



# TPS Examples

July, 2007

Howard Haas  
Market Monitoring Unit



# Cumulative Effective relief available by supplier

Rank ordered by total *within hour* available and effective supply

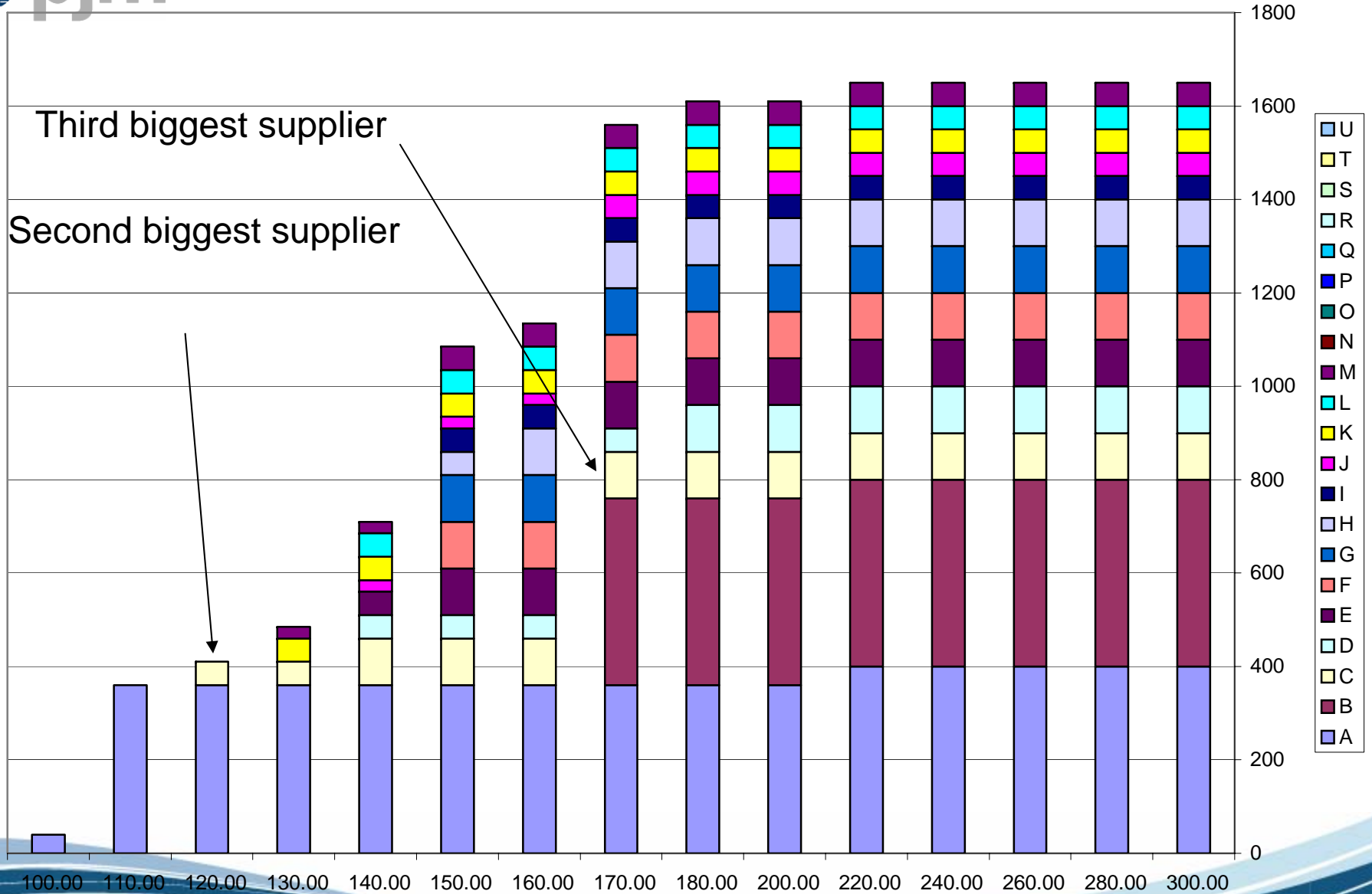
Cumulative Relief available by supplier

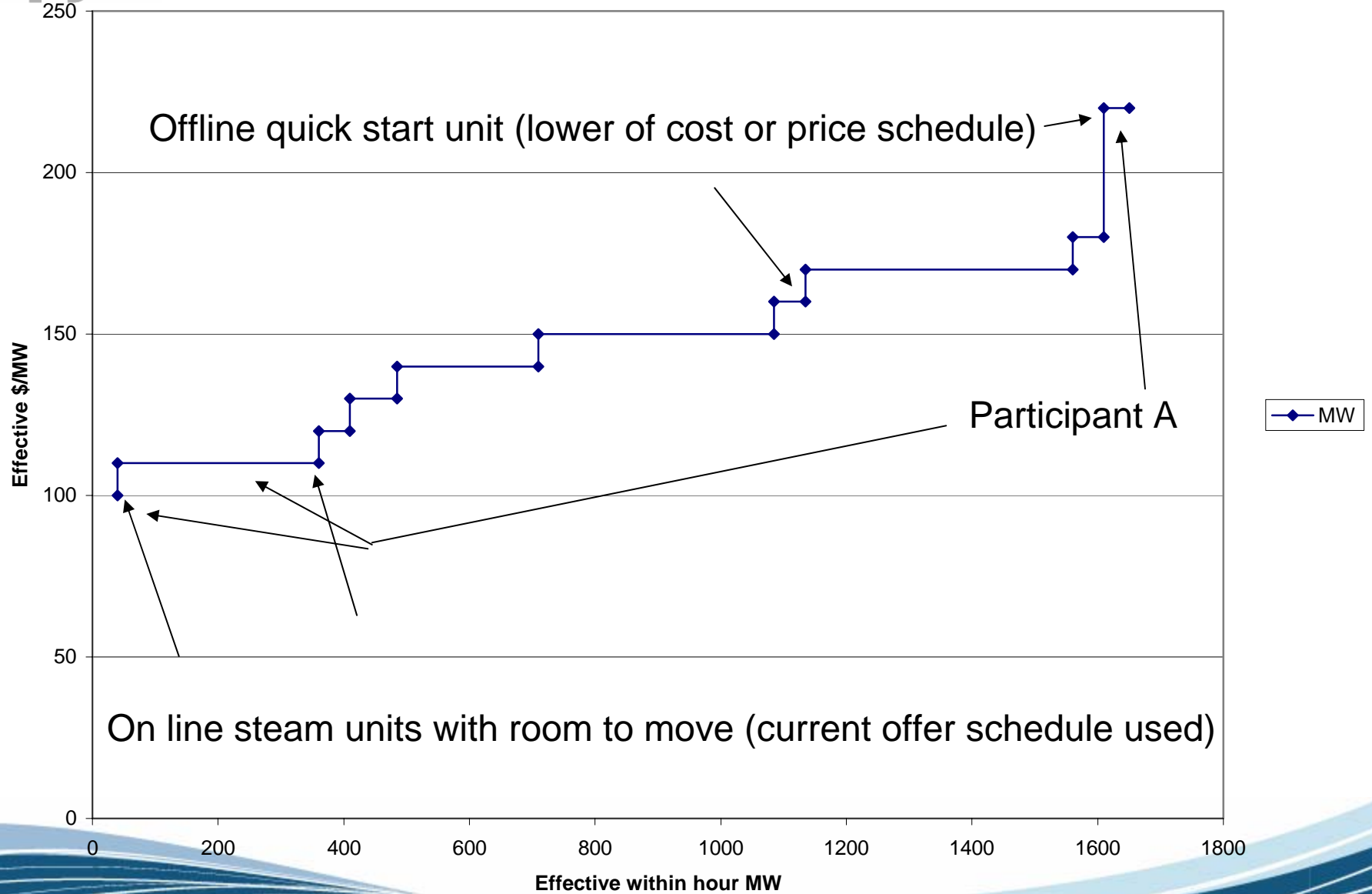
A	400	400	400	400	400	360	360	360	360	360	360	360	360	360	40
B	400	400	400	400	400	400	400	400	0	0	0	0	0	0	0
C	100	100	100	100	100	100	100	100	100	100	100	50	50	0	0
D	100	100	100	100	100	100	100	50	50	50	50	0	0	0	0
E	100	100	100	100	100	100	100	100	100	100	50	0	0	0	0
F	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0
G	100	100	100	100	100	100	100	100	100	100	0	0	0	0	0
H	100	100	100	100	100	100	100	100	100	50	0	0	0	0	0
I	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0
J	50	50	50	50	50	50	50	50	25	25	25	0	0	0	0
K	50	50	50	50	50	50	50	50	50	50	50	50	0	0	0
L	50	50	50	50	50	50	50	50	50	50	50	0	0	0	0
M	50	50	50	50	50	50	50	50	50	50	25	25	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW	1,650.00	1,650.00	1,650.00	1,650.00	1,650.00	1,610.00	1,610.00	1,560.00	1,135.00	1,085.00	710.00	485.00	410.00	360.00	40.00
\$/MW	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00

Different suppliers are relevant at different effective costs



# Cumulative effective within hour supply by participant







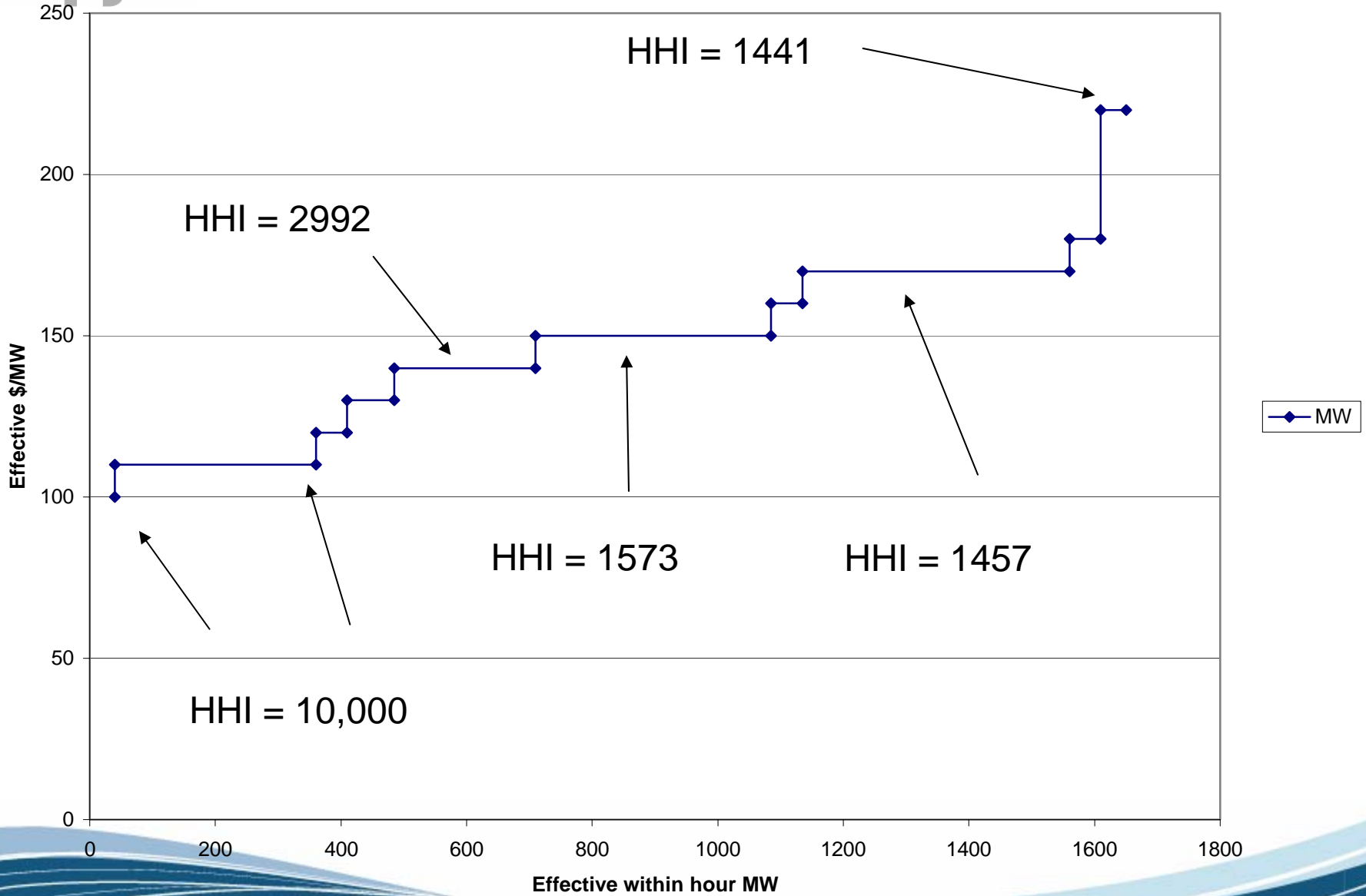
# Within hour market share by MC point by participant

Mkt Share by MC

	300	280	260	240	220	200	180	170	160	150	140	130	120	110	100
A	0.242424	0.242424	0.242424	0.242424	0.242424	0.223602	0.223602	0.230769	0.317181	0.331797	0.507042	0.742268	0.878049	1	1
B	0.242424	0.242424	0.242424	0.242424	0.242424	0.248447	0.248447	0.25641	0	0	0	0	0	0	0
C	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.064103	0.088106	0.092166	0.140845	0.103093	0.121951	0	0
D	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.032051	0.044053	0.046083	0.070423	0	0	0	0
E	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.064103	0.088106	0.092166	0.070423	0	0	0	0
F	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.064103	0.088106	0.092166	0	0	0	0	0
G	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.064103	0.088106	0.092166	0	0	0	0	0
H	0.060606	0.060606	0.060606	0.060606	0.060606	0.062112	0.062112	0.064103	0.088106	0.046083	0	0	0	0	0
I	0.030303	0.030303	0.030303	0.030303	0.030303	0.031056	0.031056	0.032051	0.044053	0.046083	0	0	0	0	0
J	0.030303	0.030303	0.030303	0.030303	0.030303	0.031056	0.031056	0.032051	0.022026	0.023041	0.035211	0	0	0	0
K	0.030303	0.030303	0.030303	0.030303	0.030303	0.031056	0.031056	0.032051	0.044053	0.046083	0.070423	0.103093	0	0	0
L	0.030303	0.030303	0.030303	0.030303	0.030303	0.031056	0.031056	0.032051	0.044053	0.046083	0.070423	0	0	0	0
M	0.030303	0.030303	0.030303	0.030303	0.030303	0.031056	0.031056	0.032051	0.044053	0.046083	0.035211	0.051546	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Cumulative effective *within hour* supply by effective MC





TPS test results will vary by defined market:

Market defined by effective within hour supply and relief target

Case 1	Case 2	Case 3	Case 4
Relief Needed	Relief Needed	Relief Needed	Relief Needed
300	400	750	1000



# Sorted cumulative *within hour* effective supply by effective MC point

Sorted Cumulative Supply by Participant Bidder

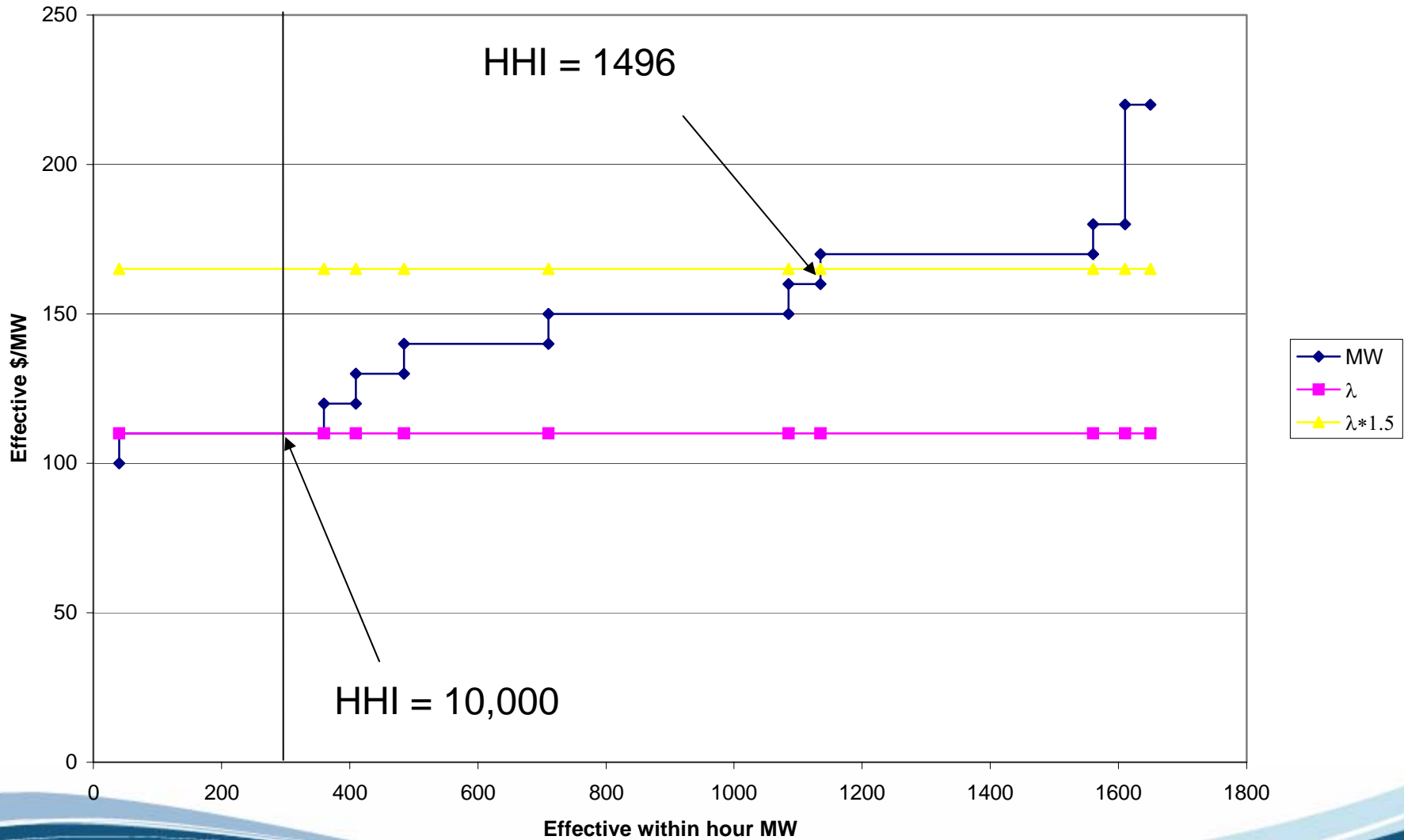
400	400	400	400	400	400	400	400	400	360	360	360	360	360	360	40
400	400	400	400	400	400	360	360	360	100	100	100	50	50	0	0
100	100	100	100	100	100	100	100	100	100	100	50	50	0	0	0
100	100	100	100	100	100	100	100	100	100	100	50	25	0	0	0
100	100	100	100	100	100	100	100	100	100	100	50	0	0	0	0
100	100	100	100	100	100	100	100	100	100	50	50	0	0	0	0
100	100	100	100	100	100	100	100	100	50	50	25	0	0	0	0
100	100	100	100	100	100	100	100	50	50	50	25	0	0	0	0
50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0
50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0
50	50	50	50	50	50	50	50	50	50	50	0	0	0	0	0
50	50	50	50	50	50	50	50	50	25	25	0	0	0	0	0
50	50	50	50	50	50	50	50	50	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW	1650	1650	1650	1650	1650	1610	1610	1560	1135	1085	710	485	410	360	40
\$/MW	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00





CASE 1 Relief (MW)	<b>300</b>	Cumulative and Relevent Effective Supply:		1135											
Clearing Price (\$/MW)	110														
Lamda * 1.5 Price (\$/MW)	165														
Cumulative Relevant and Effective Supply by Participant Bidder															
	0	0	0	0	0	0	0	0	360	360	360	360	360	360	40
	0	0	0	0	0	0	0	0	100	100	100	50	50	0	0
	0	0	0	0	0	0	0	0	100	100	50	50	0	0	0
	0	0	0	0	0	0	0	0	100	100	50	25	0	0	0
	0	0	0	0	0	0	0	0	100	100	50	0	0	0	0
	0	0	0	0	0	0	0	0	100	50	50	0	0	0	0
	0	0	0	0	0	0	0	0	50	50	25	0	0	0	0
	0	0	0	0	0	0	0	0	50	50	25	0	0	0	0
	0	0	0	0	0	0	0	0	50	50	0	0	0	0	0
	0	0	0	0	0	0	0	0	50	50	0	0	0	0	0
	0	0	0	0	0	0	0	0	50	50	0	0	0	0	0
	0	0	0	0	0	0	0	0	25	25	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Relevent Supply	0	0	0	0	0	0	0	0	1135	1085	710	485	410	360	40
Effective \$/MW	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00

Relief Required Level 1





### All participant's pass relevant market

Cumulative and Relevant Effective Supply:

CASE 1 Relief (MW)	300	1135
Clearing Price (\$/MW)	110	
Lambda * 1.5 Price (\$/MW)	165	

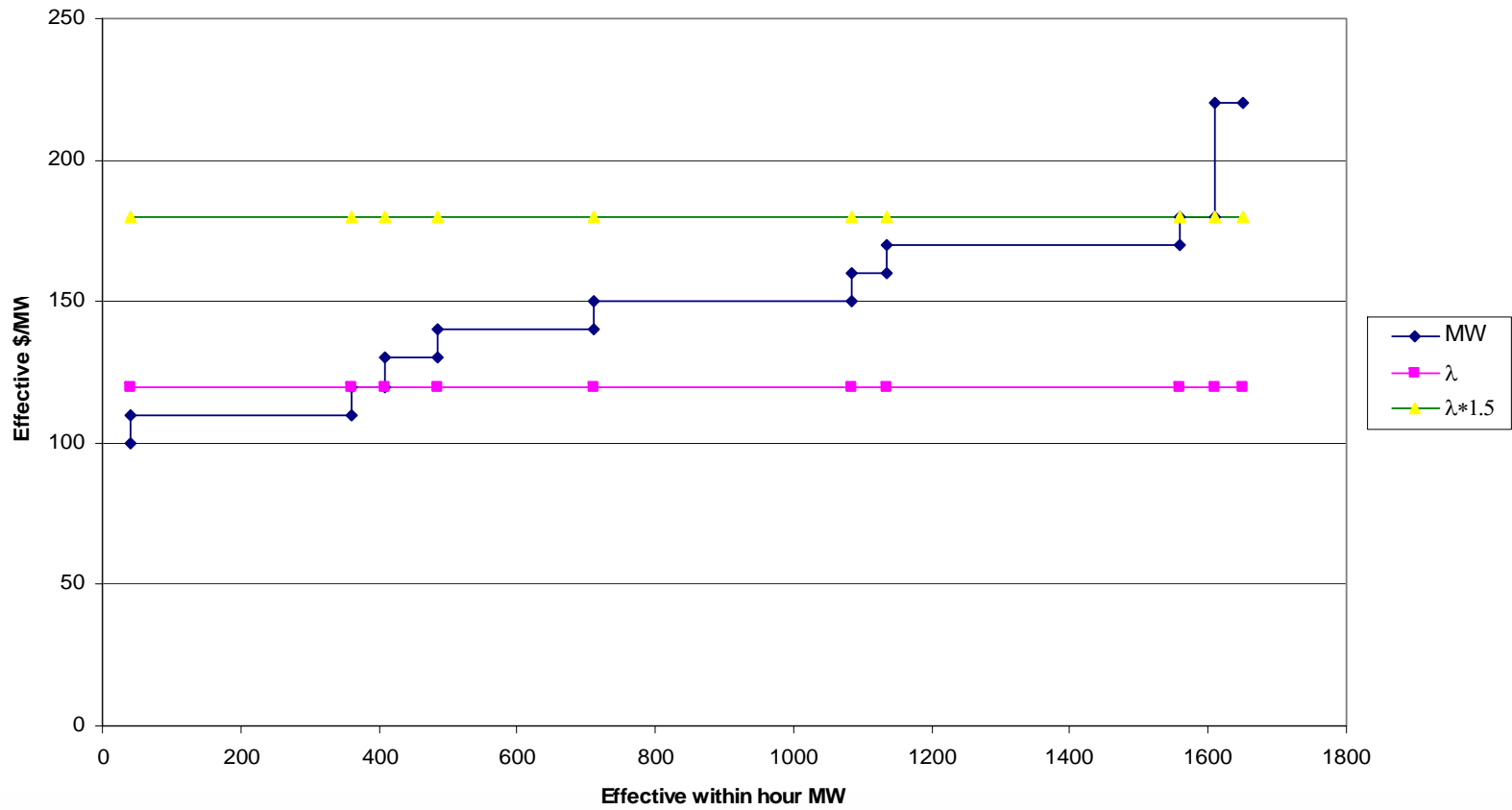
Participant Specific TPS Score for Relief Target

NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	FAIL	FAIL	FAIL	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	FAIL	FAIL	FAIL	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	FAIL	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	FAIL	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	FAIL	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	PASS	PASS	NA	NA	NA	NA	NA	NA
300	280	260	240	220	200	180	170	160		150	140	130	120	110	100	

Test result varies by market definition relative to relief required

CASE 1 Relief (MW)	<b>400</b>	Cumulative and Relevent Effective Supply:					1610									
Clearing Price (\$/MW)	120															
Lamda * 1.5 Price (\$/MW)	180															
<b>Cumulative Relevent and Effective Supply by Participant Bidder</b>																
	0	0	0	0	0	0	400	400	360	360	360	360	360	360	40	
	0	0	0	0	0	0	360	360	100	100	100	50	50	0	0	
	0	0	0	0	0	0	100	100	100	100	50	50	0	0	0	
	0	0	0	0	0	0	100	100	100	100	50	25	0	0	0	
	0	0	0	0	0	0	100	100	100	100	50	0	0	0	0	
	0	0	0	0	0	0	100	100	100	50	50	0	0	0	0	
	0	0	0	0	0	0	100	100	50	50	25	0	0	0	0	
	0	0	0	0	0	0	100	50	50	50	25	0	0	0	0	
	0	0	0	0	0	0	50	50	50	50	0	0	0	0	0	
	0	0	0	0	0	0	50	50	50	50	0	0	0	0	0	
	0	0	0	0	0	0	50	50	50	50	0	0	0	0	0	
	0	0	0	0	0	0	50	50	25	25	0	0	0	0	0	
	0	0	0	0	0	0	50	50	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>Cumulative Relevent Supply</b>	0	0	0	0	0	0	1610	1560	1135	1085	710	485	410	360	40	
<b>Prices</b>	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00	

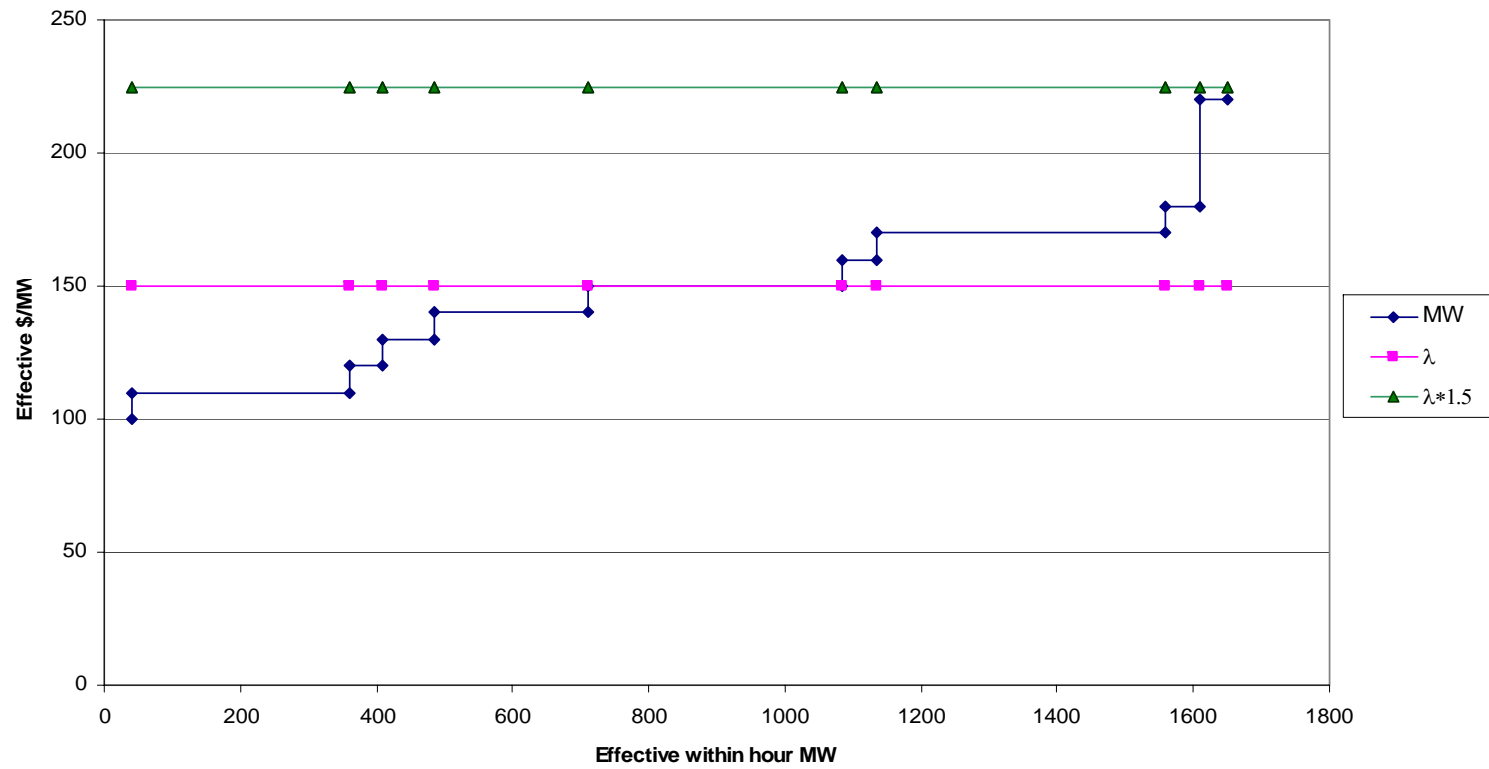
Relief Required Level 2





CASE 1 Relief (MW)	<b>750</b>	Cumulative and Relevent Effective Supply:		1650											
Clearing Price (\$/MW)	150														
Lamda * 1.5 Price (\$/MW)	225														
Cumulative Relevent and Effective Supply by Participant Bidder															
	0	0	0	0	400	400	400	400	360	360	360	360	360	360	40
	0	0	0	0	400	360	360	360	100	100	100	50	50	0	0
	0	0	0	0	100	100	100	100	100	100	50	50	0	0	0
	0	0	0	0	100	100	100	100	100	100	50	25	0	0	0
	0	0	0	0	100	100	100	100	100	100	50	0	0	0	0
	0	0	0	0	100	100	100	100	50	50	25	0	0	0	0
	0	0	0	0	100	100	100	50	50	50	25	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	25	25	0	0	0	0	0
	0	0	0	0	50	50	50	50	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Relevent Supply	0	0	0	0	1650	1610	1610	1560	1135	1085	710	485	410	360	40
Prices	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00

Relief Required Level 3





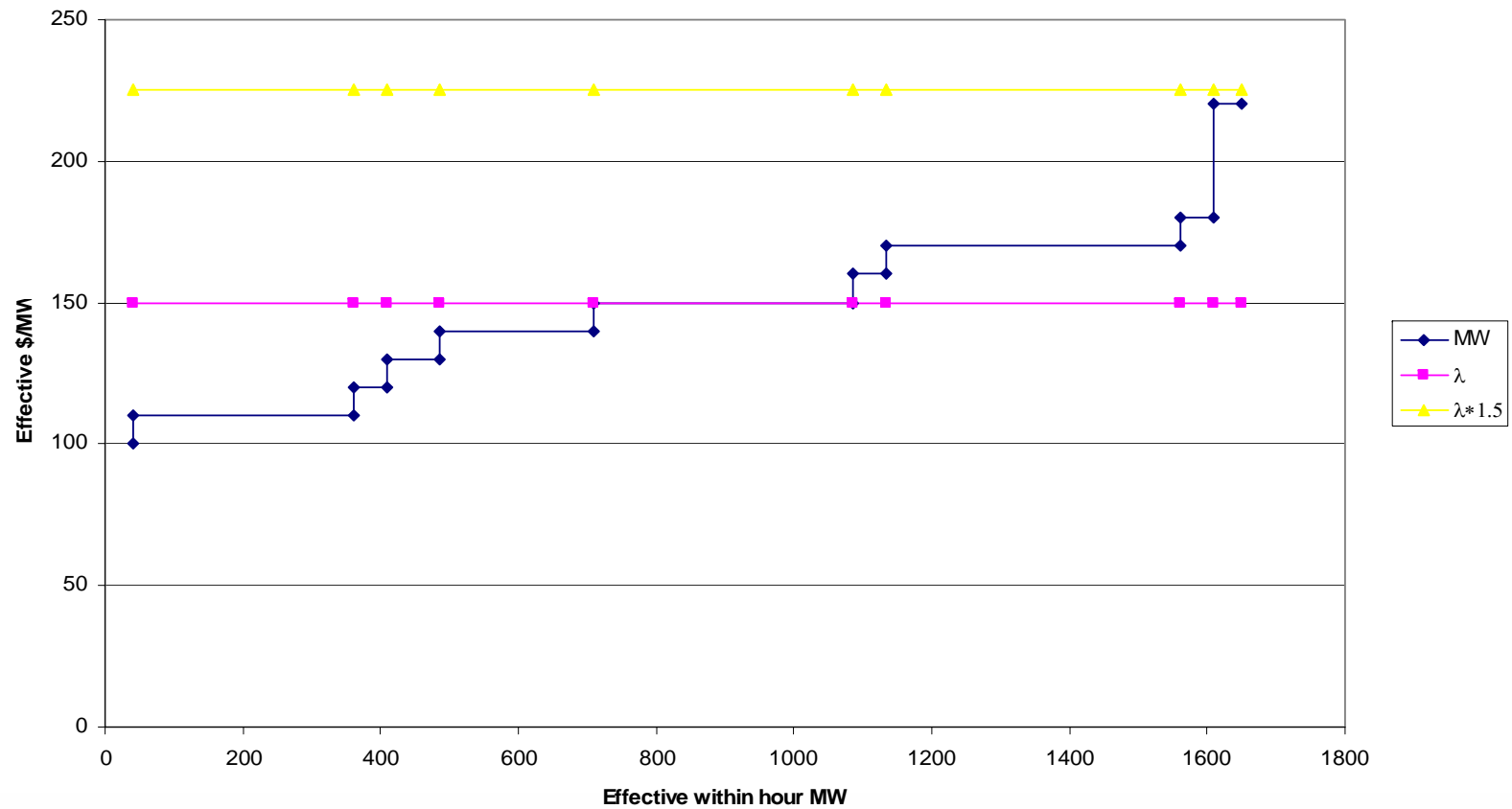


Cumulative and Relevant Effective Supply:																
CASE 1 Relief (MW)			750		1650											
Clearing Price (\$/MW)			150													
Lamda * 1.5 Price (\$/MW)			225													
Participant Specific TPS Score for Relief Target																
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	PASS	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	PASS	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	PASS	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	PASS	PASS	PASS	FAIL	FAIL	FAIL	FAIL	FAIL	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00



CASE 1 Relief (MW)	<b>1000</b>	Cumulative and Relevent Effective Supply:		1650											
Clearing Price (\$/MW)	150														
Lamda * 1.5 Price (\$/MW)	225														
Cumulative Relevent and Effective Supply by Participant Bidder															
	0	0	0	0	400	400	400	400	360	360	360	360	360	360	40
	0	0	0	0	400	360	360	360	100	100	100	50	50	0	0
	0	0	0	0	100	100	100	100	100	100	50	50	0	0	0
	0	0	0	0	100	100	100	100	100	100	50	25	0	0	0
	0	0	0	0	100	100	100	100	100	100	50	0	0	0	0
	0	0	0	0	100	100	100	100	100	50	50	0	0	0	0
	0	0	0	0	100	100	100	100	50	50	25	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	50	50	0	0	0	0	0
	0	0	0	0	50	50	50	50	25	25	0	0	0	0	0
	0	0	0	0	50	50	50	50	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Relevent Supply	0	0	0	0	1650	1610	1610	1560	1135	1085	710	485	410	360	40
Prices	300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00	110.00	100.00

Relief Required Level 4

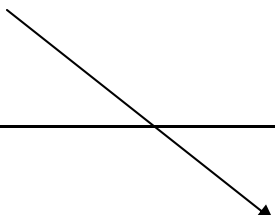






Single Pivotal?

$$\text{Defined market supply} = 1.05 * \lambda$$



		Cumulative and Relevant Effective Supply:										
CASE 1 Relief (MW)	1000	1650										
Clearing Price (\$/MW)	150											
Lambda * 1.05	157.5											
Participant Specific Single Pivotal Supplier Ratio												
0	0	0	0	1.25	1.21	1.21	1.16	0.775	0.725	0	0	0
0	0	0	0	1.25	1.25	1.25	1.2	1.035	0.985	0	0	0
0	0	0	0	1.55	1.51	1.51	1.46	1.035	0.985	0	0	0
0	0	0	0	1.55	1.51	1.51	1.46	1.035	0.985	0	0	0
0	0	0	0	1.55	1.51	1.51	1.46	1.035	1.035	0	0	0
0	0	0	0	1.55	1.51	1.51	1.46	1.085	1.035	0	0	0
0	0	0	0	1.55	1.51	1.51	1.51	1.085	1.035	0	0	0
0	0	0	0	1.6	1.56	1.56	1.51	1.085	1.035	0	0	0
0	0	0	0	1.6	1.56	1.56	1.51	1.085	1.035	0	0	0
0	0	0	0	1.6	1.56	1.56	1.51	1.085	1.035	0	0	0
0	0	0	0	1.6	1.56	1.56	1.51	1.11	1.06	0	0	0
0	0	0	0	1.6	1.56	1.56	1.51	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0
300.00	280.00	260.00	240.00	220.00	200.00	180.00	170.00	160.00	150.00	140.00	130.00	120.00



- Hours later:
- 500 MW of *incremental* relief is now needed
  - A different set of incrementally available generation is effective and available
  - Some units from last sample are running, some with room to move.
  - New units are now available based on effective cost

Participant A is now the smallest

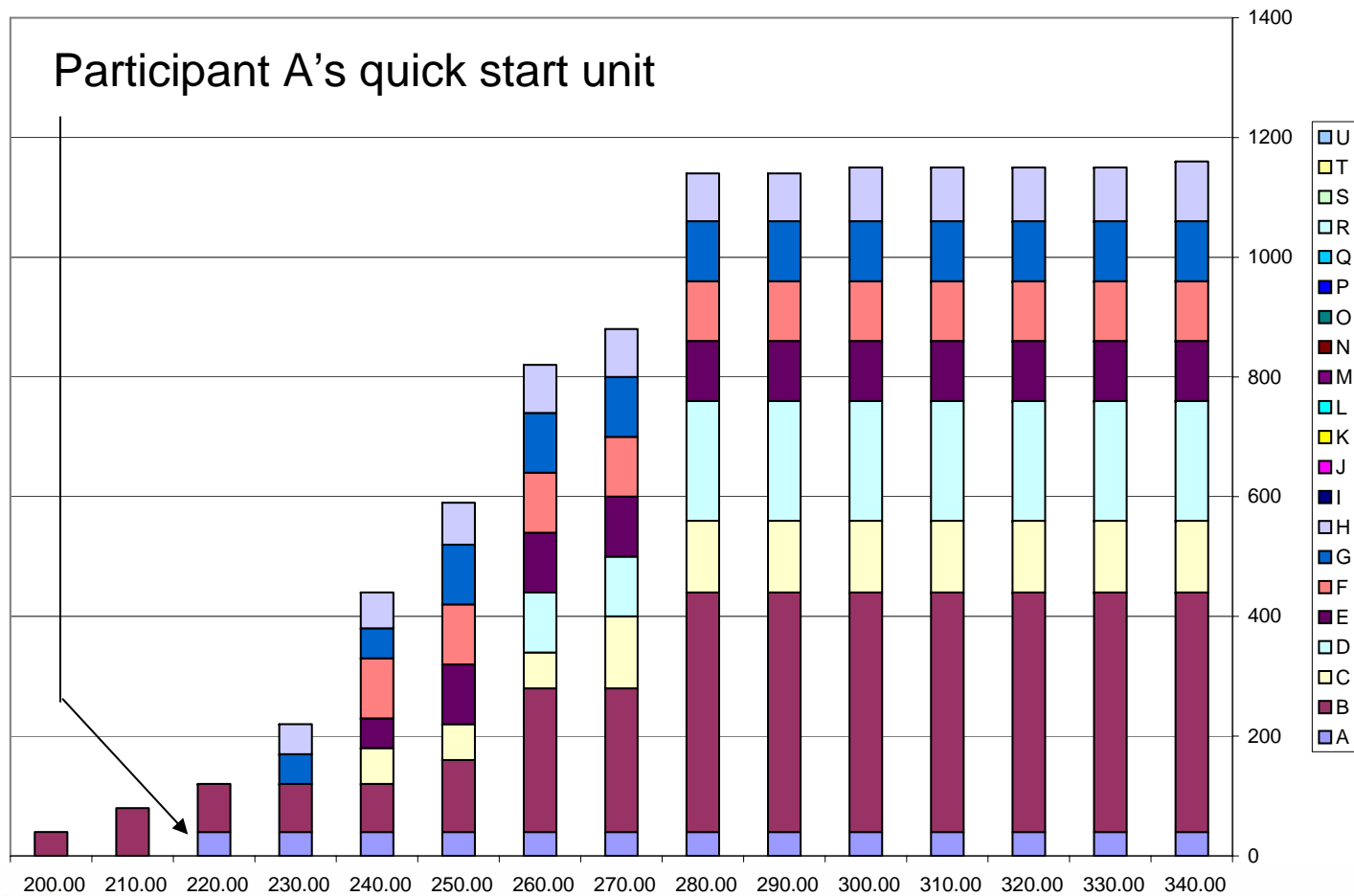


Cumulative Relief available by supplier

A	40	40	40	40	40	40	40	40	40	40	40	40	40	40	0
B	400	400	400	400	400	400	400	400	240	240	120	80	80	80	80
C	120	120	120	120	120	120	120	120	120	60	60	60	0	0	0
D	200	200	200	200	200	200	200	200	100	100	0	0	0	0	0
E	100	100	100	100	100	100	100	100	100	100	100	50	0	0	0
F	100	100	100	100	100	100	100	100	100	100	100	100	0	0	0
G	100	100	100	100	100	100	100	100	100	100	100	50	50	0	0
H	100	90	90	90	90	80	80	80	80	70	60	50	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MW	1,160.00	1,150.00	1,150.00	1,150.00	1,150.00	1,140.00	1,140.00	880.00	820.00	590.00	440.00	220.00	120.00	80.00	
\$/MW	340.00	330.00	320.00	310.00	300.00	290.00	280.00	270.00	260.00	250.00	240.00	230.00	220.00	210.00	

Rank order by total within hour available and effective supply



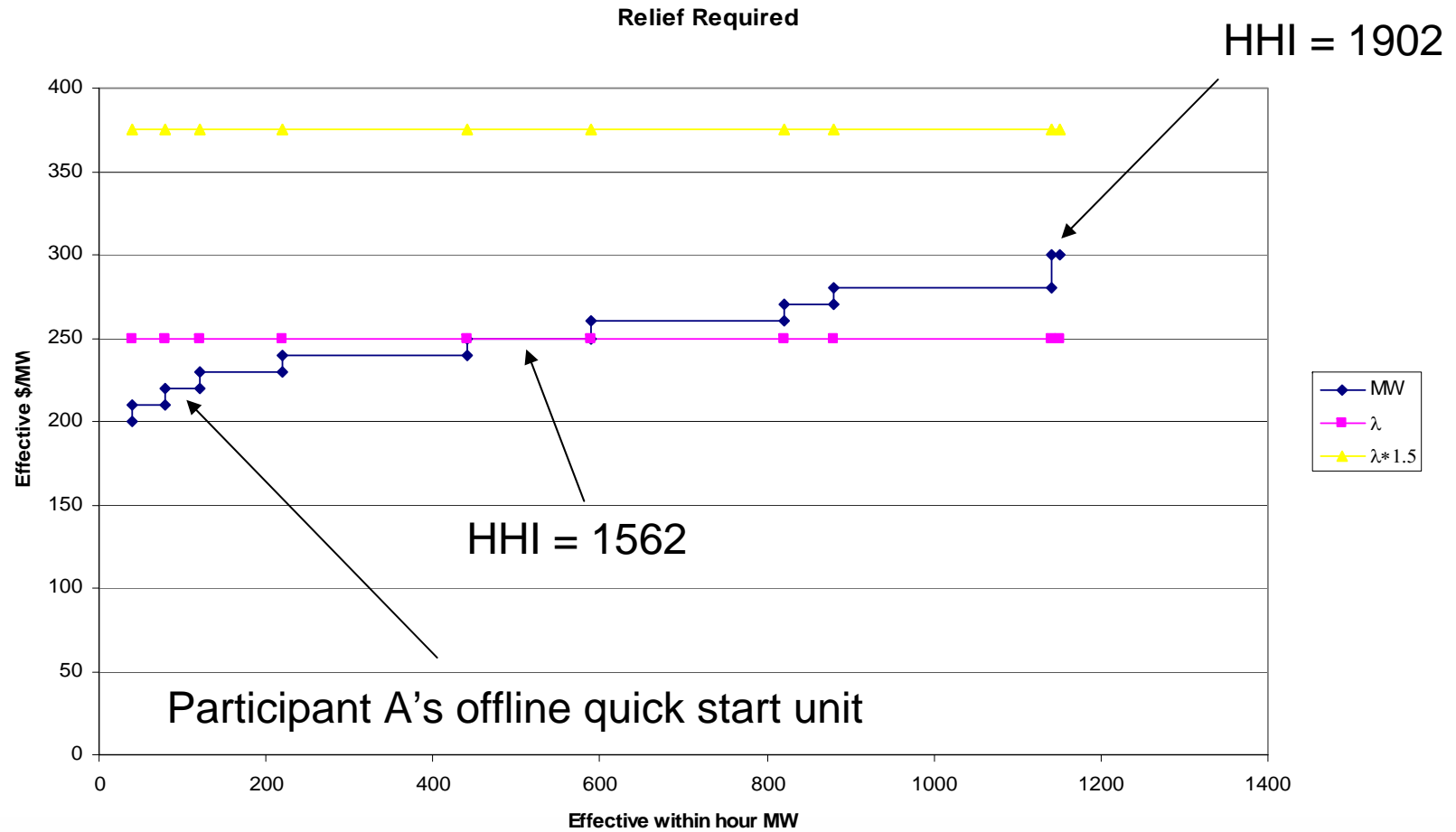




# Market share varies over time

Mkt Share by MC

	340	330	320	310	300	290	280	270	260	250	240	230	220	210
A	0.034482759	0.034782609	0.034782609	0.03478261	0.03478261	0.035087719	0.035087719	0.045455	0.04878	0.067797	0.090909	0.181818	0.333333	0
B	0.344827586	0.347826087	0.347826087	0.34782609	0.34782609	0.350877193	0.350877193	0.272727	0.292683	0.20339	0.181818	0.363636	0.666667	1
C	0.103448276	0.104347826	0.104347826	0.10434783	0.10434783	0.105263158	0.105263158	0.136364	0.073171	0.101695	0.136364	0	0	0
D	0.172413793	0.173913043	0.173913043	0.17391304	0.17391304	0.175438596	0.175438596	0.113636	0.121951	0	0	0	0	0
E	0.086206897	0.086956522	0.086956522	0.08695652	0.08695652	0.087719298	0.087719298	0.113636	0.121951	0.169492	0.113636	0	0	0
F	0.086206897	0.086956522	0.086956522	0.08695652	0.08695652	0.087719298	0.087719298	0.113636	0.121951	0.169492	0.227273	0	0	0
G	0.086206897	0.086956522	0.086956522	0.08695652	0.08695652	0.087719298	0.087719298	0.113636	0.121951	0.169492	0.113636	0.227273	0	0
H	0.086206897	0.07826087	0.07826087	0.07826087	0.07826087	0.070175439	0.070175439	0.090909	0.097561	0.118644	0.136364	0.227273	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O	0	0	0	0	0	0	0	0	0	0	0	0	0	0
P	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Q	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U	0	0	0	0	0	0	0	0	0	0	0	0	0	0





# Cumulative within hour effective and relevant supply by participant

CASE 1 Relief (MW)	<b>500</b>	Cumulative and Relevant Effective Supply: 1160													
Clearing Price (\$/MW)	250														
Lambda * 1.5 Price (\$/MW)	375														
Cumulative Relevant and Effective Supply by Participant Bidder															
	400	400	400	400	400	400	400	240	240	120	100	80	80	80	40
	200	200	200	200	200	200	200	120	100	100	80	50	40	0	0
	120	120	120	120	120	120	120	100	100	100	60	50	0	0	0
	100	100	100	100	100	100	100	100	100	100	60	40	0	0	0
	100	100	100	100	100	100	100	100	100	70	50	0	0	0	0
	100	100	100	100	100	100	100	100	80	60	50	0	0	0	0
	100	90	90	90	90	80	80	80	60	40	40	0	0	0	0
	40	40	40	40	40	40	40	40	40	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cumulative Relevant Supply	1160	1150	1150	1150	1150	1140	1140	880	820	590	440	220	120	80	40
Prices	340.00	330.00	320.00	310.00	300.00	290.00	280.00	270.00	260.00	250.00	240.00	230.00	220.00	210.00	200.00

Participant A is the smallest provider of available, effective MW

