0070	0.0050	0.0050	0.0120	0.0030	0.0010	0.0060	0.0240	0.0220	0.0110
WN	0.0470	0.0330	0.0240	0.0270	0.0260	0.0230	0.0250	0.0230	0.0820	0.0750	0.0780	0.0760
WS	0.0100	-0.0020	-0.0050	-0.0040	-0.0030	0.0030	0.0050	0.0140	0.0370	0.0330	0.0320	0.0380
EA	-0.0560	-0.0050	-0.0030	0.0030	0.0070	0.0030	-0.0040	-0.0610	-0.0210	-0.0490	-0.0130	-0.0550
NT	-0.0110	-0.0030	0.0010	-0.0010	-0.0020	0.0210	0.0140	0.0280	0.0230	0.0060	0.0070	0.0140
SE	0.0190	0.0150	0.0100	0.0070	0.0050	0.0160	0.0290	0.0320	0.0400	0.0140	-0.0070	0.0360
SO	0.0170	0.0040	-0.0010	-0.0030	-0.0050	-0.0030	0.0060	0.0170	0.0440	0.0100	0.0140	0.0400
SW	0.0060	0.0070	0.0060	0.0060	0.0050	0.0080	0.0200	0.0100	0.0180	0.0410	0.0310	0.0200
AVG	0.0000	0.0059	0.0033	0.0045	0.0058	0.0112	0.0104	0.0088	0.0214	0.0108	0.0152	0.0156

- SF 'better' (closer to ideal 1) in 2005/06 than 2004/05 – RMS shows less deviation from 1. Is this compensating effects of too high AQs (depressing SF) and negative WCF bias (due to too high SND)?

Scaling Factor Values 2005/06 - Conclusions

- In 2005/06, day of the week, weekend, winter, summer averages broadly closer to one in majority of LDZs (better, compared to 2004/05)
- Monthly RMS values of SF (deviation from one) predominantly better (lower) in 2005/06
- However this is probably because of two compensating effects:
 - AQs being too high tending to depress SFs
 - Negative WCF bias (caused by aggregate NDM SND being too high) tending to inflate SFs
- AQ values comparison pre and post 1st October 06 show a reduction in AQ of 2.4%, supporting the impact of higher AQs on SF during 2005/06

Possible Outlook for Scaling Factor Values 2006/07 (Speculative)

- Aggregate NDM AQs decreased at start of gas year
- Aggregate NDM SND for 2006/07 lower than for 2005/06
- Initial October 2006 SF values (1st to 10th) are mostly below one
- October 2006 to date has been very mild and has come on the back of the warmest May-September period in 93 years
- Thus, aggregate NDM demand remains severely depressed
- It is possible that aggregate NDM SNDs adopted for 2006/07, far from being too low, may even be still too high
- Not possible to assess definitively until winter has progressed.