Conectiv TPS proposal

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- Conectiv example: “Iterative three pivotal test”
  - Run three pivotal supplier test.
    - Apply results to two largest participants
  - Remove the largest supplier from total supply and relief required
  - Run the three pivotal supplier test again.
  - Remove the second largest supplier from total supply and relief required.
  - Run the three pivotal supplier test on remaining suppliers, using remaining relief needed.
    - Apply results of test to suppliers tested in last iteration (third largest supplier through the smallest supplier).

- Issues with Conectiv proposal:
  - Relevant market structure is only used to test the two biggest suppliers
    - Supplier 3 through N are not tested within the context of the actual, relevant market structure
  - Test does not generate rational results
    - Will pass or fail suppliers according to rank among suppliers, not relative market power
    - Test scores from Conectiv approach are irrelevant to market structure and tested participant's place within that structure
    - Conectiv approach fails to recognize pivotal markets properly

Conectiv Example: TPS result

Score should be based on tested participant's share of total supply, relative to relief required

Score >= 1 a pass

Three Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}} \quad >= 1.00$$

TPS Test = (168.04 - 40.52 - 35.73 - Supply 3) / 101.19
Relief 101.19

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	40.52	0.70			24.11%	26.33
B	35.73	0.70			21.26%	-9.4
C	20.68	0.70	4.26	71.11	12.31%	-30.08
D	20.51	0.70	4.43	71.28	12.21%	-50.59
E	20.14	0.71	4.8	71.65	11.99%	-70.73
F	13.05	0.78	11.89	78.74	7.77%	-83.78
G	7.47	0.83	17.47	84.32	4.45%	-91.25
H	2.72	0.88	22.22	89.07	1.62%	-93.97
I	2.57	0.88	22.37	89.22	1.53%	-96.54
J	1.87	0.89	23.07	89.92	1.11%	-98.41
K	1.11	0.90	23.83	90.68	0.66%	-99.52
L	0.52	0.90	24.42	91.27	0.31%	-100.04
M	0.40	0.90	24.54	91.39	0.24%	-100.44
N	0.36	0.90	24.58	91.43	0.21%	-100.8
O	0.28	0.90	24.66	91.51	0.17%	-101.08
P	0.11	0.91	24.83	91.68	0.07%	-101.19
	168.04					

Conectiv Proposal: Step 2 and 3 of iterative approach

Three Pivotal Suppliers Test

Step 1 Test = $\frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}}$ >= 1.00

Step 2 Test = $\frac{\text{(Total Eff Supply - S1) - (Supply 2 + Supply 3 +Supply4)}}{\text{Relief Demand - Supply 1}}$ >= 1.00

Step 2 Test = [168.04 - 40.52) - (35.73 - 20.68 - S 4)] / (101.19 - 40.52) > 1.00

Step 3 Test $\frac{\text{(Total Effective Supply - S1 - S2) - (S3 + S4 +S5)}}{\text{Relief Demand - Supply 1 - Supply 2}}$

Step 3 Test $\frac{\text{(168.04 - 40.52 - 35.73) - (20.68 - 20.51 - Supply 4)}}{\text{101.19 - 40.52 - 35.73}}$

Supplier	Effective MW	Step 2 Test Score
A	40.52	
B	35.73	0.83
C	20.68	0.83
D	20.51	0.83
E	20.14	0.83
F	13.05	0.96
G	7.47	1.05
H	2.72	1.13
I	2.57	1.13
J	1.87	1.14
K	1.11	1.15
L	0.52	1.16
M	0.40	1.17
N	0.36	1.17
O	0.28	1.17
P	0.11	1.17
	168.04	

Supplier	Effective MW	Step 3 Test Score	
A	40.52		Supplier A and B Fail (Based on 1st round of test)
B	35.73		
C	20.68	1.22	**Suppliers C through P pass and are not mitigated**
D	20.51	1.22	
E	20.14	1.22	
F	13.05	1.51	
G	7.47	1.73	
H	2.72	1.92	
I	2.57	1.93	
J	1.87	1.95	
K	1.11	1.98	
L	0.52	2.01	
M	0.40	2.01	
N	0.36	2.01	
O	0.28	2.02	
P	0.11	2.02	

TPS result

Three Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}} \quad >= 1.00$$

TPS Test = Relief 101.19

Same size

Same size

Scores match

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	40	0.47			23.89%	26.22
B	40	0.47			23.89%	-13.78
C	40	0.47	-18.81	47.41	23.89%	-53.78
D	10	0.76	11.19	77.41	5.97%	-63.78
E	10	0.76	11.19	77.41	5.97%	-73.78
F	10	0.76	11.19	77.41	5.97%	-83.78
G	7.47	0.79	13.72	79.94	4.46%	-91.25
H	2.72	0.84	18.47	84.69	1.62%	-93.97
I	2.57	0.84	18.62	84.84	1.54%	-96.54
J	1.87	0.85	19.32	85.54	1.12%	-98.41
K	1.11	0.85	20.08	86.3	0.66%	-99.52
L	0.52	0.86	20.67	86.89	0.31%	-100.04
M	0.40	0.86	20.79	87.01	0.24%	-100.44
N	0.36	0.86	20.83	87.05	0.22%	-100.8
O	0.28	0.86	20.91	87.13	0.17%	-101.08
P	0.11	0.86	21.08	87.3	0.07%	-101.19
	167.41					

Conectiv Proposal: Step 2 and 3 of iterative approach

Three Pivotal Suppliers Test

Step 1 Test = $\frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}}$ >= 1.00

Step 2 Test = $\frac{\text{(Total Eff Supply - S1) - (Supply 2 + Supply 3 +Supply4)}}{\text{Relief Demand - Supply 1}}$ >= 1.00

Step 2 Test =

Step 3 Test $\frac{\text{(Total Effective Supply - S1 - S2) - (S3 + S4 +S5)}}{\text{Relief Demand - Supply 1 - Supply 2}}$ >= 1.00

Step 3 Test = $\frac{\quad}{\quad}$ >= 1.00

Supplier	Effective MW	Step 2 Test Score
A	40	
B	40	
C	40	0.61
D	10	0.61
E	10	0.61
F	10	0.61
G	7.47	0.65
H	2.72	0.73
I	2.57	0.73
J	1.87	0.74
K	1.11	0.76
L	0.52	0.77
M	0.4	0.77
N	0.36	0.77
O	0.28	0.77
P	0.11	0.77
	167.41	

Supplier	Effective MW	Step 3 Test Score
A	40	
B	40	
C	40	1.29
D	10	1.29
E	10	1.29
F	10	1.29
G	7.47	1.41
H	2.72	1.64
I	2.57	1.64
J	1.87	1.68
K	1.11	1.71
L	0.52	1.74
M	0.4	1.75
N	0.36	1.75
O	0.28	1.75
P	0.11	1.76

A, B and C are in the same position. Score depends on order, not on structure of the relevant market.

Suppliers C through P pass and are not mitigated

Suppliers A and B fail based on first round of test (TPS)

Comparing Conectiv Test to Two Pivotal Supplier Test

Two pivotal test results

Two Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2)}}{\text{Relief Demand}} >= 1.00$$

TPS Test = Relief 101.19

Supplier A-C fail, same cumulative supply results in the same score

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	40	0.86			23.89%	26.22
B	40	0.86			23.89%	-13.78
C	40	0.86	-18.81	47.41	23.89%	-53.78
D	10	1.16	11.19	77.41	5.97%	-63.78
E	10	1.16	11.19	77.41	5.97%	-73.78
F	10	1.16	11.19	77.41	5.97%	-83.78
G	7.47	1.19	13.72	79.94	4.46%	-91.25
H	2.72	1.23	18.47	84.69	1.62%	-93.97
I	2.57	1.23	18.62	84.84	1.54%	-96.54
J	1.87	1.24	19.32	85.54	1.12%	-98.41
K	1.11	1.25	20.08	86.3	0.66%	-99.52
L	0.52	1.25	20.67	86.89	0.31%	-100.04
M	0.4	1.26	20.79	87.01	0.24%	-100.44
N	0.36	1.26	20.83	87.05	0.22%	-100.8
O	0.28	1.26	20.91	87.13	0.17%	-101.08
P	0.11	1.26	21.08	87.3	0.07%	-101.19
	167.41					

TPS Result

Market structure less competitive

Three Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}} \quad >= 1.00$$

TPS Test =
Relief 101.19

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	70	0.47			39.46%	6.22
B	30	0.47			16.91%	-23.78
C	30	0.47	-28.81	47.41	16.91%	-53.78
D	10	0.67	-8.81	67.41	5.64%	-63.78
E	10	0.67	-8.81	67.41	5.64%	-73.78
F	10	0.67	-8.81	67.41	5.64%	-83.78
G	7.47	0.69	-6.28	69.94	4.21%	-91.25
H	2.72	0.74	-1.53	74.69	1.53%	-93.97
I	2.57	0.74	-1.38	74.84	1.45%	-96.54
J	1.87	0.75	-0.68	75.54	1.05%	-98.41
K	1.11	0.75	0.08	76.3	0.63%	-99.52
L	0.52	0.76	0.67	76.89	0.29%	-100.04
M	0.40	0.76	0.79	77.01	0.23%	-100.44
N	0.36	0.76	0.83	77.05	0.20%	-100.8
O	0.28	0.76	0.91	77.13	0.16%	-101.08
P	0.11	0.76	1.08	77.3	0.06%	-101.19
	177.41					

Conectiv Proposal: Step 2 and 3 of iterative approach

Three Pivotal Suppliers Test

Step 1 Test = $\frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}}$ >= 1.00

Step 2 Test = $\frac{\text{(Total Eff Supply - S1) - (Supply 2 + Supply 3 +Supply4)}}{\text{Relief Demand - Supply 1}}$ >= 1.00

Step 2 Test =

Step 3 Test $\frac{\text{(Total Effective Supply - S1 - S2) - (S3 + S4 +S5)}}{\text{Relief Demand - Supply 1 - Supply 2}}$ >= 1.00

Step 3 Test = $\frac{\quad}{\quad}$ >= 1.00

Supplier B and C are equivalent. Test does not recognize this.

Supplier	Effective MW	Step 2 Test Score
A	70	
B	30	1.20
C	30	1.20
D	10	1.20
E	10	1.20
F	10	1.20
G	7.47	1.28
H	2.72	1.43
I	2.57	1.44
J	1.87	1.46
K	1.11	1.48
L	0.52	1.50
M	0.4	1.51
N	0.36	1.51
O	0.28	1.51
P	0.11	1.52

Supplier C passes

Supplier	Effective MW	Step 3 Test Score
A	70	
B	30	
C	30	23.03
D	10	23.03
E	10	23.03
F	10	23.03
G	7.47	25.16
H	2.72	29.15
I	2.57	29.28
J	1.87	29.87
K	1.11	30.50
L	0.52	31.00
M	0.4	31.10
N	0.36	31.13
O	0.28	31.20
P	0.11	31.34

Suppliers C through P pass and are not mitigated

Comparing Conectiv Test to Two Pivotal Supplier Test

Same cumulative supply, same test score

Two Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2)}}{\text{Relief Demand}} >= 1.00$$

Relief 101.19

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	70	0.76			39.46%	6.22
B	30	0.76			16.91%	-23.78
C	30	0.76	-28.81	47.41	16.91%	-53.78
D	10	0.96	-8.81	67.41	5.64%	-63.78
E	10	0.96	-8.81	67.41	5.64%	-73.78
F	10	0.96	-8.81	67.41	5.64%	-83.78
G	7.47	0.99	-6.28	69.94	4.21%	-91.25
H	2.72	1.03	-1.53	74.69	1.53%	-93.97
I	2.57	1.04	-1.38	74.84	1.45%	-96.54
J	1.87	1.04	-0.68	75.54	1.05%	-98.41
K	1.11	1.05	0.08	76.3	0.63%	-99.52
L	0.52	1.06	0.67	76.89	0.29%	-100.04
M	0.4	1.06	0.79	77.01	0.23%	-100.44
N	0.36	1.06	0.83	77.05	0.20%	-100.8
O	0.28	1.06	0.91	77.13	0.16%	-101.08
P	0.11	1.06	1.08	77.3	0.06%	-101.19
	177.41					

Supplier A-G fail Two Pivotal Supplier Test

Supplier A and B fail the Conectiv Proposal

"Very" Competitive Market Structure

Three Pivotal Suppliers Test
From 4/25/06 MIC Meeting

$$\text{TPS Test} = \frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}} >= 1.00$$

Original supplier assumptions

Relief required is now lower

TPS Test = Relief 69

All pass TPS test

Supplier	Effective MW	Test Score	Remaining Need After A & B & ?	Remaining Supply After A & B & ?	% of effective supply	"Excess Relief Available"
A	40.52	1.03			24.11%	58.52
B	35.73	1.03			21.26%	22.79
C	20.68	1.03	-27.93	71.11	12.31%	2.11
D	20.51	1.03	-27.76	71.28	12.21%	-18.4
E	20.14	1.04	-27.39	71.65	11.99%	-38.54
F	13.05	1.14	-20.3	78.74	7.77%	-51.59
G	7.47	1.22	-14.72	84.32	4.45%	-59.06
H	2.72	1.29	-9.97	89.07	1.62%	-61.78
I	2.57	1.29	-9.82	89.22	1.53%	-64.35
J	1.87	1.30	-9.12	89.92	1.11%	-66.22
K	1.11	1.31	-8.36	90.68	0.66%	-67.33
L	0.52	1.32	-7.77	91.27	0.31%	-67.85
M	0.40	1.32	-7.65	91.39	0.24%	-68.25
N	0.36	1.33	-7.61	91.43	0.21%	-68.61
O	0.28	1.33	-7.53	91.51	0.17%	-68.89
P	0.11	1.33	-7.36	91.68	0.07%	-69
	168.04					

Conectiv Proposal: Step 2 and 3 of iterative approach

"Very" Competitive Market Structure

Three Pivotal Suppliers Test

Step 1 Test = $\frac{\text{Total Effective Supply - (Supply 1+ Supply 2 + Supply 3)}}{\text{Relief Demand}}$ >= 1.00

Step 2 Test = $\frac{\text{(Total Eff Supply - S1) - (Supply 2 + Supply 3 +Supply4)}}{\text{Relief Demand - Supply 1}}$ >= 1.00

Step 2 Test =

Step 3 Test = $\frac{\text{(Total Effective Supply - S1 - S2) - (S3 + S4 +S5)}}{\text{Relief Demand - Supply 1 - Supply 2}}$

Step 3 Test = $\frac{\quad}{\quad}$

Supplier	Effective MW	Step 2 Test Score
A	40.52	
B	35.73	1.78
C	20.68	1.78
D	20.51	1.78
E	20.14	1.78
F	13.05	2.04
G	7.47	2.23
H	2.72	2.40
I	2.57	2.41
J	1.87	2.43
K	1.11	2.46
L	0.52	2.48
M	0.40	2.48
N	0.36	2.48
O	0.28	2.49
P	0.11	2.49
	168.04	

All passed TPS, but C-D fail Conectiv proposal

Supplier	Effective MW	Step 3 Test Score	
A	40.52		Suppliers A-B Pass (first iteration)
B	35.73		
C	20.68	-4.20	Suppliers C-P Fail (Third iteration)
D	20.51	-4.20	
E	20.14	-4.20	
F	13.05	-5.18	
G	7.47	-5.95	
H	2.72	-6.60	
I	2.57	-6.62	
J	1.87	-6.72	
K	1.11	-6.83	
L	0.52	-6.91	
M	0.40	-6.92	
N	0.36	-6.93	
O	0.28	-6.94	
P	0.11	-6.96	