



Southwestern Connecticut Electric Reliability Study

**A Comparative Analysis
Of
A 345kV Plumtree-Norwalk Overhead Line
Versus
2 – 115kV Cables from Plumtree-Norwalk**

**Phase II
Phase I**

December 2002

ISO New England Inc. – Transmission Planning

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Preface

This report is a preview of an analysis that will subsequently be incorporated in Volume III of a set of reports concerning the reliability of the electric transmission system in southwestern Connecticut. The set of reports include:

- Southwestern Connecticut Reliability Study, Interim Report; January 2002.
- Southwestern Connecticut Electric Reliability Study, Volume I, Final Power-Flow, Voltage and Short-Circuit Report; December 2002.
- Southwestern Connecticut Electric Reliability Study, Volume II, Final Stability Report; In-progress.
- Southwestern Connecticut Electric Reliability Study, Volume III, which will be a summary of analyses of alternatives; In-progress.

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1. Definitions

The following terms are used throughout the report.

- **Phase II:** The full loop is in place, regardless of how constructed.
- **Phase I:** Only the Plumtree to Norwalk portion is in place, regardless of how constructed.
- **Phase II 345kV Plan:** Both the Plumtree to Norwalk and the Beseck to Norwalk segments are constructed at 345kV and are in service. (The Norwalk to Glenbrook radial 345kV is also in place.)
- **Phase II (2) 115/345kV Plan:** The Plumtree to Norwalk portion is constructed with 2-115kV cables and the Beseck to Norwalk is constructed at 345kV. Both are in service. (The Norwalk to Glenbrook radial 345kV is also in place.)
- **Phase I 345kV Plan:** Only the Plumtree to Norwalk portion is in service and it is operating via a 345kV overhead line.
- **Phase I (2) 115kV Plan:** Only the Plumtree to Norwalk portion is in service and it is operating via 2- 115kV underground cables.

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2. Executive Summary

This report documents analyses that were performed to compare two different alternatives, one being the complete 345kV loop (Phase II 345kV Plan) as established by the Southwestern Connecticut Electric Reliability Study, Volume I, December 2002, and the other being an alternative proposed by Synapse Energy Economics (Synapse) in their work on behalf of the Towns of Bethel, Redding, Weston and Wilton in Connecticut. The alternative plan explored utilizing 2-115kV cables between Plumtree and Norwalk (Phase II (2) 115/345kV Plan). The study's main focus was on comparing the plans in the context of the overall solution to the area's problems, the full loop (referred to as Phase II). It also investigated, however, how they would compare as stand-alone projects (Phase I), because there appeared to be significant interest in that analysis.

The comparisons are based on the quantity of thermal violations, the quantity of voltage violations, the ability to import power to meet future load growth as determined by transfer limit analysis, base case system-wide peak losses, magnitude of available short-circuit currents (fault currents), and cost.

The results of this analysis show that the proposed Phase II 345kV Plan is superior in both the short and long term.

The Phase II 345kV Plan performed better than the Phase II (2) 115/345kV Plan with respect to post-contingency overloads at the 27,700 MW New England load level. The Phase II (2) 115/345kV Plan would require that improvements (most likely reconductoring) also be made to the two 115kV lines between Barnum and Baird. At the 30,000 MW load level, the Phase II 345kV Plan started showing distinct advantages over the Phase II (2) 115/345kV Plan. Although neither had any pre-contingency issues, the 115kV alternative had post-contingency overloads on 7 additional circuits. Additional study would be required to determine exact requirements, however, it appears that these additional seven circuits would require some form of improvement to increase their thermal capability in order to provide performance comparable to the Phase II 345kV Plan. Voltage violations were not an issue between the plans.

The Phase II 345kV Plan resulted in 200 to 350 MW more of operating transfer capability (dependent on specific generation dispatch at the time) at the 27,700 MW load level than the Phase II (2) 115/345kV Plan. Assuming 40 to 50 MW of load growth per year, this corresponds to 4 to 7 years of additional useful life. Using planning transfer limit criteria (includes all double circuit and stuck breaker contingencies), the Phase II 345kV Plan is better by a range of 50 to 250 MW, again dependent on the generation dispatch.

While the Phase I plans provide some degree of improvement, both leave a large number of unresolved problems in southwestern Connecticut. For example, the

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Phase I (2) 115kV Plan, at the future peak load level of 27,700 MW and including the 4 dispatch scenarios, exhibited 400 post-contingency overload situations (includes same facilities overloading for various contingencies to indicate extent of problems) as compared to 276 for the Phase I 345kV Plan.

A comparison of peak demand MW losses showed nothing substantive.

The fact that the interconnections associated with the Milford Power and the Bridgeport Energy Center plants will be modified in Phase II to mitigate the available fault currents makes short circuit problems a moot issue. As a stand-alone project, the Phase I 345kV Plan resulted in higher available fault currents than the Phase I (2)115kV Plan. The Phase I 345kV Plan, however, did not overstress any additional breakers as compared to the Phase I (2) 115kV plan, just overstressed them to a greater degree.

Based on CL&P's pre-filed testimony to the Connecticut Siting Council in Docket No. 217, building Phase I with 345kV overhead is more economical than installing (2) 115kV underground cables. Again based on CL&P's pre-filed testimony, due to the additional right-of-way and substation costs, total estimated construction costs for the Phase I 345kV Plan exceeded those for the Phase I (2) 115/345kV Plan by about \$ 6 million. The Norwalk 345kV substation work, estimated at \$ 25 million, would be completed with the Phase I 345kV Plan work and is included in its estimate. However, the Phase I (2) 115kV Plan would postpone this \$ 25 million expenditure until Phase II, thereby increasing the Phase II portion by \$ 25 million. Hence, the Phase I (2) 115kV Plan would actually cost approximately \$ 20 million more than the Phase I 345kV Plan. Adding to this cost difference would be the cost of the various system upgrades (for example, the Barnum to Baird reconductorings) to make the plans equivalent. The cost of the various system upgrades to make the Phase I (2) 115kV Plan equivalent to the Phase I with 345KV overhead is still not yet known.

In conclusion, the Phase II 345kV Plan tested to be a more robust system alternative, performing better over the long term. Based on the similar Phase I costs and the additional projects necessary to make the Phase II (2) 115kV Plan equal to the Phase II 345kV Plan, the Phase II 345kV Plan also appears to be more economical. Although Phase I alone is not, and was not envisioned as a total solution , it does provide benefits and its implementation is needed to allow the outages necessary to construct Phase II.

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3. Introduction

The purpose of this report is to supplement the work done for the Southwestern Connecticut Reliability Study by documenting an analysis that compares two alternatives, first, in context with the completion of the total plan for the area (called the Phase II analyses) and, secondly, as stand-alone plans (called the Phase I analyses). To clarify, the first comparison examines the relative differences between building the Phase I Plumtree to Norwalk section with 2 – 115 kV (the Phase I (2) 115kV Plan) underground cables as opposed to building it with a single 345kV overhead line (the Phase I 345kV Plan), in the context of a total plan for the area by adding the Phase II, 345kV loop projects to these Phase I alternatives. The second comparison compares the Phase I alternatives as stand-alone projects, without the benefit of the remainder of the loop.

It is important to note that while Connecticut Light & Power (CL&P) has to date only filed the Plumtree to Norwalk (Phase I 345kV Plan) portion of the full Phase II 345kV Plan with the Connecticut Siting Council, both CL&P's and ISO – New England's (ISO-NE) analyses demonstrate that, while helpful, Phase I is not in itself sufficient and is only the first step in a broader solution to the reliability issues in southwestern Connecticut. Despite that, however, ISO-NE agreed to compare the Phase I 345kV Plan with Synapse's alternative Phase I (2) 115kV Plan and include it in this report.

Section 4 of the report will compare the two Phase II alternatives with respect to thermal and voltage violations and relative load growth capabilities. Similarly, Section 5 will compare the same for Phase I. Sections 6, 7, and 8 will discuss loss differences, the available fault current issue, and costs, respectively.

4. Phase II: Thermal and Voltage Violations & Import Levels

a) **Thermal and Voltage Violations**

The PTI PSS/E ACCC software was used to analyze the system, both at the 27,700 and 30,000 MW levels. The results of this analysis is provided in Tables 1 and 2 with supporting documentation in Appendices B and C.

Table 1 compares the two Phase II alternatives at the 27,700 MW load level with respect to pre-contingency (base case or normal) overloads, contingency overloads (by range of overload) and non-convergent cases for each of the four generation dispatch scenarios. (A description of these dispatches appears in Appendix A. The load flow models used in this analysis were also used in the Volume I analyses.) There were no pre-contingency overloads or non-convergent cases for either of the alternatives at this design basis load level. There were no contingency overloads for the Phase II 345kV Plan; however, there were two contingency violations for the Phase II (2) 115/345kV Plan.

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Both of the Barnum to Baird 115kV lines overload (8%) for the loss of the double circuit line west of Devon comprised of the 1710 Devon to Old Town 115kV line and the new 345kV line from East Devon to Singer.

Table 1

PHASE II COMPARISON @ 27,700 MW LOAD LEVEL						
(2) 115/345kV Plan						345kV Plan
Gen. Disp.	Quantity Of Overloads					NC Cases
	Pre-Cont.	Post-Cont. Range			Total	
		0 - 10%	10 - 20%	> 20%		
2	0	2	0	0	2	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
Total	0	2	0	0	2	0

345kV Plan						
Gen. Disp.	Quantity Of Overloads					NC Cases
	Pre-Cont.	Post-Cont. Range			Total	
		0 - 10%	10 - 20%	> 20%		
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 2 displays the same comparison at the 30,000 MW load level. The Phase II 345kV Plan experiences three contingency overloads, all on the Sackett to Mix Avenue 115kV

line. Conversely, there are eighteen contingency overloads for the 115kV Plan, spread over five different paths into the area. These include the following eight lines (which overload for various contingencies in the different dispatch scenarios):

- Baird A-Cngres2A : 10% (East Shore – Pequonnock path)
- Baird B-Cngres2B : 10% (East Shore – Pequonnock path)
- Barnum A – Baird A : 25% (East Shore – Pequonnock path)
- Barnum B – Baird B : 25% (East Shore – Pequonnock path)
- Beacon Falls – Towantic : 4% (Frost Bridge – Devon path)
- Norwalk – Flax Hill : 1% (Norwalk – Glenbrook path)
- Sackett – Mix Avenue : 4% (Grand Avenue – Glenlake path)
- Stevenson – Sandy Hook : 7% (Stevenson – Plumtree path)

Reconductoring the two lines from Baird to Barnum would result in fairly equivalent plans, providing this reconductoring does not create other problems, at the 27,700 MW load level. At the 30,000 MW level (about 300

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MW additional in southwestern Connecticut), however, the Phase II 345kV Plan clearly exhibits its superiority over the (2) 115/345kV Plan.

Table 2

PHASE II COMPARISON @ 30,000 MW LOAD LEVEL						
(2) 115/345kV Plan						
Gen. Disp.	Quantity Of Overloads				Total	NC Cases
	Pre-Cont.	Post-Cont. Range				
		0 - 10%	10 - 20%	> 20%		
2	0	9	2	2	13	0
3	0	3	0	0	3	0
4	0	2	0	0	2	0
5	0	0	0	0	0	0
Total	0	14	2	2	18	0

345kV Plan						
Gen. Disp.	Quantity Of Overloads				Total	NC Cases
	Pre-Cont.	Post-Cont. Range				
		0 - 10%	10 - 20%	> 20%		
2	0	2	0	0	2	0
3	0	0	0	0	0	0
4	0	1	0	0	1	0
5	0	0	0	0	0	0
Total	0	3	0	0	3	0

A summary of contingency voltage violations appears in Table 3. There are no violations at the 27,700 MW or the 30,000 MW level for either plan. The Phase I violations will be discussed in Section 5a.

Table 3

POST-CONTINGENCY VOLTAGE VIOLATIONS SUMMARY

Number of Voltage Violations							
(2) 115/345kV Plan							
Gen. Disp.	Phase I		Phase II		Total		
	27700	30000	27700	30000			
2	1	0	0	0	1		
3	0	0	0	0	0		
4	0	0	0	0	0		
5	3	0	0	0	3		
Total	4	0	0	0	4		

345kV Plan							
Gen. Disp.	Phase I		Phase II		Total		
	27700	30000	27700	30000			
2	0	0	0	0	0		
3	0	0	0	0	0		
4	0	0	0	0	0		
5	0	0	0	0	0		
Total	0	0	0	0	0		

b) Import Levels

PTI's Managing & Utilizing System Transmission (MUST) software was used to arrive at SWCT thermal import limit ranges, based on both operating and planning criteria, as a means to compare the Phase II plans. Five different sensitivities were run based on different levels of generation (from zero to maximum) at the Milford, Bridgeport Energy Center and Wallingford plants.

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Overloads on the Quinnipiac to North Haven line consistently occurred (using planning criteria) for the loss of the East Shore to Grand Avenue double circuit. It appeared to be a very localized problem, aggravated by increasing import levels, and was therefore not included as a limiting element.

Similarly, the Barnum to Baird to Congress lines, along the East Shore to Pequonnock corridor, also appeared consistently for various contingencies at different import levels. These lines relate more to imports into an extended Norwalk / Stamford interface area, including Bridgeport perhaps Danbury, than to imports into the greater southwestern Connecticut import area. Although the details in Appendices D, E, and H include limits based on both scenarios, respecting and not respecting these line limitations, the following discussions exclude them. While including them does lower the magnitude of the limits for both plans, it does not change their relative magnitude.

The results based on operating criteria (excluding a number of double circuit and stuck breaker contingencies) are displayed in Table 4, with additional detail in Appendix D. The Phase II 345kV Plan resulted in 200 to 350 MW more of transfer capability than the Phase II (2) 115/345kV Plan. Assuming 40 to 50 MW of load growth per year, this corresponds to 4 to 7 years of additional useful life.

Table 4*
PHASE II
SOUTHWESTERN CONNECTICUT
OPERATING THERMAL TRANSFER LEVELS

	<u>Import Range (MW)</u>
<u>Existing System</u>	2050 to 2400
<u>Phase II</u>	
Phase II 345kV Plan	3450 to 3900
Phase II (2) 115/345kV Plan	3200 to 3550

** Excluding a number of double circuit and stuck breaker contingencies.*

The results based on planning criteria are displayed in Table 5, with additional detail in Appendix E. The Phase II 345kV Plan resulted in 50 to 250 MW more of transfer capability than the Phase II (2) 115/345kV Plan, depending on the output of area generators. Assuming 40 to 50 MW of load growth per year, this corresponds to roughly 1 to 6 years of additional useful life.

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At higher future transfer levels, it is likely that, with the increasing likelihood of outages having a more widespread impact on the area, the local operating criteria might be modified to include some possible stuck breaker and double circuit contingencies. Based on this assumption, the transfer levels would probably fall somewhere in between the Table 4 and the Table 5 values. Both are shown, however, for the sake of completeness.

Table 5
PHASE II
SOUTHWESTERN CONNECTICUT
PLANNING THERMAL TRANSFER LEVELS

	<u>Import Range (MW)</u>
<u>Existing System</u>	1650 to 2200
<u>Phase II</u>	
Phase II 345kV Plan	3050 to 3550
Phase II (2) 115/345kV Plan	3000 to 3300

5. Phase I: Thermal and Voltage Violations & Import Levels

a) Thermal and Voltage Violations

The PTI PSS/E ACCC software was used to analyze the system at the 27,700 MW load level. Table 6 compares the two Phase I alternatives at the 27,700 MW load level with respect to pre-contingency (base case or normal) overloads, contingency overloads (by range of overload) and non-convergent cases for each of the four generation dispatch scenarios. Supporting data is included in Appendix F.

There are a total of 7 pre-contingency overloads for the Phase 1 (2) 115kV Plan as compared to 4 for the Phase I 345kV Plan. There were a total of 400 contingency overload violations for the 115kV Plan; there were 276 contingency violations for the 345kV Plan. There were 59 non-convergent cases for the 115kV Plan as opposed to 54 for the 345kV Plan.

Referring back to Table 3, there were four voltage violations for the 115kV Plan as opposed to zero for the 345kV Plan. Details can be found in Appendix G.

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Table 6

PHASE I COMPARISON @ 27,700 MW LOAD LEVEL						
(2) 115kV Plan						
Gen. Disp.	Quantity Of Overloads					NC Cases
	Pre-Cont.	Post-Cont. Range			Total	
		0 - 10%	10 - 20%	> 20%		
2	2	90	39	38	167	19
3	3	81	30	29	140	13
4	2	10	6	15	31	13
5	0	40	12	10	62	14
Total	7	221	87	92	400	59

345kV Plan						
Gen. Disp.	Quantity Of Overloads					NC Cases
	Pre-Cont.	Post-Cont. Range			Total	
		0 - 10%	10 - 20%	> 20%		
2	2	57	25	44	126	17
3	1	48	12	30	90	13
4	1	10	8	12	30	12
5	0	10	8	12	30	12
Total	4	125	53	98	276	54

The 400 contingency overloads occur on 18 different lines; the 276 contingency overloads occur on 16 lines. The overall summary of the Phase II occurrences of violations and how they compare with Phase I as well as the base system appears in Table 7.

Table 7

SUMMARY OF PROBLEM OCCURRENCES

Case	Normal Overloads (1)	Contingency Overloads (2)	Voltage Violations (3)	Non-convergent Contingencies (4)
Base - 27700MW	36	82	31	54
Phase I - 27700MW				
345kV Plan	4	16	0	16
2-115kV Plan	7	18	4	19
Phase II - 27700MW				
345kV Plan	0	0	0	0
2-115kV Plan	0	2	0	0
Phase II - 30000MW				
345kV Plan	0	1	5	0
2-115kV Plan	0	8	8	0

- (1) number of occurrences-could be same line for different dispatches
- (2) number of different line segments that show up at least for one contingency
- (3) number of different busses that show up for at least one contingency
- (4) number of different contingencies that do not result in a solved case

In summary, there are widespread criteria violations at the 27,700 MW load level prior to any improvement projects. The Phase I 345kV Plan is superior to the Phase I (2) 115kV Plan, but neither of the plans can be considered a total solution for the area. The Phase I 345kV Plan eliminates all criteria violations at the 27,700 MW load level (compared to 2 contingency overloads

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for the Phase I (2) 115 kV Plan), and the Phase II 345kV Plan performs much better at the 30,000 MW load level.

b) Import Levels

Table 8 displays an analysis similar to Section 4b, except that the SWCT import limit ranges are compared for the two Phase I plans, as opposed to the two Phase II plans. The Phase I 345kV is superior by 50 to 100 MW. Supporting documentation can be found in Appendix H.

Table 8

**PHASE I
SOUTHWESTERN CONNECTICUT
OPERATING THERMAL TRANSFER LEVELS**

	<u>Import Range (MW)</u>
<u>Existing System</u>	2050 to 2400
<u>Phase I</u>	
Phase I 345kV Plan	2300 to 2600
Phase I (2) 115kV Plan	2150 to 2500

Table 9 compares the impact that the two Phase I alternatives would have on the Norwalk / Stamford transfer limit. While both Phase I plans do improve the existing limit, there is not a substantial difference, less than 50 MW on the low end of the range, between them. Appendix I contains the supporting documentation.

Table 9

**NORWALK / STAMFORD
OPERATING THERMAL TRANSFER LEVELS**

	<u>Import Range (MW)</u>
<u>Existing System</u>	850 TO 1150
<u>Phase I</u>	
Phase I 345kV Plan	1100 TO 1400
Phase I (2) 115kV Plan	1050 TO 1300

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6. Losses

Table 10 shows a base case demand MW loss comparison between the two alternatives for each of the four dispatches. It includes a Phase II comparison for both a 27,700 and a 30,000 MW peak load level. The numbers portrayed are the total New England system losses, the only difference being the configuration between Plumtree and Norwalk.

Because the Phase II 345kV circuitry picks up the majority of the load, the loss difference between having Phase I constructed 115kV as opposed to 345kV is not significant, and could be labeled 'noise'. The 1 to 3 MW loss difference probably translates to an average annual loss of about 0.5 MW. At \$35/MWhr, this translates to an annual loss cost difference of \$150,000.

Table 10

Gen. <u>Disp.</u>	Phase II					
	27700MW			30000MW		
	Alternative 115kV	Alternative 345kV	Diff	Alternative 115kV	Alternative 345kV	Diff
2	656	654	2	914	911	3
3	602	603	-1	829	829	0
4	604	603	1	821	820	1
5	651	651	0	923	922	1

Looking at only Phase I, which appears in Table 11, the difference is somewhat greater. This loss difference probably translates to an average annual loss of about 3.0 MW, which, using the same assumptions, translates to an annual loss cost difference of \$1,000,000.

Table 11

Gen. <u>Disp.</u>	Phase I		
	27700MW		Diff
	Alternative 115kV	Alternative 345kV	
2	708	690	18
3	628	622	6
4	613	613	0
5	685	676	8

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7. Short-Circuit Analysis

The fact that the interconnections associated with the Milford Power and the Bridgeport Energy Center plants will be modified in Phase II to mitigate the available fault currents in the area predisposes the need to evaluate it as part of this analysis. Appendix J, however, displays the Phase I results of the short-circuit comparison of the two plans.

Although the Phase I 345kV Plan alternative had roughly a 20% more severe impact at Norwalk in terms of fault current, the Phase I (2) 115kV Plan resulted in at least a 33% overstress on each of the breakers. This is a moot issue, however, because all of the breakers are currently planned to be replaced at Norwalk because of the magnitude of fault current available from today's system conditions. If this wasn't the case, they would all have to be changed out irrespective of what plan was selected as Phase I.

The issue is similar for Glenbrook. Although the Phase I 345kV Plan subjects them to 1 to 3 % higher fault currents, all of the breakers are currently planned for replacement prior to either of these projects being implemented because of today's fault current availability.

There is negligible impact at the other critical substations, Devon and Pequonnock, in the area between the two plans. The Phase I 345kV Plan stresses the worst-case breaker at these locations by 0.4 % more than the Phase I (2) 115kV Plan.

In conclusion, although the 345kV and its lower impedance path does have a greater impact on the available fault current in the area, it's not enough to create any design differences between the two plans as far as breaker fault duty capabilities.

8. Cost¹

The construction cost estimate for the Phase I 345kV Plan is \$ 124.3 million. Similarly, the estimated cost for the Phase I (2) 115kV Plan is \$ 118.0 million. It is important to note that the Phase I 345kV Plan includes the cost of building the Norwalk 345kV Substation, \$25 million, in its \$ 124.3 million estimate. This cost would have to be added to the Phase I (2) 115kV Plan cost to make it a valid comparison, since this would have to be expended as part of the Phase II work.

¹ The following cost information is based on CL&P's pre-filed testimony to the Connecticut Siting Council in Docket No. 217.

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9. Conclusion

The Phase II 345kV Plan tested to be a more robust system alternative, performing better over the long term. Based on the similar Phase I costs and the additional projects necessary to make the Phase II (2) 115kV Plan equal to the Phase II 345kV Plan, the Phase II 345kV Plan also appears to be more economical. Although Phase I alone is not, and was not intended to be, a total solution, its implementation is needed to allow the outages necessary to construct Phase II.

Appendices

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Appendix A Connecticut Dispatch & Interface Scenarios

Generators	Capacity	Dispatch-1	Dispatch-2	Dispatch-3	Dispatch-4	Dispatch-5	Dispatch-6
Connecticut							
Lake Road	840	0	840	840	840	840	0
Millstone	2008	2008	2000	2000	2000	2000	1137
Middletown	771	0	750	750	750	750	517
Montville	489	0	483	483	483	483	0
Meriden	586	586	586	586	586	586	586
Milford	610	280	280	560	560	0	585
Wallingford	255	0	0	255	255	0	255
Towantic	550	0	0		515	0	548
South Meadow	186	0	0	0	0	0	0
New Haven Harbor	447	447	447	447	447	447	447
Bridgeport Harbor	567	375	375	375	375	375	0
Bridgeport Energy	520	0	0	520	520	0	520
Norwalk Harbor	330	0	0	0	329	329	0
Devon	382	0	212	212	212	0	0
Interfaces							
	Limit						
Conn. Import	2200	-1018	1482	-120	-857	1237	495
SWCT Import	2000	660	3126		822	2880	669
Norwalk-Stamford	1100	516	1530	1531	799	795	904
1385 Cable Export	±200	0	200		-199	-200	0
481 Cable Export	355	352	352	352	352	352	352

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Appendix B

Appendix B-1															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 2															
27.700 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
2	1710FDEVPEQD	BARNUM A	BAIRD A	96.9	290.8	264	107.5	---	---	---	---	73692	115	73694	115
2	1710FDEVPEQD	BARNUM B	BAIRD B	97	290.9	264	107.5	---	---	---	---	73693	115	73695	115
Appendix B-2															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 3															
27.700 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Appendix B-3															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 4															
27.700 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Appendix B-4															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 5															
27.700 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Southwestern Connecticut Electric Reliability Study

Appendix C

Appendix C-1															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 30,000 MW LOAD LEVEL - DISPATCH 2															
30,000 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
2	1710FDEVPEQD	BAIRD A	CNGRES2A	78.8	296.6	264	110.1	---	---	---	---	73694	115	73712	115
2	1710FDEVPEQD	BAIRD B	CNGRES2B	78.8	296.5	264	110	---	---	---	---	73695	115	73713	115
2	1710FDEVPEQD	BARNUM A	BAIRD A	115.4	335.5	264	124.7	---	---	---	---	73692	115	73694	115
2	DEVPEQ	BARNUM A	BAIRD A	115.4	281.7	264	104.6	---	---	---	---	73692	115	73694	115
2	PEQ345S3	BARNUM A	BAIRD A	115.4	281.8	264	104.7	---	---	---	---	73692	115	73694	115
2	1710FDEVPEQD	BARNUM B	BAIRD B	115.6	335.7	264	124.7	---	---	---	---	73693	115	73695	115
2	DEVPEQ	BARNUM B	BAIRD B	115.6	281.9	264	104.7	---	---	---	---	73693	115	73695	115
2	PEQ345S3	BARNUM B	BAIRD B	115.6	281.9	264	104.7	---	---	---	---	73693	115	73695	115
2	DEVON2TSTK	BCNFL PF	TOW1575	70.1	129.5	143	104.3	---	---	---	---	73188	115	73351	115
2	1545-1570DCT	DRBY J A	ANSONIA	41	150.8	150	135.5	41.7	150.5	150	135.7	73191	115	73706	115
2	DEVON6TSTK	DRBY J A	ANSONIA	41	150.8	150	135.5	41.7	150.5	150	135.7	73191	115	73706	115
2	1416-1880DCT	NORWALK	FLAX HIL	150.7	259.4	256	100.3	---	---	---	---	73172	115	73207	115
2	SGTN7TSTK	SACKETT	SACKPHS	79.1	139.1	138	100.8	78.8	138.8	138	100.6	73672	115	73673	115
2	SGTN7TSTK	SACKPHS	MIX AVE	80.3	137.7	138	101.9	80.1	137.5	138	101.7	73673	115	73675	115
2	1545-1570DCT	STEVENS	DRBY J A	24.3	298.1	283	133.7	24.2	297.8	283	134	73187	115	73191	115
2	DEVON6TSTK	STEVENS	DRBY J A	24.3	298.1	283	133.7	24.2	297.8	283	134	73187	115	73191	115
2	1618-321DCT	STEVENS	SNDYHK	65.1	278.4	282	100.6	---	---	---	---	73187	115	73282	115

Appendix C-2															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 30,000 MW LOAD LEVEL - DISPATCH 3															
30,000 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
3	1618-321DCT	STEVENS	SNDYHK	148	300.6	282	107	---	---	---	---	73187	115	73282	115
3	1710FPEQNORD	STEVENS	SNDYHK	148	281	282	101	---	---	---	---	73187	115	73282	115
3	1887-321DCT	STEVENS	SNDYHK	148	285.8	282	100.9	---	---	---	---	73187	115	73282	115

Appendix C-3															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 30,000 MW LOAD LEVEL - DISPATCH 4															
30,000 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Appendix C-4															
POST-CONTINGENCY OVERLOADS															
PHASE II COMPARISON @ 30,000 MW LOAD LEVEL - DISPATCH 5															
30,000 MW.															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
5	1545-1570DCT	DRBY J A	ANSONIA	46.6	151.5	150	135.2	46.3	151	150	135.4	73191	115	73706	115
5	DEVON6TSTK	DRBY J A	ANSONIA	46.6	151.5	150	135.2	46.3	151	150	135.4	73191	115	73706	115
5	SGTN7TSTK	SACKETT	SACKPHS	79.4	138.1	138	100.1	---	---	---	---	73672	115	73673	115
5	SGTN7TSTK	SACKPHS	MIX AVE	80.5	136.7	138	103.9	80.4	136.4	138	103.7	73673	115	73675	115
5	1545-1570DCT	STEVENS	DRBY J A	46.3	298.7	283	133.1	43.9	298.3	283	133.5	73187	115	73191	115
5	DEVON6TSTK	STEVENS	DRBY J A	46.3	298.7	283	133.1	43.9	298.3	283	133.5	73187	115	73191	115

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Appendix D

Appendix D-1						
PHASE-2 SWCT THERMAL OPERATING IMPORT LEVEL						
CASE	MILFORD	BE	WALLINGFORD	IMPORT RANGE, W/ BARNUM-BAIRD	IMPORT RANGE, W/O BARNUM-BAIRD	
EXISTING SYSTEM	0-560	P	255	2098-2077	2098-2077	
	0	0-520	255	2083-2100	2083-2100	
	560	0-520	255	2077-2092	2077-2092	
	0	P	0-255	2428-2098	2428-2098	
	560	P	0-255	2327-2077	2327-2077	
	FINAL				2077-2428	2077-2428
	ROUNDED RESULT					2050-2400
345 kV PHASE-2	0-560	P	255	3547-3151	3547-3639	
	0	0-520	255	3567-3463	3567-3463	
	560	0-520	255	3344-3155	3613-3510	
	0	P	0-255	3817-3547	3817-3547	
	560	P	0-255	3501-3151	3909-3639	
	FINAL				3151-3817	3463-3909
	ROUNDED RESULT					3450-3900
115/345 kV PHASE-2	0-560	P	255	3249-2932	3249-3301	
	0	0-520	255	3268-3229	3268-3229	
	560	0-520	255	2947-3267	3305-3267	
	0	P	0-255	3500-3249	3500-3249	
	560	P	0-255	3251-2932	3552-3301	
	FINAL				2932-3500	3229-3552
	ROUNDED RESULT					3250-3550

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Appendix D-2					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
EXISTING, SOUTHWEST CONNECTICUT OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	WLNGF PF-DEVON	1630LINE	2098
		MILFORD 560MW	WLNGF PF-DEVON	1630LINE	2077
	MILFORD 0MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2083
		BE 520MW	WLNGF PF-DEVON	1630LINE	2100
	MILFORD 560MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2077
		BE 520MW	WLNGF PF-DEVON	1630LINE	2092
	MILFORD 0MW	WALLINGFORD 0MW	SCVL RK-E.SHORE	318LINE	2428
		WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2098
MILFORD 560MW	WALLINGFORD 0MW	SCVL RK-E.SHORE	SGTN4TSTK	2327	
	WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2077	
2	WALLINFORD 255MW	MILFORD 0MW	SCVL RK-E.SHORE	SGTN4TSTK	2343
		MILFORD 560MW	BARNUM-BAIRD	88006ALINE	2119
	MILFORD 0MW	BE 0MW	SCVL RK-E.SHORE	SGTN4TSTK	2327
		BE 520MW	SCVL RK-E.SHORE	SGTN4TSTK	2346
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	88006ALINE	2099
		BE 520MW	BARNUM-BAIRD	LOBPTENGF	2129
	MILFORD 0MW	WALLINGFORD 0MW	BCNFL PF-TOW1575	387+AUTO	2561
		WALLINGFORD 255MW	SCVL RK-E.SHORE	SGTN4TSTK	2343
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	88006ALINE	2397	
	WALLINGFORD 255MW	BARNUM-BAIRD	88006ALINE	2119	
3	WALLINFORD 255MW	MILFORD 0MW	BCNFL PF-TOW1575	387LINE	2441
		MILFORD 560MW	CONGRES-BAIRD	88005ALINE	2243
	MILFORD 0MW	BE 0MW	SCVL RK-E.SHORE	318LINE	2434
		BE 520MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	2434
	MILFORD 560MW	BE 0MW	CONGRES-BAIRD	89005ALINE	2249
		BE 520MW	BARNUM-BAIRD	89006BLINE-1	2154
	MILFORD 0MW	WALLINGFORD 0MW	SGTN B-LUCHJA90	387+AUTO	2676
		WALLINGFORD 255MW	BCNFL PF-TOW1575	387LINE	2441
MILFORD 560MW	WALLINGFORD 0MW	SCVL RK-E.SHORE	318LINE	2430	
	WALLINGFORD 255MW	CONGRES-BAIRD	88005ALINE	2243	
4	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	329LINE	2489
		MILFORD 560MW	SCVL RK-E.SHORE	SGTN4TSTK	2339
	MILFORD 0MW	BE 0MW	BCNFL PF-TOW1575	387LINE	2447
		BE 520MW	ROCK RIV-W.BRKFLD	321LINE	2439
	MILFORD 560MW	BE 0MW	SCVL RK-E.SHORE	SGTN4TSTK	2332
		BE 520MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	2277
	MILFORD 0MW	WALLINGFORD 0MW	GLEN JCT-JUNE ST	329LINE	2755
		WALLINGFORD 255MW	GLEN JCT-JUNE ST	329LINE	2489
MILFORD 560MW	WALLINGFORD 0MW	BCNFL PF-TOW1575	387LINE	2641	
	WALLINGFORD 255MW	SCVL RK-E.SHORE	SGTN4TSTK	2339	
5	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	352+AUTO	2495
		MILFORD 560MW	SCVL RK-E.SHORE	318LINE	2450
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	329LINE	2505
		BE 520MW	BCNFL PF-TOW1575	387LINE	2449
	MILFORD 560MW	BE 0MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	2382
		BE 520MW	ROCK RIV-W.BRKFLD	321LINE	2309
	MILFORD 0MW	WALLINGFORD 0MW	BUNKER H-TOW1585	1990NLINE	2787
		WALLINGFORD 255MW	GLEN JCT-JUNE ST	352+AUTO	2495
MILFORD 560MW	WALLINGFORD 0MW	SGTN B-LUCHJA90	387+AUTO	2672	
	WALLINGFORD 255MW	SCVL RK-E.SHORE	318LINE	2450	

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Appendix D-3					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-2 345kV, SOUTHWEST CONNECTICUT OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3547
		MILFORD 560MW	BARNUM-BAIRD	DEVPEQ	3151
	MILFORD 0MW	BE 0MW	GLN JCT-JUNE ST	BESDEV	3567
		BE 520MW	GLN JCT-JUNE ST	BESDEV	3463
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	DEVPEQ	3155
		BE 520MW	DEVON178-BARNUM	89006BLINE	3133
	MILFORD 0MW	WALLINGFORD 0MW	GLEN JCT-JUNE ST	DEVPEQ	3817
WALLINGFORD 255MW		GLEN JCT-JUNE ST	BESDEV	3547	
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	DEVPEQ	3501	
	WALLINGFORD 255MW	BARNUM-BAIRD	DEVPEQ	3151	
2	WALLINFORD 255MW	MILFORD 0MW	BARNUM-BAIRD	DEVPEQ	3888
		MILFORD 560MW	CONGRES-BAIRD	DEVPEQ	3389
	MILFORD 0MW	BE 0MW	BARNUM-BAIRD	DEVPEQ	3871
		BE 520MW	DEVON178-BARNUM	89006BLINE	3892
	MILFORD 560MW	BE 0MW	CONGRES-BAIRD	DEVPEQ	3364
		BE 520MW	CONGRES-BAIRD	BASE CASE	3344
	MILFORD 0MW	WALLINGFORD 0MW	MONTVILE-MILLSTNE	310-348DCT	4011
WALLINGFORD 255MW		BARNUM-BAIRD	DEVPEQ	3888	
MILFORD 560MW	WALLINGFORD 0MW	CONGRES-BAIRD	DEVPEQ	3739	
	WALLINGFORD 255MW	CONGRES-BAIRD	DEVPEQ	3389	
3	WALLINFORD 255MW	MILFORD 0MW	MILLSTNE-BESECK	362E-376DCT	3998
		MILFORD 560MW	DEVON179-BARNUM	88006ALINE	3620
	MILFORD 0MW	BE 0MW	MONTVILE-MILLSTNE	310-348DCT	4007
		BE 520MW	MONTVILE-MILLSTNE	310-348DCT	4019
	MILFORD 560MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3613
		BE 520MW	GLEN JCT-JUNE ST	BESDEV	3510
	MILFORD 0MW	WALLINGFORD 0MW	MILLSTNE-BESECK	362E-376DCT	4054
WALLINGFORD 255MW		MILLSTNE-BESECK	362E-376DCT	3998	
MILFORD 560MW	WALLINGFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3909	
	WALLINGFORD 255MW	DEVON179-BARNUM	88006ALINE	3620	
4	WALLINFORD 255MW	MILFORD 0MW	MONTVILE-MILLSTNE	310-348DCT	4004
		MILFORD 560MW	GLEN JCT-JUNE ST	BESDEV	3639
	MILFORD 0MW	BE 0MW	MILLSTNE-BESECK	362E-376DCT	4020
		BE 520MW	MILLSTNE-BESECK	362E-376DCT	4069
	MILFORD 560MW	BE 0MW	MILLSTNE-BESECK	362E-376DCT	4007
		BE 520MW	MONTVILE-MILLSTNE	310-348DCT	4007
	MILFORD 0MW	WALLINGFORD 0MW	MILLSTNE-BESECK	364+AUTO	4187
WALLINGFORD 255MW		MONTVILE-MILLSTNE	310-348DCT	4004	
MILFORD 560MW	WALLINGFORD 0MW	MONTVILE-MILLSTNE	310-348DCT	4005	
	WALLINGFORD 255MW	GLEN JCT-JUNE ST	BESDEV	3639	
5	WALLINFORD 255MW	MILFORD 0MW	BCNFL-TOW1575	BESDEV	4031
		MILFORD 560MW	MILLSTNE-BESECK	362E-376DCT	3952
	MILFORD 0MW	BE 0MW	MILLSTNE-BESECK	364+AUTO	4172
		BE 520MW	E.SHORE-ENG STA	8200LINE	4174
	MILFORD 560MW	BE 0MW	SCVL RK-E.SHORE	BESDEV	4073
		BE 520MW	MILLSTNE-BESECK	364+AUTO	4179
	MILFORD 0MW	WALLINGFORD 0MW	E.SHORE-ENG STA	8200LINE	4464
WALLINGFORD 255MW		BCNFL-TOW1575	BESDEV	4031	
MILFORD 560MW	WALLINGFORD 0MW	SCVL RK-E.SHORE	BESDEV	4011	
	WALLINGFORD 255MW	MILLSTNE-BESECK	362E-376DCT	3952	

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Appendix D-4					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-2 115/345KV, SOUTHWEST CONNECTICUT OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3249
		MILFORD 560MW	BARNUM-BAIRD	DEVPEQ	2932
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3268
		BE 520MW	GLEN JCT-JUNE ST	BESDEV	3229
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	DEVPEQ	2947
		BE 520MW	GLEN JCT-JUNE ST	BESDEV	3267
	MILFORD 0MW	WALLINGFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3500
		WALLINGFORD 255MW	GLEN JCT-JUNE ST	BESDEV	3249
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	DEVPEQ	3251	
	WALLINGFORD 255MW	BARNUM-BAIRD	DEVPEQ	2932	
2	WALLINFORD 255MW	MILFORD 0MW	BCNFL PF-TOW1575	BESDEV	3523
		MILFORD 560MW	CONGRES-BAIRD	DEVPEQ	3126
	MILFORD 0MW	BE 0MW	BCNFL-TOW1575	BESDEV	3532
		BE 520MW	SHAWSHIL-BUNKER H	1990LINE	3469
	MILFORD 560MW	BE 0MW	CONGRES-BAIRD	DEVPEQ	3129
		BE 520MW	CONGRES-BAIRD	BASE CASE	3360
	MILFORD 0MW	WALLINGFORD 0MW	SCOV L RK-E.SHORE	BESDEV	3602
		WALLINGFORD 255MW	BCNFL PF-TOW1575	BESDEV	3523
MILFORD 560MW	WALLINGFORD 0MW	CONGRES-BAIRD	DEVPEQ	3445	
	WALLINGFORD 255MW	CONGRES-BAIRD	DEVPEQ	3126	
3	WALLINFORD 255MW	MILFORD 0MW	BARNUM-BAIRD	DEVPEQ	3585
		MILFORD 560MW	GLEN JCT-JUNE ST	BESDEV	3301
	MILFORD 0MW	BE 0MW	SHAWSHILL-BUNKER H	1990LINE	3657
		BE 520MW	DEVON-JUNE ST	BESDEV	3869
	MILFORD 560MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3305
		BE 520MW	BARNUM-BAIRD	BASE CASE	3369
	MILFORD 0MW	WALLINGFORD 0MW	BCNFL-TOW1575	BESDEV	3675
		WALLINGFORD 255MW	BARNUM-BAIRD	DEVPEQ	3585
MILFORD 560MW	WALLINGFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3552	
	WALLINGFORD 255MW	GLEN JCT-JUNE ST	BESDEV	3301	
4	WALLINFORD 255MW	MILFORD 0MW	SHAWSHILL-BUNKER H	1990LINE	3631
		MILFORD 560MW	BCNFL-TOW1575	BESDEV	3674
	MILFORD 0MW	BE 0MW	SCOV L RK-E.SHORE	BESDEV	3672
		BE 520MW	NORWALK-FLAX HILL	NORGLEN	3955
	MILFORD 560MW	BE 0MW	DEVON-WLNGF PF	BESDEV	3326
		BE 520MW	NORWALK-FLAX HILL	NORGLEN	3519
	MILFORD 0MW	WALLINGFORD 0MW	SHAWSHILL-BUNKER H	1990LINE	3781
		WALLINGFORD 255MW	SHAWSHILL-BUNKER H	1990LINE	3631
MILFORD 560MW	WALLINGFORD 0MW	SCOV L RK-E.SHORE	BESDEV	3664	
	WALLINGFORD 255MW	BCNFL-TOW1575	BESDEV	3674	
5	WALLINFORD 255MW	MILFORD 0MW	SCOV L RK-E.SHORE	BESDEV	3676
		MILFORD 560MW	SCOV L RK-E.SHORE	BESDEV	3736
	MILFORD 0MW	BE 0MW	DEVON-JUNE ST	BESDEV	3908
		BE 520MW	MILLSTNE-BESECK	362E-376DCT	4017
	MILFORD 560MW	BE 0MW	BCNFL-TOW1575	BESDEV	3680
		BE 520MW	SHAWSHILL-BUNKER H	1990LINE	3600
	MILFORD 0MW	WALLINGFORD 0MW	MONTVILLE-MILLSTNE	310-348DCT	3980
		WALLINGFORD 255MW	SCOV L RK-E.SHORE	BESDEV	3676
MILFORD 560MW	WALLINGFORD 0MW	BCNFL-TOW1575	BESDEV	3828	
	WALLINGFORD 255MW	SCOV L RK-E.SHORE	BESDEV	3736	

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Appendix E

Appendix E-1						
PHASE-2 SWCT THERMAL PLANNING IMPORT LEVEL						
CASE	MILFORD	BE	WALLINGFORD	IMPORT RANGE, W/ BARNUM-BAIRD	IMPORT RANGE, W/O BARNUM-BAIRD	
EXISTING SYSTEM	0-560	P	255	1856-1944	1856-1944	
	0	0-520	255	1864-1855	1864-1855	
	560	0-520	255	1685-1949	1685-1949	
	0	P	0-255	2020-1856	2020-1856	
	560	P	0-255	2110-1944	2110-1944	
	FINAL				1685-2210	1685-2210
	ROUNDED RESULTS					1650-2200
345 kV PHASE-2	0-560	P	255	3181-2756	3181-3478	
	0	0-520	255	3276-3056	3276-3056	
	560	0-520	255	2815-2627	3444-3220	
	0	P	0-255	3331-3181	3331-3181	
	560	P	0-255	3077-2749	3588-3478	
	FINAL				2627-3331	3056-3588
	ROUNDED RESULTS					3050-3500
115/345 kV PHASE-2	0-560	P	255	3097-2604	3097-3233	
	0	0-520	255	3188-3003	3188-3003	
	560	0-520	255	2642-2551	3231-3076	
	0	P	0-255	3247-3097	3247-3097	
	560	P	0-255	2897-2604	3344-3233	
	FINAL				2551-3247	3003-3344
	ROUNDED RESULTS					3000-3300

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Appendix E-2					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
EXISTING, SOUTHWEST CONNECTICUT PLANNING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	1272-1721DCT	1856
		MILFORD 560MW	BALDWNJA-FROST BR	1272-1721DCT	1944
	MILFORD 0MW	BE 0MW	BALDWNJA-FROST BR	1272-1721DCT	1864
		BE 520MW	BALDWNJA-FROST BR	1272-1721DCT	1855
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	PEQUON42TSTK	1685
		BE 520MW	BALDWNJA-FROST BR	1272-1721DCT	1949
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	1272-1721DCT	2020
		WALLINGFORD 255MW	BALDWNJA-FROST BR	1272-1721DCT	1856
MILFORD 560MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	1272-1721DCT	2110	
	WALLINGFORD 255MW	BALDWNJA-FROST BR	1272-1721DCT	1944	
2	WALLINFORD 255MW	MILFORD 0MW	SHAWSHILL-BUNKER H	FROSTBR27T	1857
		MILFORD 560MW	SHAWSHILL-BUNKER H	FROSTBR27T	1945
	MILFORD 0MW	BE 0MW	SHAWSHILL-BUNKER H	FROSTBR27T	1867
		BE 520MW	SHAWSHILL-BUNKER H	FROSTBR27T	1856
	MILFORD 560MW	BE 0MW	BAIRD-CONGRES2	PEQUON42TSTK	1850
		BE 520MW	SHAWSHILL-BUNKER H	FROSTBR27T	1950
	MILFORD 0MW	WALLINGFORD 0MW	SHAWSHILL-BUNKER H	FROSTBR27T	2021
		WALLINGFORD 255MW	SHAWSHILL-BUNKER H	FROSTBR27T	1857
MILFORD 560MW	WALLINGFORD 0MW	SHAWSHILL-BUNKER H	FROSTBR27T	2111	
	WALLINGFORD 255MW	SHAWSHILL-BUNKER H	FROSTBR27T	1945	
3	WALLINFORD 255MW	MILFORD 0MW	BUNKER H-TOW1585	1575N-1990N	1924
		MILFORD 560MW	BARNUM-BAIRD	PEQUON42TSTK	1966
	MILFORD 0MW	BE 0MW	BUNKER H-TOW1585	1575N-1990N	1938
		BE 520MW	BUNKER H-TOW1585	1575N-1990N	1924
	MILFORD 560MW	BE 0MW	BALDWNJA-FROST BR	1272-1721DCT	1958
		BE 520MW	BUNKER H-TOW1585	1575N-1990N	2015
	MILFORD 0MW	WALLINGFORD 0MW	BUNKER H-TOW1585	1575N-1990N	2089
		WALLINGFORD 255MW	BUNKER H-TOW1585	1575N-1990N	1924
MILFORD 560MW	WALLINGFORD 0MW	BUNKER H-TOW1585	1575N-1990N	2176	
	WALLINGFORD 255MW	BARNUM-BAIRD	PEQUON42TSTK	1966	
4	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	BUNKERH2T	2003
		MILFORD 560MW	BARNUM-BAIRD	PEQUON22TSTK	2007
	MILFORD 0MW	BE 0MW	BALDWNJA-FROST BR	BUNKERH2T	2012
		BE 520MW	BALDWNJA-FROST BR	BUNKERH2T	2003
	MILFORD 560MW	BE 0MW	SHAWSHILL-BUNJER H	FROSTBR27T	1958
		BE 520MW	BARNUM-BAIRD	LOBPTENGF	2026
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	BUNKERH2T	2167
		WALLINGFORD 255MW	BALDWNJA-FROST BR	BUNKERH2T	2003
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	PEQUON42TSTK	2251	
	WALLINGFORD 255MW	BARNUM-BAIRD	PEQUON22TSTK	2007	
5	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-TOW1990	1272-1721DCT	2022
		MILFORD 560MW	BUNKER H-TOW1990	1575N-1990N	2010
	MILFORD 0MW	BE 0MW	BALDWNJA-TOW1990	1272-1721DCT	2040
		BE 520MW	BALDWNJA-TOW1990	1272-1721DCT	2023
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	PEQUON22TSTK	1982
		BE 520MW	BARNUM-BAIRD	PEQUON22TSTK	2039
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-TOW1990	1272-1721DCT	2187
		WALLINGFORD 255MW	BALDWNJA-TOW1990	1272-1721DCT	2022
MILFORD 560MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	BUNKERH2T	2256	
	WALLINGFORD 255MW	BUNKER H-TOW1990	1575N-1990N	2010	

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Appendix E-3					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-2 345kV, SOUTHWEST CONNECTICUT PLANNING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3181
		MILFORD 560MW	BARNUM-BAIRD	1710FDEVPEQD	2756
	MILFORD 0MW	BE 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3276
		BE 520MW	SHAWSHIL-FROST BR	FROSTBR27T	3056
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	1710FDEVPEQD	2815
		BE 520MW	BARNUM-BAIRD	1710FDEVPEQD	2627
	MILFORD 0MW	WALLINGFORD 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3331
		WALLINGFORD 255MW	SHAWSHIL-FROST BR	FROSTBR27T	3181
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	1710FDEVPEQD	3077	
	WALLINGFORD 255MW	BARNUM-BAIRD	1710FDEVPEQD	2756	
2	WALLINFORD 255MW	MILFORD 0MW	BARNUM-BAIRD	1710FDEVPEQD	3528
		MILFORD 560MW	CNGRES-BAIRD	1710FDEVPEQD	2939
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	EDEVJCTKA	3561
		BE 520MW	GLEN JCT-JUNE ST	EDEVJCTKA	3404
	MILFORD 560MW	BE 0MW	CNGRES-BAIRD	1710FDEVPEQD	2973
		BE 520MW	CNGRES-BAIRD	1710FDEVPEQD	2786
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	BESST1	3496
		WALLINGFORD 255MW	BARNUM-BAIRD	1710FDEVPEQD	3528
MILFORD 560MW	WALLINGFORD 0MW	CNGRES-BAIRD	1710FDEVPEQD	3260	
	WALLINGFORD 255MW	CNGRES-BAIRD	1710FDEVPEQD	2939	
3	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	EDEVJCTKA	3531
		MILFORD 560MW	SHAWSHIL-FROST BR	FROSTBR27T	3478
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3567
		BE 520MW	GLEN JCT-JUNE ST	BESDEV	3462
	MILFORD 560MW	BE 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3444
		BE 520MW	SHAWSHIL-FROST BR	FROSTBR27T	3220
	MILFORD 0MW	WALLINGFORD 0MW	GLEN JCT-SOUTHGTN	8100-8200DCT	3684
		WALLINGFORD 255MW	GLEN JCT-JUNE ST	EDEVJCTKA	3531
MILFORD 560MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	BESST1	3588	
	WALLINGFORD 255MW	SHAWSHIL-FROST BR	FROSTBR27T	3478	
4	WALLINFORD 255MW	MILFORD 0MW	GLEN JCT-JUNE ST	BESDEV	3544
		MILFORD 560MW	GLEN JCT-JUNE ST	BESDEV	3642
	MILFORD 0MW	BE 0MW	SCOVL RK-E.SHORE	BESST1	3619
		BE 520MW	BARNUM-BAIRD	1710FDEVPEQD	3469
	MILFORD 560MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3620
		BE 520MW	GLEN JCT-SOUTHGTN	8100-8200DCT	3484
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	1610BESDEV DCT	3697
		WALLINGFORD 255MW	GLEN JCT-JUNE ST	BESDEV	3544
MILFORD 560MW	WALLINGFORD 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3628	
	WALLINGFORD 255MW	GLEN JCT-JUNE ST	BESDEV	3642	
5	WALLINFORD 255MW	MILFORD 0MW	SHAWHILL-BUNKER H	FROSTBR27T	3567
		MILFORD 560MW	MILLSTNE-BESECK	362E-376DCT	3668
	MILFORD 0MW	BE 0MW	BARNUM-BAIRD	1710FDEVPEQD	3655
		BE 520MW	SCOVL RK-E.SHORE	BESST1	3535
	MILFORD 560MW	BE 0MW	GLEN JCT-JUNE ST	EDEVJCTSTKA	3671
		BE 520MW	GLEN JCT-JUNE ST	EDEVJCTSTKA	3511
	MILFORD 0MW	WALLINGFORD 0MW	SHAWHILL-BUNKER H	FROSTBR27T	3716
		WALLINGFORD 255MW	SHAWHILL-BUNKER H	FROSTBR27T	3567
MILFORD 560MW	WALLINGFORD 0MW	MILLSTNE-BESECK	362E-376DCT	3730	
	WALLINGFORD 255MW	MILLSTNE-BESECK	362E-376DCT	3668	

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Appendix E-4					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-2 115/345kV, SOUTHWEST CONNECTICUT PLANNING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3097
		MILFORD 560MW	BARNUM-BAIRD	1710FDEVPEQD	2604
	MILFORD 0MW	BE 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3188
		BE 520MW	SHAWSHIL-FROST BR	FROSTBR27T	3003
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	1710FDEVPEQD	2642
		BE 520MW	BARNUM-BAIRD	1710FDEVPEQD	2551
	MILFORD 0MW	WALLINGFORD 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3247
		WALLINGFORD 255MW	SHAWSHIL-FROST BR	FROSTBR27T	3097
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	1710FDEVPEQD	2897	
	WALLINGFORD 255MW	BARNUM-BAIRD	1710FDEVPEQD	2604	
2	WALLINFORD 255MW	MILFORD 0MW	STEVENS-1990REAC	1618-321DCT	3239
		MILFORD 560MW	STEVENS-1990REAC	1618-321DCT	3233
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3268
		BE 520MW	STEVENS-1990REAC	1618-321DCT	3184
	MILFORD 560MW	BE 0MW	CNGRES-BAIRD	1710FDEVPEQD	2778
		BE 520MW	CNGRES-BAIRD	1710FDEVPEQD	2687
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	BESST1	3290
		WALLINGFORD 255MW	STEVENS-1990REAC	1618-321DCT	3239
MILFORD 560MW	WALLINGFORD 0MW	CNGRES-BAIRD	1710FDEVPEQD	3043	
	WALLINGFORD 255MW	STEVENS-1990REAC	1618-321DCT	3233	
3	WALLINFORD 255MW	MILFORD 0MW	BARNUM-BAIRD	1710FDEVPEQD	3282
		MILFORD 560MW	SHAWSHIL-FROST BR	FROSTBR27T	3330
	MILFORD 0MW	BE 0MW	GLEN JCT-JUNE ST	BESST1	3279
		BE 520MW	GLEN JCT-JUNE ST	EDEVJCTKA	3219
	MILFORD 560MW	BE 0MW	STEVENS-1990REAC	1618-321DCT	3231
		BE 520MW	STEVENS-1990REAC	1618-321DCT	3076
	MILFORD 0MW	WALLINGFORD 0MW	STEVENS-1990REAC	1618-321DCT	3403
		WALLINGFORD 255MW	BARNUM-BAIRD	1710FDEVPEQD	3282
MILFORD 560MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	BESST1	3344	
	WALLINGFORD 255MW	SHAWSHIL-FROST BR	FROSTBR27T	3330	
4	WALLINFORD 255MW	MILFORD 0MW	BCNFL PF-TOW1575	1610BESDEVDC	3347
		MILFORD 560MW	GLEN JCT-JUNE ST	EDEVJCTSTKA	3371
	MILFORD 0MW	BE 0MW	STEVENS-1990REAC	1618-321DCT	3339
		BE 520MW	GLEN JCT-JUNE ST	BESDEV	3229
	MILFORD 560MW	BE 0MW	GLEN JCT-JUNE ST	BESDEV	3310
		BE 520MW	SHAWSHIL-FROST BR	FROSTBR27T	3134
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	1610BESDEVDC	3411
		WALLINGFORD 255MW	BCNFL PF-TOW1575	1610BESDEVDC	3347
MILFORD 560MW	WALLINGFORD 0MW	STEVENS-1990REAC	1618-321DCT	3399	
	WALLINGFORD 255MW	GLEN JCT-JUNE ST	EDEVJCTSTKA	3371	
5	WALLINFORD 255MW	MILFORD 0MW	SCOVL RK-E.SHORE	BESST1	3357
		MILFORD 560MW	STEVENS-1990REAC	1887-321DCT	3382
	MILFORD 0MW	BE 0MW	BCNFL PF-TOW1575	1610BESDEVDC	3357
		BE 520MW	BARNUM-BAIRD	1710FDEVPEQD	3308
	MILFORD 560MW	BE 0MW	SHAWSHIL-FROST BR	FROSTBR27T	3322
		BE 520MW	STEVENS-1990REAC	1887-321DCT	3208
	MILFORD 0MW	WALLINGFORD 0MW	BARNUM-BAIRD	1710FDEVPEQD	3576
		WALLINGFORD 255MW	SCOVL RK-E.SHORE	BESST1	3357
MILFORD 560MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	1610BESDEVDC	3469	
	WALLINGFORD 255MW	STEVENS-1990REAC	1887-321DCT	3382	

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Appendix F

Appendix F-1 : Phase 1 Base Case Overloads

-----345kV PHASE-1-----												
	X-----FROM BUS-----X				X-----TO BUS-----X				CURRENT (MVA)			
	BUS	NAME	BSKV	AREA	BUS	NAME	BSKV	AREA	CKT	LOADING	RATING	PERCENT
DISPATCH#2	73169	RYTN J A	115	701	73172*	NORWALK	115	701	1	228.5	214.0	106.8
DISPATCH#2	73172*	NORWALK	115	701	73207	FLAX HIL	115	701	1	245.8	214.0	114.9
DISPATCH#3	73701	CRRA JCT	115	701	73703*	ASHCREEK	115	701	1	370.1	340.0	108.9
DISPATCH#4	73169*	RYTN J A	115	701	73171	NWLK HAR	115	701	1	221.4	214.0	103.5
DISPATCH#5	***** NONE *****											
-----115kV PHASE-1-----												
	X-----FROM BUS-----X				X-----TO BUS-----X				CURRENT (MVA)			
	BUS	NAME	BSKV	AREA	BUS	NAME	BSKV	AREA	CKT	LOADING	RATING	PERCENT
DISPATCH#2	73126*	DEVON#2	115	701	73225	TRMB J B	115	701	1	179.8	178.0	101.0
DISPATCH#2	73172*	NORWALK	115	701	73207	FLAX HIL	115	701	1	219.6	214.0	102.6
DISPATCH#3	73158	WESTON	115	701	73224*	TRMB J A	115	701	1	195.7	178.0	109.9
DISPATCH#3	73701	CRRA JCT	115	701	73703*	ASHCREEK	115	701	1	388.9	340.0	114.4
DISPATCH#3	73709*	OLD TOWN	115	701	73711	HAWTH R	115	701	1	191.1	178.0	107.3
DISPATCH#4	73169	RYTN J A	115	701	73171*	NWLK HAR	115	701	1	225.6	214.0	105.4
DISPATCH#4	73171*	NWLK HAR	115	701	73271	RYTN J B	115	701	1	239.6	238.0	100.7
DISPATCH#5	***** NONE *****											

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Appendix F-2															
POST-CONTINGENCY OVERLOADS															
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 2															
PHASE 1, 27,700MW LOAD LEVEL															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
2	PEQUON42TSTK	BAIRD A	CNGRES2A	---	---	---	---	132.5	298.3	264	112.6	73694	115	73712	115
2	PEQUON22TSTK	BAIRD B	CNGRES2B	162.1	284.1	264	105.2	---	---	---	---	73695	115	73713	115
2	1272+1445LNS	BALDWNJA	FROST BR	233.9	306.1	286	105.9	---	---	---	---	73164	115	73202	115
2	1272-1721DCT	BALDWNJA	FROST BR	233.9	428.6	286	149.7	205.7	381.7	286	132.7	73164	115	73202	115
2	1272LINE	BALDWNJA	FROST BR	233.9	300.7	286	104.2	---	---	---	---	73164	115	73202	115
2	1445LINE	BALDWNJA	FROST BR	233.9	313.5	286	108.8	---	---	---	---	73164	115	73202	115
2	1460-387DCT	BALDWNJA	FROST BR	233.9	306.7	286	107.6	---	---	---	---	73164	115	73202	115
2	1575N-1585N	BALDWNJA	FROST BR	233.9	339.1	286	117.4	205.7	291.7	286	100.5	73164	115	73202	115
2	1770-321DCT	BALDWNJA	FROST BR	233.9	368.1	286	129	205.7	343	286	123.2	73164	115	73202	115
2	1887-321DCT	BALDWNJA	FROST BR	---	---	---	---	205.7	365.8	286	133	73164	115	73202	115
2	321LINE	BALDWNJA	FROST BR	233.9	350.5	286	122.7	205.7	328.1	286	117.8	73164	115	73202	115
2	387+AUTO	BALDWNJA	FROST BR	233.9	305.2	286	106.8	---	---	---	---	73164	115	73202	115
2	387LINE	BALDWNJA	FROST BR	233.9	305.2	286	106.8	---	---	---	---	73164	115	73202	115
2	BUNKERH2T	BALDWNJA	FROST BR	233.9	405.6	286	141.3	205.7	358.6	286	124.4	73164	115	73202	115
2	BUNKERH3T	BALDWNJA	FROST BR	233.9	313.5	286	108.5	---	---	---	---	73164	115	73202	115
2	LONGMT5TSTK	BALDWNJA	FROST BR	233.9	330.7	286	116	205.7	323.1	286	112.4	73164	115	73202	115
2	SCOVK5TSTK	BALDWNJA	FROST BR	233.9	293.8	286	102.2	---	---	---	---	73164	115	73202	115
2	SCOVK7TSTK	BALDWNJA	FROST BR	233.9	288.8	286	100.4	---	---	---	---	73164	115	73202	115
2	SCOVK8TSTK	BALDWNJA	FROST BR	233.9	300.5	286	105.5	---	---	---	---	73164	115	73202	115
2	1272-1721DCT	BALDWNJA	TOW1990	203.8	398	282	141	175.3	348.6	282	123.7	73164	115	73290	115
2	1575N-1585N	BALDWNJA	TOW1990	203.8	308.9	282	108.4	---	---	---	---	73164	115	73290	115
2	1770-321DCT	BALDWNJA	TOW1990	203.8	329.9	282	119.9	175.3	312.9	282	114	73164	115	73290	115
2	1887-321DCT	BALDWNJA	TOW1990	---	---	---	---	175.3	335.3	282	123.7	73164	115	73290	115
2	321LINE	BALDWNJA	TOW1990	203.8	313.2	282	113.6	175.3	298	282	108.5	73164	115	73290	115
2	BUNKERH2T	BALDWNJA	TOW1990	203.8	375.1	282	132.5	175.3	325.9	282	115.3	73164	115	73290	115
2	LONGMT5TSTK	BALDWNJA	TOW1990	203.8	294.7	282	106.9	175.3	287.8	282	103.4	73164	115	73290	115
2	1470PLMNORDC	BARNUM A	BAIRD A	199	272.3	264	100.9	---	---	---	---	73692	115	73694	115
2	1565PLMNORDC	BARNUM A	BAIRD A	199	285.8	264	106	---	---	---	---	73692	115	73694	115
2	1770-321DCT	BARNUM A	BAIRD A	199	268.7	264	101.7	---	---	---	---	73692	115	73694	115
2	1887-321DCT	BARNUM A	BAIRD A	---	---	---	---	169.6	262.9	264	100.3	73692	115	73694	115
2	89006BLINE	BARNUM A	BAIRD A	199	294.9	264	109.5	---	---	---	---	73692	115	73694	115
2	89006BLINE-1	BARNUM A	BAIRD A	199	302.7	264	112.4	---	---	---	---	73692	115	73694	115
2	8909BLINE-2	BARNUM A	BAIRD A	199	275	264	101.8	---	---	---	---	73692	115	73694	115
2	BAIRDBSTK	BARNUM A	BAIRD A	199	297.5	264	110.5	---	---	---	---	73692	115	73694	115
2	DEVSWST2TSTK	BARNUM A	BAIRD A	199	287.4	264	106.5	---	---	---	---	73692	115	73694	115
2	DEVSWST3TSTK	BARNUM A	BAIRD A	199	284.7	264	105.7	---	---	---	---	73692	115	73694	115
2	LOSSBPT3	BARNUM A	BAIRD A	199	264	264	101.1	---	---	---	---	73692	115	73694	115
2	PEQUON42TSTK	BARNUM A	BAIRD A	---	---	---	---	169.6	331.9	264	125.1	73692	115	73694	115
2	1470PLMNORDC	BARNUM B	BAIRD B	199.1	272.5	264	101	---	---	---	---	73693	115	73695	115
2	1565PLMNORDC	BARNUM B	BAIRD B	199.1	285.9	264	106	---	---	---	---	73693	115	73695	115
2	1770-321DCT	BARNUM B	BAIRD B	199.1	268.8	264	101.7	---	---	---	---	73693	115	73695	115
2	1887-321DCT	BARNUM B	BAIRD B	---	---	---	---	169.7	263	264	100.3	73693	115	73695	115
2	88005ALINE	BARNUM B	BAIRD B	199.1	298.4	264	110.6	---	---	---	---	73693	115	73695	115
2	88006ALINE	BARNUM B	BAIRD B	199.1	302.7	264	112.4	---	---	---	---	73693	115	73695	115
2	8809ALINE-2	BARNUM B	BAIRD B	199.1	275.2	264	101.9	---	---	---	---	73693	115	73695	115
2	BAIRDASTK	BARNUM B	BAIRD B	199.1	305.3	264	113.4	---	---	---	---	73693	115	73695	115
2	DEVSWST1TSTK	BARNUM B	BAIRD B	199.1	284.8	264	105.7	---	---	---	---	73693	115	73695	115
2	DEVSWST4TSTK	BARNUM B	BAIRD B	199.1	298.4	264	110.6	---	---	---	---	73693	115	73695	115

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2	LOSSBPT3	BARNUM B	BAIRD B	199.1	264.1	264	101.1	---	---	---	---	73693	115	73695	115
2	PEQUON22TSTK	BARNUM B	BAIRD B	199.1	316.8	264	117.3	---	---	---	---	73693	115	73695	115
2	WOODMNT1TSTK	BARNUM B	BAIRD B	199.1	300.7	264	112	---	---	---	---	73693	115	73695	115
2	1575N-1990N	BUNKER H	TOW1585	80.7	262.6	143	179.4	66.9	217.3	143	150.4	73185	115	73289	115
2	1770-321DCT	BUNKER H	TOW1585	80.7	142	143	102.1	66.9	144.4	143	105.6	73185	115	73289	115
2	1990NLINE	BUNKER H	TOW1585	80.7	154.1	143	105.9	---	---	---	---	73185	115	73289	115
2	1389-1880DCT	CRRA JCT	ASHCREEK	329	467.9	439	104.6	298.9	448.5	439	100.2	73701	115	73703	115
2	1470PLMNORDC	DEVON#2	TRMB J A	151.6	247.2	228	106	---	---	---	---	73126	115	73224	115
2	1565PLMNORDC	DEVON#2	TRMB J A	151.6	264.1	228	113.2	124.6	248.5	228	106.5	73126	115	73224	115
2	PEQUON22TSTK	DEVON#2	TRMB J A	151.6	251.9	228	107.9	---	---	---	---	73126	115	73224	115
2	1470PLMNORDC	DEVON#2	TRMB J B	184.1	271.6	228	116.4	159.6	257.3	228	110.3	73126	115	73225	115
2	1565PLMNORDC	DEVON#2	TRMB J B	184.1	287.5	228	123.2	159.6	273.1	228	117.1	73126	115	73225	115
2	1637FPLMNORD	DEVON#2	TRMB J B	184.1	259.3	228	111.1	159.6	247	228	105.8	73126	115	73225	115
2	1770-321DCT	DEVON#2	TRMB J B	184.1	234	228	102.4	---	---	---	---	73126	115	73225	115
2	1887-321DCT	DEVON#2	TRMB J B	---	---	---	---	159.6	229.8	228	101.6	73126	115	73225	115
2	DEVON24TSTK	DEVON#2	TRMB J B	184.1	256.2	228	109.6	---	---	---	---	73126	115	73225	115
2	PLUMNOR115	DEVON#2	TRMB J B	184.1	235.5	228	100.9	---	---	---	---	73126	115	73225	115
2	1545-1570DCT	DRBY J A	ANSONIA	40.8	142.6	150	118.1	41.5	142.5	150	117.7	73191	115	73706	115
2	DEVON6TSTK	DRBY J A	ANSONIA	40.8	142.6	150	118.1	41.5	142.5	150	117.7	73191	115	73706	115
2	8200LINE	E.SHORE	ENG STA	483.6	923.3	878	102.1	---	---	---	---	73668	115	73679	115
2	GRNDAV3TSTK	E.SHORE	ENG STA	483.6	910.3	878	100.7	---	---	---	---	73668	115	73679	115
2	8100LINE	E.SHORE	GRAND AV	483.5	923.1	878	102.1	---	---	---	---	73668	115	73669	115
2	GRNDAV1TSTK	E.SHORE	GRAND AV	483.5	921.7	878	102	---	---	---	---	73668	115	73669	115
2	113091001DCT	FLAX HIL	RYTN J B	181.6	377.7	256	145.5	208.6	386.7	256	148.9	73207	115	73271	115
2	1130LINE	FLAX HIL	RYTN J B	---	---	---	---	208.6	264	256	100.9	73207	115	73271	115
2	1416-1880DCT	FLAX HIL	RYTN J B	181.6	414.4	256	158.9	208.6	446	256	171.3	73207	115	73271	115
2	1416-1890DCT	FLAX HIL	RYTN J B	181.6	342.5	256	131.7	208.6	350.8	256	134.9	73207	115	73271	115
2	1880-1890DCT	FLAX HIL	RYTN J B	181.6	414.6	256	158.8	208.6	442.4	256	169.7	73207	115	73271	115
2	1880-1977DCT	FLAX HIL	RYTN J B	181.6	389.6	256	149.2	208.6	422	256	161.8	73207	115	73271	115
2	1880LINE	FLAX HIL	RYTN J B	181.6	313.7	256	119.6	208.6	354.1	256	135.3	73207	115	73271	115
2	1890-1977DCT	FLAX HIL	RYTN J B	181.6	318.5	256	122.2	208.6	327	256	125.5	73207	115	73271	115
2	91001LINE	FLAX HIL	RYTN J B	181.6	266.3	256	101.8	208.6	286.4	256	109.6	73207	115	73271	115
2	ASHCREEKBKR	FLAX HIL	RYTN J B	---	---	---	---	208.6	263.6	256	100.6	73207	115	73271	115
2	GLENBROOK3T	FLAX HIL	RYTN J B	181.6	313.9	256	119.7	208.6	354.3	256	135.4	73207	115	73271	115
2	NORWALKST1	FLAX HIL	RYTN J B	181.6	289.7	256	110.4	208.6	341.7	256	130.5	73207	115	73271	115
2	NORWLKHAR4T	FLAX HIL	RYTN J B	181.6	313.7	256	119.6	208.6	354.1	256	135.3	73207	115	73271	115
2	1770-321DCT	FRSTBDGE	FROST BR	558.8	823.2	780	105.5	495.4	796.6	780	102.1	73104	345	73202	115
2	321LINE	FRSTBDGE	FROST BR	558.8	841.7	780	107.9	495.4	807.7	780	103.6	73104	345	73202	115
2	SGTN5TSTK	GLEN JCT	JUNE ST	109.7	167.9	152	110.9	96.4	158.9	152	104.4	73196	115	73707	115
2	1460-387DCT	GLEN JCT	SOUTHGTN	125.3	235.3	228	104.4	---	---	---	---	73196	115	73198	115
2	387+AUTO	GLEN JCT	SOUTHGTN	125.3	232.7	228	102.5	---	---	---	---	73196	115	73198	115
2	387LINE	GLEN JCT	SOUTHGTN	125.3	232.7	228	102.5	---	---	---	---	73196	115	73198	115
2	SCOVK8TSTK	GLEN JCT	SOUTHGTN	125.3	231.1	228	102.4	---	---	---	---	73196	115	73198	115
2	8200LINE	GRAND AV	ENG STA	483.5	923.1	878	102.1	---	---	---	---	73669	115	73679	115
2	GRNDAV3TSTK	GRAND AV	ENG STA	483.5	910	878	100.7	---	---	---	---	73669	115	73679	115
2	1770-321DCT	NEWTOWN	SNDYHK	93.7	339.8	289	122.3	62.7	310.4	289	113.2	73194	115	73282	115
2	1887-321DCT	NEWTOWN	SNDYHK	---	---	---	---	62.7	351.7	289	131.8	73194	115	73282	115
2	321LINE	NEWTOWN	SNDYHK	93.7	314.1	289	112.8	62.7	281.4	289	102.5	73194	115	73282	115
2	LONGMT5TSTK	NEWTOWN	SNDYHK	93.7	298.8	289	107	62.7	290.2	289	102.8	73194	115	73282	115
2	1130+1416LNS	NORWALK	FLAX HIL	225	276.2	256	105.7	251.3	297.2	256	113.9	73172	115	73207	115
2	113091001DCT	NORWALK	FLAX HIL	225	417	256	161.9	251.3	426.8	256	165.4	73172	115	73207	115
2	1130LINE	NORWALK	FLAX HIL	225	284.7	256	109.1	251.3	306.3	256	117.5	73172	115	73207	115

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2	1416-1880DCT	NORWALK	FLAX HIL	225	457.7	256	175.9	251.3	488.6	256	188.2	73172	115	73207	115
2	1416-1890DCT	NORWALK	FLAX HIL	225	383	256	148.2	251.3	391.9	256	151.4	73172	115	73207	115
2	1416LINE	NORWALK	FLAX HIL	225	274.8	256	105.2	251.3	296.2	256	113.5	73172	115	73207	115
2	1460-387DCT	NORWALK	FLAX HIL	---	---	---	---	251.3	273.4	256	105.3	73172	115	73207	115
2	1880-1890DCT	NORWALK	FLAX HIL	225	457.4	256	175.7	251.3	484.7	256	186.6	73172	115	73207	115
2	1880-1977DCT	NORWALK	FLAX HIL	225	433	256	166.2	251.3	464.6	256	178.7	73172	115	73207	115
2	1880LINE	NORWALK	FLAX HIL	225	357.6	256	136.6	251.3	396.9	256	152.2	73172	115	73207	115
2	1890-1977DCT	NORWALK	FLAX HIL	225	359.6	256	138.7	251.3	368.5	256	142.1	73172	115	73207	115
2	1890LINE	NORWALK	FLAX HIL	225	279.9	256	107.1	251.3	298.9	256	114.6	73172	115	73207	115
2	1977LINENEW	NORWALK	FLAX HIL	225	261.9	256	100.1	251.3	283.1	256	108.4	73172	115	73207	115
2	1977LINENEW	NORWALK	FLAX HIL	---	---	---	---	251.3	273.2	256	105.1	73172	115	73207	115
2	387+AUTO	NORWALK	FLAX HIL	---	---	---	---	251.3	273.2	256	105.1	73172	115	73207	115
2	91001LINE	NORWALK	FLAX HIL	225	308.4	256	118.3	251.3	328.4	256	126.2	73172	115	73207	115
2	ASHCREEKBKR	NORWALK	FLAX HIL	225	287.1	256	109.8	251.3	305.7	256	117.1	73172	115	73207	115
2	DARIEN1T	NORWALK	FLAX HIL	225	265.2	256	101.4	251.3	285.4	256	109.3	73172	115	73207	115
2	GLENBROOK3T	NORWALK	FLAX HIL	225	357.8	256	136.7	251.3	397.2	256	152.3	73172	115	73207	115
2	GLENBROOK8T	NORWALK	FLAX HIL	225	279.9	256	107.1	251.3	298.8	256	114.5	73172	115	73207	115
2	NORWALKST1	NORWALK	FLAX HIL	225	334.2	256	127.4	251.3	385	256	147.4	73172	115	73207	115
2	NORWLKHAR1T	NORWALK	FLAX HIL	225	279.9	256	107.1	251.3	298.9	256	114.6	73172	115	73207	115
2	NORWLKHAR3T	NORWALK	FLAX HIL	---	---	---	---	251.3	292.7	256	111.8	73172	115	73207	115
2	NORWLKHAR4T	NORWALK	FLAX HIL	225	357.6	256	136.6	251.3	396.9	256	152.2	73172	115	73207	115
2	PEQUON12TSTK	NORWALK	FLAX HIL	225	276.2	256	105.7	251.3	297.2	256	113.9	73172	115	73207	115
2	PEQUON42TSTK	NORWALK	FLAX HIL	---	---	---	---	251.3	261.9	256	100.9	73172	115	73207	115
2	SCOVVK5TSTK	NORWALK	FLAX HIL	---	---	---	---	251.3	260.5	256	100.1	73172	115	73207	115
2	SCOVVK8TSTK	NORWALK	FLAX HIL	---	---	---	---	251.3	269.8	256	103.9	73172	115	73207	115
2	SOUTHEND5T	NORWALK	FLAX HIL	---	---	---	---	251.3	275	256	105.2	73172	115	73207	115
2	SOUTHEND6T	NORWALK	FLAX HIL	225	262.5	256	100.4	251.3	283.7	256	108.7	73172	115	73207	115
2	1637FPLMNORD	NORWALK	PEACEABL	66.4	241.6	228	105	---	---	---	---	73172	115	73174	115
2	113091001DCT	OLD TOWN	HAWTH R	141	261.5	228	113.8	---	---	---	---	73709	115	73711	115
2	1416-1890DCT	OLD TOWN	HAWTH R	141	244	228	106	---	---	---	---	73709	115	73711	115
2	1470PLMNORDC	OLD TOWN	HAWTH R	141	235.8	228	102	---	---	---	---	73709	115	73711	115
2	1565PLMNORDC	OLD TOWN	HAWTH R	141	251.2	228	109	113.3	239.3	228	103.8	73709	115	73711	115
2	1637FPLMNORD	OLD TOWN	HAWTH R	141	232	228	100.3	---	---	---	---	73709	115	73711	115
2	1770-321DCT	PLUMTREE	NEWTOWN	60.4	306.3	269	117.7	35.5	271.1	269	106.7	73170	115	73194	115
2	1887-321DCT	PLUMTREE	NEWTOWN	---	---	---	---	35.5	309.8	269	125.8	73170	115	73194	115
2	321LINE	PLUMTREE	NEWTOWN	60.4	279.1	269	107.3	---	---	---	---	73170	115	73194	115
2	LONGMT5TSTK	PLUMTREE	NEWTOWN	60.4	263.9	269	101.2	---	---	---	---	73170	115	73194	115
2	PLUMAUT	PLUMTREE	PLUMTREE	407.5	647.3	587	110.3	---	---	---	---	73115	345	73170	115
2	1130+1416LNS	RYTN J A	NORWALK	---	---	---	---	233.6	280.1	256	107.4	73169	115	73172	115
2	113091001DCT	RYTN J A	NORWALK	207	401	256	155.6	233.6	410.6	256	159.1	73169	115	73172	115
2	1130LINE	RYTN J A	NORWALK	207	267.7	256	102.6	233.6	289.4	256	111	73169	115	73172	115
2	1389LINE	RYTN J A	NORWALK	207	352.8	256	134.5	233.6	392	256	150	73169	115	73172	115
2	1416-1867DCT	RYTN J A	NORWALK	207	419.3	256	161.4	233.6	450.8	256	173.9	73169	115	73172	115
2	1416-1890DCT	RYTN J A	NORWALK	207	367.1	256	142	233.6	375.9	256	145.2	73169	115	73172	115
2	1416-1890DCT	RYTN J A	NORWALK	---	---	---	---	233.6	279.2	256	107	73169	115	73172	115
2	1867-1890DCT	RYTN J A	NORWALK	207	419.7	256	161.4	233.6	447.6	256	172.6	73169	115	73172	115
2	1867-1977DCT	RYTN J A	NORWALK	207	394.7	256	151.7	233.6	426.9	256	164.4	73169	115	73172	115
2	1867LINE	RYTN J A	NORWALK	207	320.9	256	122.8	233.6	361	256	138.6	73169	115	73172	115
2	1890-1977DCT	RYTN J A	NORWALK	207	343.3	256	132.4	233.6	352.2	256	135.8	73169	115	73172	115
2	1890LINE	RYTN J A	NORWALK	207	262.5	256	100.4	233.6	281.6	256	107.9	73169	115	73172	115
2	1977LINENEW	RYTN J A	NORWALK	---	---	---	---	233.6	265.9	256	101.8	73169	115	73172	115
2	91001LINE	RYTN J A	NORWALK	207	290.9	256	111.6	233.6	311	256	119.5	73169	115	73172	115

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2	ASHCREEKBKR	RYTN J A	NORWALK	207	269.5	256	103	233.6	288.2	256	110.4	73169	115	73172	115
2	DARIEN1T	RYTN J A	NORWALK	---	---	---	---	233.6	268.1	256	102.7	73169	115	73172	115
2	FLAXHILL2T	RYTN J A	NORWALK	207	337.7	256	128.7	233.6	375.9	256	143.8	73169	115	73172	115
2	GLENBROOK8T	RYTN J A	NORWALK	207	262.4	256	100.4	233.6	281.5	256	107.9	73169	115	73172	115
2	NORWLKHAR1T	RYTN J A	NORWALK	207	262.5	256	100.4	233.6	281.6	256	107.9	73169	115	73172	115
2	NORWLKHAR7T	RYTN J A	NORWALK	207	320.9	256	122.8	233.6	361	256	138.6	73169	115	73172	115
2	PEQUON12TSTK	RYTN J A	NORWALK	---	---	---	---	233.6	280.1	256	107.4	73169	115	73172	115
2	SOUTHEND6T	RYTN J A	NORWALK	---	---	---	---	233.6	266.5	256	102.1	73169	115	73172	115
2	SGTN7TSTK	SACKETT	SACKPHS	90.1	140.8	138	102	88.4	139.5	138	101.1	73672	115	73673	115
2	SGTN7TSTK	SACKPHS	MIX AVE	90.8	139.5	138	104.9	89.1	138.4	138	102.9	73673	115	73675	115
2	318LINE	SCOVL RK	E.SHORE	1026.8	1298	1195	111.6	982.6	1270.6	1195	107.7	73107	345	73663	345
2	LOSSNHAV	SCOVL RK	E.SHORE	1026.8	1185.6	1195	101.6	---	---	---	---	73107	345	73663	345
2	SGTN3TSTK	SCOVL RK	E.SHORE	1026.8	1305.3	1195	112.6	982.6	1278.6	1195	108.6	73107	345	73663	345
2	SGTN4TSTK	SCOVL RK	E.SHORE	---	---	---	---	982.6	1298.2	1195	113	73107	345	73663	345
2	SGTN7TSTK	SCOVL RK	E.SHORE	1026.8	1170.1	1195	101	---	---	---	---	73107	345	73663	345
2	1770-321DCT	SHAWSHIL	BUNKER H	178	262.1	254	104.9	159.4	251.1	254	100.7	73183	115	73185	115
2	1887-321DCT	SHAWSHIL	BUNKER H	---	---	---	---	159.4	267.1	254	108.2	73183	115	73185	115
2	1990ONLINE	SHAWSHIL	BUNKER H	178	275.8	254	106.6	---	---	---	---	73183	115	73185	115
2	321LINE	SHAWSHIL	BUNKER H	178	250.8	254	100.2	---	---	---	---	73183	115	73185	115
2	FROSTBR27T	SHAWSHIL	BUNKER H	178	390.9	254	151.9	159.4	346.7	254	134.3	73183	115	73185	115
2	FROSTBR27T	SHAWSHIL	FROST BR	213.8	428.8	359	116.9	195.1	384.2	359	104.4	73183	115	73202	115
2	1440-1450DCT	SO.END	GLNBRK J	117.8	365.5	289	123.1	117	365.5	289	123.1	73167	115	73294	115
2	1545-1570DCT	STEVENS	DRBY J A	59.9	262.1	283	109.9	51.3	261.9	283	109.5	73187	115	73191	115
2	DEVON6TSTK	STEVENS	DRBY J A	59.9	262.1	283	109.9	51.3	261.9	283	109.5	73187	115	73191	115
2	1770-321DCT	STEVENS	SNDYHK	103.9	350	282	129.1	72.6	321.1	282	120	73187	115	73282	115
2	1887-321DCT	STEVENS	SNDYHK	---	---	---	---	72.6	362.5	282	139.2	73187	115	73282	115
2	321LINE	STEVENS	SNDYHK	103.9	324.8	282	119.4	72.6	292.2	282	109	73187	115	73282	115
2	LONGMT5TSTK	STEVENS	SNDYHK	103.9	309.3	282	113.4	72.6	300.7	282	109.1	73187	115	73282	115
2	321LINE	STONY HL	W.BRKFLD	29	140.9	143	101.3	---	---	---	---	73165	115	73179	115
2	1770-321DCT	TOW1990	1990REAC	190.4	400.1	400	102.9	150.8	410.2	400	107.2	73290	115	73296	115
2	1060-1165DCT	TRIANGLE	MIDDLRIV	22.7	147	134	111.5	22.8	146.8	134	110.8	73176	115	73268	115
2	321LINE	W.BRKFLD	ROCK RIV	69.6	180	164	112.7	50.5	163.3	164	104.2	73179	115	73190	115
2	LONGMT5TSTK	W.BRKFLD	ROCK RIV	69.6	169.2	164	105.9	50.5	164.2	164	101.8	73179	115	73190	115
2	GRNDAV2TSTK	WATER ST	WEST RIV	119.1	280.4	273	100.2	104.9	284.8	273	101.7	73680	115	73681	115
2	ALLINGS2TSTK	WEST RIV	ELMWST A	254.1	401.5	388	105.3	---	---	---	---	73681	115	73682	115
2	GRNDAV5TSTK	WEST RIV	ELMWST A	254.1	456.5	388	115.2	229.6	417.7	388	105.3	73681	115	73682	115
2	ALLINGS1TSTK	WEST RIV	ELMWST B	254.3	402.2	388	105.4	---	---	---	---	73681	115	73683	115
2	GRNDAV6TSTK	WEST RIV	ELMWST B	254.3	456.4	388	115.2	229.8	417.6	388	105.3	73681	115	73683	115
2	113091001DCT	WESTON	TRMB J A	145.9	270.1	228	116.4	---	---	---	---	73158	115	73224	115
2	1416-1890DCT	WESTON	TRMB J A	145.9	251.9	228	108.4	---	---	---	---	73158	115	73224	115
2	1470PLMNORDC	WESTON	TRMB J A	145.9	243.9	228	104.9	---	---	---	---	73158	115	73224	115
2	1565PLMNORDC	WESTON	TRMB J A	145.9	260.5	228	112.2	117.4	247.9	228	106.7	73158	115	73224	115
2	1890-1977DCT	WESTON	TRMB J A	145.9	233.4	228	100.4	---	---	---	---	73158	115	73224	115
2	1130-1430DCT	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1222-1730DCT	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1222LINE	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1430LINE	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1470-1637DCT	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1618-321DCT	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1637-1720DCT	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1637LINE	---	NC	---	---	---	---	NC	---	---	---	---	---	---	---
2	1887-321DCT	---	NC	---	---	---	---	---	---	---	---	---	---	---	---

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2	1990SLINE-2	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	8100-8200DCT	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	NORWALKST2	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	OLDTOWNST	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	PEQUON42TSTK	---	---	NC	---	---	---	---	---	---	---	---	---	---	---
2	SASCOCR1T	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	SGTN4TSTK	---	---	NC	---	---	---	---	---	---	---	---	---	---	---
2	STEVENSSTK	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	TRIANGLE2T	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	WESTON1T	---	---	NC	---	---	---	NC	---	---	---	---	---	---	---
2	TRIANGLE3T	---	---	---	---	---	---	NC	---	---	---	---	---	---	---

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Appendix F-3															
POST-CONTINGENCY OVERLOADS															
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 3															
PHASE 1, 27,700MW LOAD LEVEL															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
3	1130LINE	ASHCREEK	ASHCREAC	295.7	392.4	382	101	---	---	---	---	73703	115	73714	115
3	1389-1880DCT	ASHCREEK	ASHCREAC	295.7	392.4	382	101	---	---	---	---	73703	115	73714	115
3	1416-1867DCT	ASHCREEK	ASHCREAC	295.7	411.7	382	106.1	276.6	390.5	382	100.6	73703	115	73714	115
3	1416-1880DCT	ASHCREEK	ASHCREAC	295.7	416	382	107.3	276.6	394.9	382	101.8	73703	115	73714	115
3	1710-1730DCT	ASHCREEK	ASHCREAC	295.7	416.8	382	107.4	---	---	---	---	73703	115	73714	115
3	1880-1977DCT	ASHCREEK	ASHCREAC	295.7	389.1	382	100.2	---	---	---	---	73703	115	73714	115
3	1575N-1990N	BUNKER H	TOW1585	59.5	156.2	143	106.6	67.2	178.7	143	121.9	73185	115	73289	115
3	1130+1416LNS	CRRA JCT	ASHCREEK	397	489.1	439	109.6	378	465.4	439	104.2	73701	115	73703	115
3	1130LINE	CRRA JCT	ASHCREEK	397	494.3	439	110.7	378	470.3	439	105.3	73701	115	73703	115
3	1389-1880DCT	CRRA JCT	ASHCREEK	397	494.2	439	110.6	378	481.7	439	107.8	73701	115	73703	115
3	1416-1867DCT	CRRA JCT	ASHCREEK	397	513.8	439	115.3	378	492.5	439	110.4	73701	115	73703	115
3	1416-1880DCT	CRRA JCT	ASHCREEK	397	518.1	439	116.3	378	496.9	439	111.4	73701	115	73703	115
3	1416LINE	CRRA JCT	ASHCREEK	397	481.1	439	107.7	378	457.2	439	102.3	73701	115	73703	115
3	1565PLMNORDC	CRRA JCT	ASHCREEK	397	448.9	439	100.4	---	---	---	---	73701	115	73703	115
3	1637FPLMNORD	CRRA JCT	ASHCREEK	397	464	439	103.8	378	451.4	439	100.9	73701	115	73703	115
3	1710-1730DCT	CRRA JCT	ASHCREEK	397	518.8	439	116.3	378	489.3	439	109.6	73701	115	73703	115
3	1710LINE	CRRA JCT	ASHCREEK	397	456.2	439	102.1	---	---	---	---	73701	115	73703	115
3	1720-1730DCT	CRRA JCT	ASHCREEK	397	481.3	439	107.7	378	451.8	439	101	73701	115	73703	115
3	1867-1880DCT	CRRA JCT	ASHCREEK	397	468.6	439	104.8	378	456.4	439	102.1	73701	115	73703	115
3	1867-1977DCT	CRRA JCT	ASHCREEK	397	486.8	439	109	378	465.3	439	104.2	73701	115	73703	115
3	1880-1977DCT	CRRA JCT	ASHCREEK	397	491	439	110	378	469.7	439	105.2	73701	115	73703	115
3	1977LINENEW	CRRA JCT	ASHCREEK	397	464	439	103.8	---	---	---	---	73701	115	73703	115
3	DARIEN1T	CRRA JCT	ASHCREEK	397	482.5	439	108	378	459	439	102.7	73701	115	73703	115
3	DEVON1TSTK	CRRA JCT	ASHCREEK	397	456.6	439	102.2	---	---	---	---	73701	115	73703	115
3	PEQUON22TSTK	CRRA JCT	ASHCREEK	397	454.5	439	101.7	---	---	---	---	73701	115	73703	115
3	SOUTHEND5T	CRRA JCT	ASHCREEK	397	459.3	439	102.7	---	---	---	---	73701	115	73703	115
3	SOUTHEND6T	CRRA JCT	ASHCREEK	397	464.3	439	103.9	---	---	---	---	73701	115	73703	115
3	1565PLMNORDC	DEVON#2	TRMB J B	174.3	238.1	228	102	---	---	---	---	73126	115	73225	115
3	DEVON24TSTK	DEVON#2	TRMB J B	174.3	250.3	228	107.1	---	---	---	---	73126	115	73225	115
3	1545LINE	DRBY J B	IND.WELL	105.2	176.2	150	117.4	103.4	177.3	150	118.1	73192	115	73705	115
3	DEVON5TSTK	DRBY J B	IND.WELL	105.2	181.2	150	120.7	103.4	183.6	150	122.3	73192	115	73705	115
3	BRANFORD2T	E.MERIDN	NO.WALLF	26.5	124.4	112	123.3	26	124.6	112	123.4	73227	115	73633	115
3	113091001DCT	FLAX HIL	RYTN J B	121	357.9	256	137.9	141.5	367.9	256	141.8	73207	115	73271	115
3	1416-1880DCT	FLAX HIL	RYTN J B	121	333.2	256	127.7	141.5	356.8	256	137	73207	115	73271	115
3	1416-1890DCT	FLAX HIL	RYTN J B	121	323.6	256	124.5	141.5	332.8	256	128.1	73207	115	73271	115
3	1880-1890DCT	FLAX HIL	RYTN J B	121	342.6	256	130.9	141.5	363.7	256	139.4	73207	115	73271	115
3	1880-1977DCT	FLAX HIL	RYTN J B	121	308.5	256	118	141.5	332.7	256	127.6	73207	115	73271	115
3	1890-1977DCT	FLAX HIL	RYTN J B	121	299.9	256	115.1	141.5	309.3	256	118.8	73207	115	73271	115
3	1618-321DCT	NEWTOWN	SNDYHK	151.8	335.4	289	117.3	138.8	353.6	289	128.8	73194	115	73282	115
3	1770-321DCT	NEWTOWN	SNDYHK	151.8	296.9	289	102.9	138.8	292	289	102.3	73194	115	73282	115
3	1887-321DCT	NEWTOWN	SNDYHK	151.8	322	289	112.1	138.8	334.1	289	118.4	73194	115	73282	115
3	LONGMT5TSTK	NEWTOWN	SNDYHK	151.8	294.6	289	102.4	138.8	290	289	100.4	73194	115	73282	115
3	113091001DCT	NORWALK	FLAX HIL	164.4	396.7	256	154.1	183.1	406.8	256	158.1	73172	115	73207	115
3	1416-1880DCT	NORWALK	FLAX HIL	164.4	376.7	256	144.7	183.1	398.6	256	153.8	73172	115	73207	115
3	1416-1890DCT	NORWALK	FLAX HIL	164.4	363.5	256	140.7	183.1	372.5	256	144.4	73172	115	73207	115
3	1880-1890DCT	NORWALK	FLAX HIL	164.4	385.2	256	147.7	183.1	404.9	256	156	73172	115	73207	115
3	1880-1977DCT	NORWALK	FLAX HIL	164.4	352.2	256	135	183.1	374.7	256	144.3	73172	115	73207	115
3	1880LINE	NORWALK	FLAX HIL	---	---	---	---	183.1	284.8	256	109.2	73172	115	73207	115

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3	1890-1977DCT	NORWALK	FLAX HIL	164.4	340.5	256	131.4	183.1	349.5	256	135.1	73172	115	73207	115
3	91001LINE	NORWALK	FLAX HIL	164.4	265.4	256	101.6	183.1	280.9	256	107.9	73172	115	73207	115
3	GLENBROOK3T	NORWALK	FLAX HIL	---	---	---	---	183.1	285	256	109.3	73172	115	73207	115
3	NORWLKHAR4T	NORWALK	FLAX HIL	---	---	---	---	183.1	284.8	256	109.2	73172	115	73207	115
3	113091001DCT	NORWALK	HAWTHORN	134	273.5	228	120.2	114.9	246.2	228	108	73172	115	73710	115
3	1416-1890DCT	NORWALK	HAWTHORN	134	257.4	228	112.8	114.9	230.5	228	100.9	73172	115	73710	115
3	1890-1977DCT	NORWALK	HAWTHORN	134	240.7	228	105.2	---	---	---	---	73172	115	73710	115
3	113091001DCT	NORWALK	NRWLK RX	147.4	289.5	228	126.2	126.7	260.3	228	113.6	73172	115	73292	115
3	1416-1890DCT	NORWALK	NRWLK RX	147.4	273	228	118.7	126.7	244.2	228	106.3	73172	115	73292	115
3	1890-1977DCT	NORWALK	NRWLK RX	147.4	256	228	111	---	---	---	---	73172	115	73292	115
3	1710-1730DCT	NWLK HAR	ELYAVE	180.3	299	263	110.7	---	---	---	---	73171	115	73237	115
3	1130+1416LNS	OLD TOWN	HAWTH R	194.2	236.4	228	102.3	---	---	---	---	73709	115	73711	115
3	113091001DCT	OLD TOWN	HAWTH R	194.2	336.6	228	147.2	175.3	309.1	228	134.9	73709	115	73711	115
3	1130LINE	OLD TOWN	HAWTH R	194.2	238.4	228	103.2	---	---	---	---	73709	115	73711	115
3	1416-1890DCT	OLD TOWN	HAWTH R	194.2	320.1	228	139.7	175.3	293.1	228	127.7	73709	115	73711	115
3	1416LINE	OLD TOWN	HAWTH R	194.2	232.4	228	100.6	---	---	---	---	73709	115	73711	115
3	1470PLMNORDC	OLD TOWN	HAWTH R	194.2	247	228	106.8	175.3	239.4	228	103.5	73709	115	73711	115
3	1565PLMNORDC	OLD TOWN	HAWTH R	194.2	262.3	228	113.8	175.3	254.7	228	110.5	73709	115	73711	115
3	1580-1730DCT	OLD TOWN	HAWTH R	194.2	234.2	228	101.2	---	---	---	---	73709	115	73711	115
3	1618-321DCT	OLD TOWN	HAWTH R	194.2	256.8	228	111.5	175.3	245.7	228	106.6	73709	115	73711	115
3	1637FPLMNORD	OLD TOWN	HAWTH R	194.2	269.4	228	116.6	175.3	262.6	228	113.6	73709	115	73711	115
3	1730LINE	OLD TOWN	HAWTH R	194.2	234	228	101.2	---	---	---	---	73709	115	73711	115
3	1770-321DCT	OLD TOWN	HAWTH R	194.2	243.5	228	105.5	175.3	237.6	228	102.8	73709	115	73711	115
3	1887-321DCT	OLD TOWN	HAWTH R	194.2	252	228	109.3	175.3	242.6	228	105.1	73709	115	73711	115
3	1890-1977DCT	OLD TOWN	HAWTH R	194.2	303	228	131.9	175.3	275.8	228	120	73709	115	73711	115
3	1890LINE	OLD TOWN	HAWTH R	194.2	239.4	228	103.6	---	---	---	---	73709	115	73711	115
3	321LINE	OLD TOWN	HAWTH R	194.2	239.5	228	103.8	175.3	235.8	228	102.1	73709	115	73711	115
3	91001LINE	OLD TOWN	HAWTH R	194.2	252.4	228	109.4	---	---	---	---	73709	115	73711	115
3	ASHCREKBKR	OLD TOWN	HAWTH R	194.2	247.1	228	107	---	---	---	---	73709	115	73711	115
3	DARIEN1T	OLD TOWN	HAWTH R	194.2	233.7	228	101.1	---	---	---	---	73709	115	73711	115
3	DEVON10TSTK	OLD TOWN	HAWTH R	194.2	234	228	101.2	---	---	---	---	73709	115	73711	115
3	DEVON8TSTK	OLD TOWN	HAWTH R	194.2	234	228	101.2	---	---	---	---	73709	115	73711	115
3	GLENBROOK8T	OLD TOWN	HAWTH R	194.2	239.3	228	103.6	---	---	---	---	73709	115	73711	115
3	LONGMT5TSTK	OLD TOWN	HAWTH R	194.2	246.1	228	106.7	175.3	242.3	228	105.1	73709	115	73711	115
3	NORWLKHAR1T	OLD TOWN	HAWTH R	194.2	239.4	228	103.6	---	---	---	---	73709	115	73711	115
3	PEQUON32TSTK	OLD TOWN	HAWTH R	194.2	234	228	101.1	---	---	---	---	73709	115	73711	115
3	1416-1867DCT	PEQUONIC	CRRA JCT	342.3	459.5	439	102.3	---	---	---	---	73700	115	73701	115
3	1416-1880DCT	PEQUONIC	CRRA JCT	342.3	463.9	439	103.3	---	---	---	---	73700	115	73701	115
3	1710-1730DCT	PEQUONIC	CRRA JCT	342.3	464.5	439	103.4	---	---	---	---	73700	115	73701	115
3	1618-321DCT	PLUMTREE	NEWTOWN	116.1	297.2	269	111.8	103.6	313.6	269	122.8	73170	115	73194	115
3	1887-321DCT	PLUMTREE	NEWTOWN	116.1	284.7	269	106.4	103.6	292.6	269	112.2	73170	115	73194	115
3	113091001DCT	RYTN J A	NORWALK	146	380.8	256	147.9	165.5	390.9	256	151.9	73169	115	73172	115
3	1389LINE	RYTN J A	NORWALK	---	---	---	---	165.5	279.5	256	107	73169	115	73172	115
3	1416-1867DCT	RYTN J A	NORWALK	146	338.7	256	130.2	165.5	361.6	256	139.6	73169	115	73172	115
3	1416-1890DCT	RYTN J A	NORWALK	146	347.7	256	134.6	165.5	356.8	256	138.3	73169	115	73172	115
3	1867-1890DCT	RYTN J A	NORWALK	146	347.8	256	133.6	165.5	368.5	256	142.1	73169	115	73172	115
3	1867-1977DCT	RYTN J A	NORWALK	146	314.2	256	120.6	165.5	337.7	256	130.2	73169	115	73172	115
3	1890-1977DCT	RYTN J A	NORWALK	146	324.4	256	125.2	165.5	333.5	256	128.9	73169	115	73172	115
3	91001LINE	RYTN J A	NORWALK	---	---	---	---	165.5	263.5	256	101.2	73169	115	73172	115
3	FLAXHILL2T	RYTN J A	NORWALK	---	---	---	---	165.5	263.4	256	100.8	73169	115	73172	115
3	1130LINE	SASCO CR	ASHCREAC	295.7	392.4	382	101	---	---	---	---	73173	115	73714	115
3	1389-1880DCT	SASCO CR	ASHCREAC	295.7	392.4	382	101	---	---	---	---	73173	115	73714	115
3	1416-1867DCT	SASCO CR	ASHCREAC	295.7	411.7	382	106.1	276.6	390.5	382	100.6	73173	115	73714	115
3	1416-1880DCT	SASCO CR	ASHCREAC	295.7	416	382	107.3	276.6	394.9	382	101.8	73173	115	73714	115
3	1710-1730DCT	SASCO CR	ASHCREAC	295.7	416.8	382	107.4	---	---	---	---	73173	115	73714	115

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3	1880-1977DCT	SASCO CR	ASHCREAC	295.7	389.1	382	100.2	---	---	---	---	73173	115	73714	115
3	1416-1867DCT	SASCO CR	ELYAVE	283.2	397.8	382	102.9	---	---	---	---	73173	115	73237	115
3	1416-1880DCT	SASCO CR	ELYAVE	283.2	401.9	382	104	---	---	---	---	73173	115	73237	115
3	1710-1730DCT	SASCO CR	ELYAVE	283.2	403.1	382	104.2	---	---	---	---	73173	115	73237	115
3	1618-321DCT	STEVENS	SNDYHK	162.2	347.7	282	124	149.1	369	282	136.1	73187	115	73282	115
3	1770-321DCT	STEVENS	SNDYHK	162.2	308.2	282	109.2	149.1	302.8	282	108.7	73187	115	73282	115
3	1887-321DCT	STEVENS	SNDYHK	162.2	333.7	282	118.6	149.1	345	282	125.3	73187	115	73282	115
3	321LINE	STEVENS	SNDYHK	162.2	295.8	282	104.9	149.1	286.2	282	102.8	73187	115	73282	115
3	LONGMT5TSTK	STEVENS	SNDYHK	162.2	306.3	282	108.7	149.1	301.2	282	106.6	73187	115	73282	115
3	113091001DCT	TRMB J B	PEQUONIC	113.2	281.5	231	120.5	110.9	268.7	231	114.9	73225	115	73700	115
3	1416-1890DCT	TRMB J B	PEQUONIC	113.2	264.5	231	113.1	110.9	252.1	231	107.7	73225	115	73700	115
3	1890-1977DCT	TRMB J B	PEQUONIC	113.2	242	231	103.4	---	---	---	---	73225	115	73700	115
3	113091001DCT	WESTON	NRWLK RX	146.2	285.6	228	126.3	125.9	257.6	228	113.6	73158	115	73292	115
3	1416-1890DCT	WESTON	NRWLK RX	146.2	269.6	228	118.7	125.9	241.9	228	106.4	73158	115	73292	115
3	1890-1977DCT	WESTON	NRWLK RX	146.2	253	228	111	---	---	---	---	73158	115	73292	115
3	1130+1416LNS	WESTON	TRMB J A	200.1	243.4	228	104.6	---	---	---	---	73158	115	73224	115
3	113091001DCT	WESTON	TRMB J A	200.1	347.7	228	150.2	180.8	319	228	137.6	73158	115	73224	115
3	1130LINE	WESTON	TRMB J A	200.1	245.6	228	105.5	---	---	---	---	73158	115	73224	115
3	1416-1890DCT	WESTON	TRMB J A	200.1	330.3	228	142.5	180.8	302.3	228	130.3	73158	115	73224	115
3	1416LINE	WESTON	TRMB J A	200.1	239.4	228	102.9	---	---	---	---	73158	115	73224	115
3	1470PLMNORDC	WESTON	TRMB J A	200.1	254.8	228	109.5	180.8	246.9	228	106.1	73158	115	73224	115
3	1565PLMNORDC	WESTON	TRMB J A	200.1	271.2	228	116.7	180.8	263.3	228	113.3	73158	115	73224	115
3	1618-321DCT	WESTON	TRMB J A	200.1	265.5	228	114.3	180.8	253.7	228	109.2	73158	115	73224	115
3	1710LINE	WESTON	TRMB J A	200.1	258.6	228	111.2	180.8	234.5	228	100.8	73158	115	73224	115
3	1770-321DCT	WESTON	TRMB J A	200.1	251.4	228	108.1	180.8	245.1	228	105.4	73158	115	73224	115
3	1867-1890DCT	WESTON	TRMB J A	200.1	233.4	228	100.3	---	---	---	---	73158	115	73224	115
3	1887-321DCT	WESTON	TRMB J A	200.1	260.4	228	112	180.8	250.4	228	107.7	73158	115	73224	115
3	1890-1977DCT	WESTON	TRMB J A	200.1	312.5	228	134.7	180.8	284.3	228	122.4	73158	115	73224	115
3	1890LINE	WESTON	TRMB J A	200.1	246.5	228	105.9	---	---	---	---	73158	115	73224	115
3	321LINE	WESTON	TRMB J A	200.1	247.3	228	106.4	180.8	243.3	228	104.6	73158	115	73224	115
3	329-352DCT	WESTON	TRMB J A	200.1	236.4	228	101.5	---	---	---	---	73158	115	73224	115
3	352+AUTO	WESTON	TRMB J A	200.1	236.4	228	101.5	---	---	---	---	73158	115	73224	115
3	352LINE	WESTON	TRMB J A	200.1	234.9	228	100.9	---	---	---	---	73158	115	73224	115
3	91001LINE	WESTON	TRMB J A	200.1	260	228	111.8	180.8	236.6	228	101.7	73158	115	73224	115
3	ASHCREEKBKR	WESTON	TRMB J A	200.1	254.4	228	109.3	---	---	---	---	73158	115	73224	115
3	DARIEN1T	WESTON	TRMB J A	200.1	240.7	228	103.4	---	---	---	---	73158	115	73224	115
3	DEVON1TSTK	WESTON	TRMB J A	200.1	259	228	111.4	180.8	235.4	228	101.2	73158	115	73224	115
3	GLENBROOK8T	WESTON	TRMB J A	200.1	246.4	228	105.9	---	---	---	---	73158	115	73224	115
3	HAWTHORNST	WESTON	TRMB J A	200.1	233.5	228	100.2	---	---	---	---	73158	115	73224	115
3	LONGMT5TSTK	WESTON	TRMB J A	200.1	254.3	228	109.4	180.8	250.4	228	107.7	73158	115	73224	115
3	NORWLKHAR1T	WESTON	TRMB J A	200.1	246.5	228	105.9	---	---	---	---	73158	115	73224	115
3	PEQUON22TSTK	WESTON	TRMB J A	200.1	258.4	228	111.2	180.8	234.4	228	100.8	73158	115	73224	115
3	PLUMNOR115	WESTON	TRMB J A	200.1	234.1	228	100.6	---	---	---	---	73158	115	73224	115
3	1130-1430DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1222-1730DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1222LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1430LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1470-1637DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1637-1720DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	1637LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	NORWALKST2	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	OLDTOWNST	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	SASCOCR1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	TRIANGLE2T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	TRIANGLE3T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
3	WESTON1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---

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Appendix F-4															
POST-CONTINGENCY OVERLOADS															
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 4															
PHASE 1, 27,700MW LOAD LEVEL															
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over				
4	1585NLINE	BALDWNJB	TOW1575	---	---	---	---	104.5	151.1	143	103.1	73228	115	73351	115
4	1990NLINE	BALDWNJB	TOW1575	---	---	---	---	104.5	152.4	143	104	73228	115	73351	115
4	FROSTBR27T	BALDWNJB	TOW1575	---	---	---	---	104.5	148.3	143	101.2	73228	115	73351	115
4	1575N-1990N	BUNKER H	TOW1585	87.2	239.3	143	163.2	88.6	242.9	143	165.7	73185	115	73289	115
4	1545LINE	DRBY J B	IND.WELL	104.3	188.8	150	125.7	106.4	195.6	150	130.4	73192	115	73705	115
4	DEVON2STK	DRBY J B	IND.WELL	104.3	198.7	150	132.4	106.4	205.8	150	137.2	73192	115	73705	115
4	BRANFORD2T	E.MERIDN	NO.WALLF	27.6	126.8	112	125.7	27.4	126.9	112	125.7	73227	115	73633	115
4	1416-1867DCT	GLNBROOK	ELYAVE	172.6	312.6	279	108.4	173.1	310.9	279	107.8	73168	115	73237	115
4	1416-1880DCT	GLNBROOK	ELYAVE	172.6	319.7	279	110.8	173.1	318.2	279	110.3	73168	115	73237	115
4	1867-1880DCT	GLNBROOK	ELYAVE	172.6	436	279	151.3	173.1	437	279	151.6	73168	115	73237	115
4	1867-1977DCT	GLNBROOK	ELYAVE	172.6	289.2	279	100.3	---	---	---	---	73168	115	73237	115
4	1880-1977DCT	GLNBROOK	ELYAVE	172.6	295.8	279	102.5	173.1	294.2	279	102	73168	115	73237	115
4	1618-321DCT	NEWTOWN	SNDYHK	---	---	---	---	160.8	201	196	105.6	73194	115	73282	115
4	BRANFORD2T	NO.WALLF	COLONY	54.5	150.9	143	115.2	54.3	151	143	115.3	73633	115	73634	115
4	113091001DCT	NWLK HAR	ELYAVE	50.9	300	263	110.4	58.7	299.3	263	110.1	73171	115	73237	115
4	1867-1880DCT	NWLK HAR	ELYAVE	50.9	411.1	263	151	58.7	413.8	263	152	73171	115	73237	115
4	1416-1880DCT	NWLK HAR	RYTN J B	248	381.2	304	121.2	243.4	371.6	304	118.7	73171	115	73271	115
4	1710-1730DCT	NWLK HAR	RYTN J B	248	319.9	304	101.7	---	---	---	---	73171	115	73271	115
4	1880-1890DCT	NWLK HAR	RYTN J B	248	512.9	304	163	243.4	507.9	304	162.3	73171	115	73271	115
4	1880-1977DCT	NWLK HAR	RYTN J B	248	378	304	120.1	243.4	367.8	304	117.5	73171	115	73271	115
4	1880LINE	NWLK HAR	RYTN J B	248	367.3	304	116.7	243.4	357.9	304	114.3	73171	115	73271	115
4	GLENBROOK3T	NWLK HAR	RYTN J B	248	367.4	304	116.8	243.4	358	304	114.3	73171	115	73271	115
4	NORWALKST1	NWLK HAR	RYTN J B	248	389.3	304	123.7	243.4	375.7	304	119.9	73171	115	73271	115
4	NORWALKHAR4T	NWLK HAR	RYTN J B	248	315.1	304	100.2	---	---	---	---	73171	115	73271	115
4	1416-1867DCT	RYTN J A	NWLK HAR	233.5	379.7	274	133.9	228.6	369.6	274	131	73169	115	73171	115
4	1416-1890DCT	RYTN J A	NWLK HAR	233.5	289.3	274	102	228.6	285.8	274	101.2	73169	115	73171	115
4	1710-1730DCT	RYTN J A	NWLK HAR	233.5	304.3	274	107.3	228.6	292.3	274	103.5	73169	115	73171	115
4	1867-1890DCT	RYTN J A	NWLK HAR	233.5	509.1	274	179.5	228.6	503.6	274	178.6	73169	115	73171	115
4	1867-1977DCT	RYTN J A	NWLK HAR	233.5	376	274	132.6	228.6	365.3	274	129.4	73169	115	73171	115
4	1867LINE	RYTN J A	NWLK HAR	233.5	364.6	274	128.6	228.6	354.9	274	125.7	73169	115	73171	115
4	1890-1977DCT	RYTN J A	NWLK HAR	233.5	286.3	274	101	228.6	282.6	274	100	73169	115	73171	115
4	DEVON2STK	RYTN J A	NWLK HAR	233.5	295.9	274	104.3	---	---	---	---	73169	115	73171	115
4	FLAXHILL2T	RYTN J A	NWLK HAR	233.5	350.8	274	123.7	228.6	342.3	274	121.2	73169	115	73171	115
4	NORWALKHAR7T	RYTN J A	NWLK HAR	233.5	314.6	274	110.9	228.6	302.4	274	107.1	73169	115	73171	115
4	113091001DCT	WESTON	TRMB J A	148.6	235.9	228	101.2	---	---	---	---	73158	115	73224	115
4	1130-1430DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1222-1730DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1222LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1430LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1470-1637DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1637-1720DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	1637LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	NORWALKST2	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	OLDTOWNST	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	SASCOCR1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	TRIANGLE2T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	TRIANGLE3T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
4	WESTON1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---

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Appendix F-5																
POST-CONTINGENCY OVERLOADS																
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 5																
PHASE 1, 27,700MW LOAD LEVEL																
Dispatch	Contingency	From Bus	To Bus	2-115 kV.				345 kV.				From#	From Base V	To#	To Base V	
				Pre-load	Post-load	Rating	% Over	Pre-load	Post-load	Rating	% Over					
5	1272+1445LNS	BALDWNJA	FROST BR	222.9	292.3	286	101	---	---	---	---	73164	115	73202	115	
5	1272-1721DCT	BALDWNJA	FROST BR	222.9	410.7	286	143.4	---	---	---	---	73164	115	73202	115	
5	1445LINE	BALDWNJA	FROST BR	222.9	299.9	286	104	---	---	---	---	73164	115	73202	115	
5	1460-387DCT	BALDWNJA	FROST BR	222.9	293.7	286	102.9	---	---	---	---	73164	115	73202	115	
5	1575N-1585N	BALDWNJA	FROST BR	222.9	320.5	286	110.8	---	---	---	---	73164	115	73202	115	
5	1618-321DCT	BALDWNJA	FROST BR	222.9	339.7	286	119.8	---	---	---	---	73164	115	73202	115	
5	1770-321DCT	BALDWNJA	FROST BR	222.9	313	286	108.3	---	---	---	---	73164	115	73202	115	
5	1887-321DCT	BALDWNJA	FROST BR	222.9	327.7	286	115.5	---	---	---	---	73164	115	73202	115	
5	321LINE	BALDWNJA	FROST BR	222.9	310	286	107	---	---	---	---	73164	115	73202	115	
5	387+AUTO	BALDWNJA	FROST BR	222.9	292.4	286	102.4	---	---	---	---	73164	115	73202	115	
5	387LINE	BALDWNJA	FROST BR	222.9	292.4	286	102.4	---	---	---	---	73164	115	73202	115	
5	BUNKERH2T	BALDWNJA	FROST BR	222.9	387.5	286	134.9	---	---	---	---	73164	115	73202	115	
5	BUNKERH3T	BALDWNJA	FROST BR	222.9	298.9	286	103.3	---	---	---	---	73164	115	73202	115	
5	LONGMT5STK	BALDWNJA	FROST BR	222.9	309.8	286	107.3	---	---	---	---	73164	115	73202	115	
5	SCOVKR8TSTK	BALDWNJA	FROST BR	222.9	287.5	286	101.7	---	---	---	---	73164	115	73202	115	
5	1272-1721DCT	BALDWNJA	TOW1990	192.5	377.2	282	134.5	---	---	---	---	73164	115	73290	115	
5	1575N-1585N	BALDWNJA	TOW1990	192.5	289.9	282	101.7	---	---	---	---	73164	115	73290	115	
5	1618-321DCT	BALDWNJA	TOW1990	192.5	309.5	282	110.7	---	---	---	---	73164	115	73290	115	
5	1887-321DCT	BALDWNJA	TOW1990	192.5	297.7	282	106.4	---	---	---	---	73164	115	73290	115	
5	BUNKERH2T	BALDWNJA	TOW1990	192.5	354.5	282	126	---	---	---	---	73164	115	73290	115	
5	1585NLINE	BALDWNJB	TOW1575	---	---	---	---	104.5	151.1	143	103.1	73228	115	73351	115	
5	1990NLINE	BALDWNJB	TOW1575	---	---	---	---	104.5	152.4	143	104	73228	115	73351	115	
5	FROSTBR27T	BALDWNJB	TOW1575	---	---	---	---	104.5	148.3	143	101.2	73228	115	73351	115	
5	1575N-1990N	BUNKER H	TOW1585	75.2	241.7	143	168.1	88.6	242.9	143	165.7	73185	115	73289	115	
5	1545LINE	DRBY J B	IND.WELL	---	---	---	---	106.4	195.6	150	130.4	73192	115	73705	115	
5	DEVON5TSTK	DRBY J B	IND.WELL	---	---	---	---	106.4	205.8	150	137.2	73192	115	73705	115	
5	8200LINE	E.SHORE	ENG STA	480.5	916.3	878	101.6	---	---	---	---	73668	115	73679	115	
5	GRNDAV3TSTK	E.SHORE	ENG STA	480.5	903	878	100.2	---	---	---	---	73668	115	73679	115	
5	8100LINE	E.SHORE	GRAND AV	480.4	916.1	878	101.6	---	---	---	---	73668	115	73669	115	
5	GRNDAV1TSTK	E.SHORE	GRAND AV	480.4	914.3	878	101.5	---	---	---	---	73668	115	73669	115	
5	SGTN7TSTK	E.SHORE	NHHHVDC	352.4	352.1	380	100.1	---	---	---	---	73663	345	73664	345	
5	SGTN5TSTK	GLEN JCT	JUNE ST	107.7	164.1	152	110.5	---	---	---	---	73196	115	73707	115	
5	1460-387DCT	GLEN JCT	SOUTHGTN	123.4	231.8	228	102.4	---	---	---	---	73196	115	73198	115	
5	387+AUTO	GLEN JCT	SOUTHGTN	123.4	228.6	228	100.7	---	---	---	---	73196	115	73198	115	
5	387LINE	GLEN JCT	SOUTHGTN	123.4	228.6	228	100.7	---	---	---	---	73196	115	73198	115	
5	SCOVKR8TSTK	GLEN JCT	SOUTHGTN	123.4	225.7	228	100.7	---	---	---	---	73196	115	73198	115	
5	1416-1867DCT	GLNBROOK	ELYAVE	176.2	292.4	279	101.4	173.1	310.9	279	107.8	73168	115	73237	115	
5	1416-1880DCT	GLNBROOK	ELYAVE	176.2	299.8	279	103.9	173.1	318.2	279	110.3	73168	115	73237	115	
5	1867-1880DCT	GLNBROOK	ELYAVE	176.2	461.2	279	160	173.1	437	279	151.6	73168	115	73237	115	
5	1880-1977DCT	GLNBROOK	ELYAVE	---	---	---	---	173.1	294.2	279	102	73168	115	73237	115	
5	8200LINE	GRAND AV	ENG STA	480.4	916.1	878	101.6	---	---	---	---	73669	115	73679	115	
5	GRNDAV3TSTK	GRAND AV	ENG STA	480.4	902.7	878	100.2	---	---	---	---	73669	115	73679	115	
5	1618-321DCT	NEWTOWN	SNDYHK	---	---	---	---	139.7	280.5	289	100.3	73194	115	73282	115	
5	BRANFORD2T	NO.WALL	COLONY	---	---	---	---	54.3	151	143	115.3	73633	115	73634	115	
5	113091001DCT	NWLK HAR	ELYAVE	145.7	295.4	263	108.7	58.7	299.3	263	110.1	73171	115	73237	115	
5	1867-1880DCT	NWLK HAR	ELYAVE	145.7	478.6	263	175.8	58.7	413.8	263	152	73171	115	73237	115	
5	1416-1880DCT	NWLK HAR	RYTN J B	---	---	---	---	243.4	371.6	304	118.7	73171	115	73271	115	
5	1618-321DCT	NWLK HAR	RYTN J B	196.9	328.8	304	104.9	---	---	---	---	73171	115	73271	115	

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5	1880-1890DCT	NWLK HAR	RYTN J B	196.9	496.9	304	157.9	243.4	507.9	304	162.3	73171	115	73271	115
5	1880-1977DCT	NWLK HAR	RYTN J B	---	---	---	---	243.4	367.8	304	117.5	73171	115	73271	115
5	1880LINE	NWLK HAR	RYTN J B	---	---	---	---	243.4	357.9	304	114.3	73171	115	73271	115
5	1887-321DCT	NWLK HAR	RYTN J B	196.9	321.2	304	102.5	243.4	358	304	114.3	73171	115	73271	115
5	NORWALKST1	NWLK HAR	RYTN J B	---	---	---	---	243.4	375.7	304	119.9	73171	115	73271	115
5	1416-1867DCT	RYTN J A	NWLK HAR	183	286.8	274	101.1	228.6	369.6	274	131	73169	115	73171	115
5	1416-1890DCT	RYTN J A	NWLK HAR	---	---	---	---	228.6	285.8	274	101.2	73169	115	73171	115
5	1618-321DCT	RYTN J A	NWLK HAR	183	314.6	274	111.3	228.6	292.3	274	103.5	73169	115	73171	115
5	1770-321DCT	RYTN J A	NWLK HAR	183	296.3	274	104.5	---	---	---	---	73169	115	73171	115
5	1867-1890DCT	RYTN J A	NWLK HAR	183	493.5	274	174	228.6	503.6	274	178.6	73169	115	73171	115
5	1867-1977DCT	RYTN J A	NWLK HAR	---	---	---	---	228.6	365.3	274	129.4	73169	115	73171	115
5	1867LINE	RYTN J A	NWLK HAR	---	---	---	---	228.6	354.9	274	125.7	73169	115	73171	115
5	1887-321DCT	RYTN J A	NWLK HAR	183	308.2	274	108.7	228.6	282.6	274	100	73169	115	73171	115
5	321LINE	RYTN J A	NWLK HAR	183	293.7	274	103.6	228.6	342.3	274	121.2	73169	115	73171	115
5	LONGMT5TSTK	RYTN J A	NWLK HAR	183	294.1	274	103.7	228.6	302.4	274	107.1	73169	115	73171	115
5	318LINE	SACKPHS	MIX AVE	90.9	131.2	138	100.2	---	---	---	---	73673	115	73675	115
5	SGTN3TSTK	SACKPHS	MIX AVE	90.9	130.1	138	100.1	---	---	---	---	73673	115	73675	115
5	SGTN7TSTK	SACKPHS	MIX AVE	90.9	134.2	138	108.9	---	---	---	---	73673	115	73675	115
5	318LINE	SCOVL RK	E.SHORE	1020.6	1282.8	1195	111.6	---	---	---	---	73107	345	73663	345
5	LOSSNHAV	SCOVL RK	E.SHORE	1020.6	1174.4	1195	101.5	---	---	---	---	73107	345	73663	345
5	SGTN3TSTK	SCOVL RK	E.SHORE	1020.6	1289.9	1195	112.7	---	---	---	---	73107	345	73663	345
5	SGTN4TSTK	SCOVL RK	E.SHORE	1020.6	1309.7	1195	117.2	---	---	---	---	73107	345	73663	345
5	SGTN7TSTK	SCOVL RK	E.SHORE	1020.6	1138.1	1195	102.9	---	---	---	---	73107	345	73663	345
5	FROSTBR27T	SHAWSHIL	FROST BR	206.7	412.3	359	112.3	---	---	---	---	73183	115	73202	115
5	1440-1450DCT	SO.END	GLNBRK J	113.3	365.5	289	123.1	115.7	365.5	289	123.1	73167	115	73294	115
5	ALLINGS2TSTK	WEST RIV	ELMWST A	251	397	388	105.4	---	---	---	---	73681	115	73682	115
5	GRNDV5TSTK	WEST RIV	ELMWST A	251	450.6	388	114.2	---	---	---	---	73681	115	73682	115
5	ALLINGS1TSTK	WEST RIV	ELMWST B	251.2	397.5	388	105.5	---	---	---	---	73681	115	73683	115
5	GRNDV6TSTK	WEST RIV	ELMWST B	251.2	450.5	388	114.2	---	---	---	---	73681	115	73683	115
5	1130-1430DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	1222-1730DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	1222LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	1430LINE	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	1470-1637DCT	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	1637-1720DCT	---	---	---	---	---	---	---	NC	---	---	---	---	---	---
5	1637LINE	---	---	---	---	---	---	---	NC	---	---	---	---	---	---
5	1990SLINE-2	---	---	---	NC	---	---	---	---	---	---	---	---	---	---
5	8100-8200DCT	---	---	---	NC	---	---	---	---	---	---	---	---	---	---
5	NORWALKST2	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	OLDTOWNST	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	SASCOCR1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	STEVENSSTK	---	---	---	NC	---	---	---	---	---	---	---	---	---	---
5	TRIANGLE2T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---
5	TRIANGLE3T	---	---	---	NC	---	---	---	---	---	---	---	---	---	---
5	WESTON1T	---	---	---	NC	---	---	---	NC	---	---	---	---	---	---

Southwestern Connecticut Electric Reliability Study

Appendix G

Appendix G-1								
POST-CONTINGENCY VOLTAGE VIOLATIONS								
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 2								
PHASE 1, 27,700 MW LOAD LEVEL								
Dispatch	Contingency	Bus Number	Bus Name	Bus Voltage Base	2-115 kV.		345 kV.	
					PU Volt Cont	PU Volt Init	PU Volt Cont	PU Volt Init
2	1460-387DCT	73115	PLUMTREE	345	0.9479	0.9703	---	---
2	318-362STKBR	73115	PLUMTREE	345	0.9497	0.9703	---	---
2	318LINE	73115	PLUMTREE	345	0.9428	0.9703	---	---
2	387+AUTO	73115	PLUMTREE	345	0.9497	0.9703	---	---
2	387LINE	73115	PLUMTREE	345	0.9497	0.9703	---	---
2	LONGMT5TSTK	73115	PLUMTREE	345	0.9409	0.9703	---	---
2	SCOVK8TSTK	73115	PLUMTREE	345	0.9475	0.9703	---	---
2	SGTN3TSTK	73115	PLUMTREE	345	0.9396	0.9703	---	---
Appendix G-2								
POST-CONTINGENCY VOLTAGE VIOLATIONS								
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 3								
PHASE 1, 27,700 MW LOAD LEVEL								
Dispatch	Contingency	Bus Number	Bus Name	Bus Voltage Base	2-115 kV.		345 kV.	
					PU Volt Cont	PU Volt Init	PU Volt Cont	PU Volt Init
Appendix G-3								
POST-CONTINGENCY VOLTAGE VIOLATIONS								
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 4								
PHASE 1, 27,700 MW LOAD LEVEL								
Dispatch	Contingency	Bus Number	Bus Name	Bus Voltage Base	2-115 kV.		345 kV.	
					PU Volt Cont	PU Volt Init	PU Volt Cont	PU Volt Init
Appendix G-4								
POST-CONTINGENCY VOLTAGE VIOLATIONS								
PHASE I COMPARISON @ 27,700 MW LOAD LEVEL - DISPATCH 5								
PHASE 1, 27,700 MW LOAD LEVEL								
Dispatch	Contingency	Bus Number	Bus Name	Bus Voltage Base	2-115 kV.		345 kV.	
					PU Volt Cont	PU Volt Init	PU Volt Cont	PU Volt Init
5	SGTN7TSTK	73182	HANOVERB	115	0.8435	1.0106	---	---
5	WOODMNT1TSTK	73688	MILVON A	115	0.897	1.0175	---	---
5	SGTN7TSTK	73675	MIX AVE	115	0.8925	1.0176	---	---

Southwestern Connecticut Electric Reliability Study

Appendix H

Appendix H-1						
PHASE-1 SWCT THERMAL OPERATING IMPORT LEVEL						
CASE	MILFORD	BE	WALLINGFORD	IMPORT RANGE, W/ BARNUM-BAIRD	IMPORT RANGE, W/O BARNUM-BAIRD	
EXISTING SYSTEM	0-560	P	255	2098-2077	2098-2077	
	0	0-520	255	2083-2100	2083-2100	
	560	0-520	255	2077-2092	2077-2092	
	0	P	0-255	2428-2098	2428-2098	
	560	P	0-255	2327-2077	2327-2077	
	FINAL				2077-2428	2077-2428
	ROUNDED RESULTS					2050-2400
345 kV PHASE-1	0-560	P	255	2342-2355	2342-2355	
	0	0-520	255	2309-2362	2309-2362	
	560	0-520	255	2342-2406	2359-2406	
	0	P	0-255	2601-2342	2601-2342	
	560	P	0-255	2624-2355	2624-2355	
	FINAL				2309-2624	2309-2624
	ROUNDED RESULTS					2300-2600
115 kV PHASE-1	0-560	P	255	2215-2223	2215-2223	
	0	0-520	255	2179-2227	2179-2227	
	560	0-520	255	2219-2258	2219-2258	
	0	P	0-255	2515-2215	2515-2215	
	560	P	0-255	2533-2223	2533-2223	
	FINAL				2179-2533	2179-2533
	ROUNDED RESULTS					2150-2500

Southwestern Connecticut Electric Reliability Study

Appendix H-2					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-1 345kV, SOUTHWEST CONNECTICUT OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	WLNGF PF-DEVON	1630LINE	2342
		MILFORD 560MW	WLNGF PF-DEVON	1630LINE	2355
	MILFORD 0MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2309
		BE 520MW	WLNGF PF-DEVON	1630LINE	2362
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	88006ALINE	2342
		BE 520MW	WLNGF PF-DEVON	1630LINE	2406
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	318LINE	2601
		WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2342
MILFORD 560MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	318LINE	2624	
	WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2355	
2	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	LONGMT5STK	2619
		MILFORD 560MW	BARNUM-BAIRD	8806ALINE	2359
	MILFORD 0MW	BE 0MW	SCOVL RK-E.SHORE	318LINE	2628
		BE 520MW	BALDWNJA-FROST BR	LONGMT5STK	2618
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	88005ALINE	2349
		BE 520MW	BARNUM-BAIRD	8806ALINE	2437
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	LONGMT5STK	2807
		WALLINGFORD 255MW	BALDWNJA-FROST BR	LONGMT5STK	2619
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	88006ALINE	2658	
	WALLINGFORD 255MW	BARNUM-BAIRD	88006ALINE	2359	
3	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	321LINE	2648
		MILFORD 560MW	BARNUM-BAIRD	88005ALINE	2365
	MILFORD 0MW	BE 0MW	BALDWNJA-FROST BR	LONGMT5STK	2650
		BE 520MW	BALDWNJA-FROST BR	321LINE	2652
	MILFORD 560MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2359
		BE 520MW	BARNUM-BAIRD	88005ALINE	2440
	MILFORD 0MW	WALLINGFORD 0MW	GLEN J-JUNE ST	352+AUTO	2940
		WALLINGFORD 255MW	BALDWNJA-FROST BR	321LINE	2648
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	88005ALINE	2664	
	WALLINGFORD 255MW	BARNUM-BAIRD	88005ALINE	2365	
4	WALLINFORD 255MW	MILFORD 0MW	SCOVL RK-E.SHORE	318LINE	2651
		MILFORD 560MW	GLEN J-JUNE ST	352+AUTO	2656
	MILFORD 0MW	BE 0MW	BALWNJA-FROST BR	321LINE	2663
		BE 520MW	SCOVL RK-E.SHORE	318LINE	2674
	MILFORD 560MW	BE 0MW	DEVON179-BARNUM B	88006ALINE	2569
		BE 520MW	DEVON179-BARNUM B	88006ALINE	2664
	MILFORD 0MW	WALLINGFORD 0MW	SCOVL RK-E.SHORE	LOSSNHAV	2958
		WALLINGFORD 255MW	SCOVL RK-E.SHORE	318LINE	2651
MILFORD 560MW	WALLINGFORD 0MW	BALWNJA-FROST BR	LONGMT5STK	2863	
	WALLINGFORD 255MW	GLEN J-JUNE ST	352+AUTO	2656	
5	WALLINFORD 255MW	MILFORD 0MW	GLEN J-JUNE ST	352+AUTO	2662
		MILFORD 560MW	SCOLV RK-E.SHORE	318LINE	2669
	MILFORD 0MW	BE 0MW	GLEN J-JUNE ST	352+AUTO	2671
		BE 520MW	GLEN J-JUNE ST	352+AUTO	2685
	MILFORD 560MW	BE 0MW	SCOLV RK-E.SHORE	318LINE	2673
		BE 520MW	BALWNJA-FROST BR	LONGMT5STK	2672
	MILFORD 0MW	WALLINGFORD 0MW	BCNFL PF-TOW1575	LONGMT5STK	2993
		WALLINGFORD 255MW	GLEN J-JUNE ST	352+AUTO	2662
MILFORD 560MW	WALLINGFORD 0MW	DEVON179-BARNUM B	88006ALINE	2868	
	WALLINGFORD 255MW	SCOLV RK-E.SHORE	318LINE	2669	

Southwestern Connecticut Electric Reliability Study

Appendix H-3					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-1 115/345KV, SOUTHWEST CONNECTICUT OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	WALLINFORD 255MW	MILFORD 0MW	WLNGF PF-DEVON	1630LINE	2215
		MILFORD 560MW	WLNGF PF-DEVON	1630LINE	2223
	MILFORD 0MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2179
		BE 520MW	WLNGF PF-DEVON	1630LINE	2227
	MILFORD 560MW	BE 0MW	WLNGF PF-DEVON	1630LINE	2219
		BE 520MW	WLNGF PF-DEVON	1630LINE	2258
	MILFORD 0MW	WALLINGFORD 0MW	SCOV L RK-E.SHORE	318LINE	2515
		WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2215
MILFORD 560MW	WALLINGFORD 0MW	SCOV L RK-E.SHORE	318LINE	2533	
	WALLINGFORD 255MW	WLNGF PF-DEVON	1630LINE	2223	
2	WALLINFORD 255MW	MILFORD 0MW	SCOV L RK-E.SHORE	318LINE	2557
		MILFORD 560MW	BARNUM-BAIRD	88006ALINE	2263
	MILFORD 0MW	BE 0MW	SCOV L RK-E.SHORE	318LINE	2531
		BE 520MW	SCOV L RK-E.SHORE	318LINE	2575
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	88006ALINE	2241
		BE 520MW	BARNUM-BAIRD	LOBTENGF	2319
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	321LINE	2759
		WALLINGFORD 255MW	SCOV L RK-E.SHORE	318LINE	2557
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	88006ALINE	2556	
	WALLINGFORD 255MW	BARNUM-BAIRD	88006ALINE	2263	
3	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	LONGMT5STK	2579
		MILFORD 560MW	BARNUM-BAIRD	88005ALINE	2270
	MILFORD 0MW	BE 0MW	WLNGF PF-DEVON	329LINE	2555
		BE 520MW	BALDWNJA-FROST BR	LONGMT5STK	2577
	MILFORD 560MW	BE 0MW	BARNUM-BAIRD	88005ALINE	2247
		BE 520MW	BARNUM-BAIRD	88006ALINE	2327
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	LONGMT5STK	2765
		WALLINGFORD 255MW	BALDWNJA-FROST BR	LONGMT5STK	2579
MILFORD 560MW	WALLINGFORD 0MW	BARNUM-BAIRD	88005ALINE	2562	
	WALLINGFORD 255MW	BARNUM-BAIRD	88005ALINE	2270	
4	WALLINFORD 255MW	MILFORD 0MW	GLEN J-JUNE ST	329LINE	2589
		MILFORD 560MW	DEVON179-BARNUM B	88006ALINE	2464
	MILFORD 0MW	BE 0MW	GLEN J-JUNE ST	329LINE	2595
		BE 520MW	BALDWNJA-FROST BR	321LINE	2597
	MILFORD 560MW	BE 0MW	DEVON179-BARNUM B	88006ALINE	2457
		BE 520MW	DEVON179-BARNUM B	88006ALINE	2544
	MILFORD 0MW	WALLINGFORD 0MW	BCNFL PF-TOW1575	3887+AUTO	2797
		WALLINGFORD 255MW	GLEN J-JUNE ST	329LINE	2589
MILFORD 560MW	WALLINGFORD 0MW	DEVON179-BARNUM B	88006ALINE	2758	
	WALLINGFORD 255MW	DEVON179-BARNUM B	88006ALINE	2464	
5	WALLINFORD 255MW	MILFORD 0MW	BALDWNJA-FROST BR	321LINE	2599
		MILFORD 560MW	SCOV L RK-E.SHORE	318LINE	2573
	MILFORD 0MW	BE 0MW	BALDWNJA-FROST BR	LONGMT5STK	2611
		BE 520MW	GLEN J-JUNE ST	329LINE	2609
	MILFORD 560MW	BE 0MW	SCOV L RK-E.SHORE	318LINE	2569
		BE 520MW	SCOV L RK-E.SHORE	318LINE	2606
	MILFORD 0MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	1445LINE	2803
		WALLINGFORD 255MW	BALDWNJA-FROST BR	321LINE	2599
MILFORD 560MW	WALLINGFORD 0MW	BALDWNJA-FROST BR	LONGMT5STK	2816	
	WALLINGFORD 255MW	SCOV L RK-E.SHORE	318LINE	2573	

Southwestern Connecticut Electric Reliability Study

Appendix I

Appendix I-1				
PHASE-1 NORWALK-STAMFORD THERMAL OPERATING IMPORT LEVEL				
CASE	MILFORD	BE	WALLINGFORD	IMPORT RANGE
EXISTING SYSTEM	0	0-520	255	960-1164
	560	0-520	255	875-1062
	FINAL			875-1164
	ROUNDED RESULTS			850-1150
345 kV PHASE-1	0-560	0-520	255	1115-1420
	560	0-520	255	1275-1298
	FINAL			1115-1420
	ROUNDED RESULTS			1100-1400
115 kV PHASE-1	0-560	0-520	255	1081-1092
	560	0-520	255	1214-1332
	FINAL			1081-1332
	ROUNDED RESULTS			1050-1300

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Appendix I-2					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
EXISTING, NORWALK-STAMFORD OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	321LINE	960
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1164
	MILFORD 560MW	BE 0MW	TRMBL J-DEVON#2	BASE CASE	875
		BE 520MW	WESTON-RMBL J	BASE CASE	1062
2	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	972
		BE 520MW	WESTON-RMBL J	BASE CASE	1197
	MILFORD 560MW	BE 0MW	TRMBL J-DEVON#2	BASE CASE	1071
		BE 520MW	OLD TOWN-HAWTH R	BASE CASE	1086
3	MILFORD 0MW	BE 0MW	NORWALK-PEACEABL	BASE CASE	1191
		BE 520MW	OLD TOWN-HAWTH R	BASE CASE	1222
	MILFORD 560MW	BE 0MW	WESTON-RMBL J	BASE CASE	1123
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1124

Appendix I-3					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-1 345kV, NORWALK-STAMFORD OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	321LINE	1115
		BE 520MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	1420
	MILFORD 560MW	BE 0MW	TRMBL J-DEVON#2	BASE CASE	1275
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1298
2	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	1134
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1446
	MILFORD 560MW	BE 0MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	1391
		BE 520MW	WESTON-RMBL J	BASE CASE	1525
3	MILFORD 0MW	BE 0MW	STONY HL-W.BRKFLD	LONGMT5TSTK	1349
		BE 520MW	ROCK RIV-W.BRKFLD	321LINE	1464
	MILFORD 560MW	BE 0MW	NORWALK-FLAX HIL	BASE CASE	1443
		BE 520MW	PEQUONIC-CRRA J	BASE CASE	1567

Southwestern Connecticut Electric Reliability Study

Appendix I-4					
(LE- Limiting Element; CO- Contingency)					
Note: For a specific generation scenario, the same LE's were not reported more than 3 times.					
PHASE-1 115kV, NORWALK-STAMFORD OPERATING IMPORT LEVELS					
LIMIT	KEY GENERATORS		LE	CO	TRANSFER
1	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	1092
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1332
	MILFORD 560MW	BE 0MW	TRMBL J-DEVON#2	BASE CASE	1081
		BE 520MW	CRRA JCT-ASHCREEK	BASE CASE	1214
2	MILFORD 0MW	BE 0MW	ROCK RIV-W.BRKFLD	321LINE	1096
		BE 520MW	ROCK RIV-W.BRKFLD	LONGMT5TSTK	1374
	MILFORD 560MW	BE 0MW	ROCK RIV-W.BRKFLD	321LINE	1382
		BE 520MW	WESTON-RMBL J	BASE CASE	1263
3	MILFORD 0MW	BE 0MW	STONY HL-W.BRKFLD	321LINE	1278
		BE 520MW	ROCK RIV-W.BRKFLD	321LINE	1409
	MILFORD 560MW	BE 0MW	TRMBL J-DEVON#2	BASE CASE	1393
		BE 520MW	OLD TOWN-HAWTH R	BASE CASE	1310

Southwestern Connecticut Electric Reliability Study

Appendix J

SW Connecticut Circuit Breaker Interrupting Duties

Worst case breakers are listed at each substation. All overdutied breakers are listed.

Based on data received from Northeast Utilities Protection & Controls Engineering dated 10May2002.

Substation	Voltage	Breaker Nomenclature	Before Phase 1 Project			After Phase 1 Project (345-kV OH Alternative)		After Phase 1 Project (115-kV UG Alternative)	
			Interrupting Capability (A)	Interrupting Duty (A)	% Duty	Interrupting Duty (A)	% Duty	Interrupting Duty (A)	% Duty
Compo	115	23K-1T-2	40000	7890	19.7	7906	19.8	7901	19.8
Cos Cob	115	35K-3T-2	19022	15727	82.7	16561	87.1	16404	86.2
Darien	115	13S-10K-2	40000	14564	36.4	15125	37.8	15016	37.5
Devon Ring #1	115	7R-XT-2	63000	58250	92.5	58635	93.1	58422	92.7
Devon Ring #2	115	7R-20T-2	63000	58866	93.4	59186	93.9	59037	93.7
Flax Hill	115	24A-2T-2	63000	17688	28.1	18443	29.3	18308	29.1
Glenbrook	115	1753-1K-2	23857	26097	109.4	28521	119.5	27841	116.7
		1792-1K-2	23857	26589	111.5	29056	121.8	28344	118.8
		1867-1K-2	23474	22080	94.1	23519	100.2	23162	98.7
		1K-2T-2	23162	26097	112.7	28521	123.1	27841	120.2
		1K-4T-2	23162	22078	95.3	23518	101.5	23161	100.0
		1K-7T-2	23162	26097	112.7	28521	123.1	27841	120.2
		1K-9T-2	23035	22078	95.8	23518	102.1	23161	100.5
Norwalk	115	9S-1T-2	22602	26348	116.6	38604	170.8	33513	148.3
		9S-2T-2	23001	26345	114.5	38602	167.8	33507	145.7
		9S-3T-2	23001	26348	114.6	38604	167.8	33513	145.7
		9S-4T-2	22802	26348	115.6	38604	169.3	33513	147.0
		9S-5T-2	22802	23321	102.3	35690	156.5	30605	134.2
		9S-6T-2	22802	26348	115.6	38604	169.3	33513	147.0

Southwestern Connecticut Electric Reliability Study

SW Connecticut Circuit Breaker Interrupting Duties

Worst case breakers are listed at each substation. All overdutied breakers are listed.

Based on data received from Northeast Utilities Protection & Controls Engineering dated 10May2002.

Substation	Voltage	Breaker Nomenclature	Interrupting Capability (A)	Before Phase 1 Project		After Phase 1 Project (345-kV OH Alternative)		After Phase 1 Project (115-kV UG Alternative)	
				Interrupting Duty (A)	% Duty	Interrupting Duty (A)	% Duty	Interrupting Duty (A)	% Duty
		9S-7T-2	24464	26348	107.7	38604	157.8	33513	137.0
		9S-8T-2	24464	23329	95.4	36706	150.0	32579	133.2
		9S-9T-2	24464	26348	107.7	38604	157.8	33513	137.0
Norwalk Harbor	115	6J-5T-2	48517	40136	82.7	43802	90.3	42714	88.0
Peaceable	115	12N-1T-2	23857	6789	28.5	6976	29.2	7726	32.4
Pequonnock	115	8J-1T-2	63000	61751	98.0	62410	99.1	62181	98.7
Sasco Creek	115	51R-1T-2	40000	10026	25.1	10047	25.1	10040	25.1
South End	115	1G-5T-2	23666	20555	86.9	21892	92.5	21546	91.0
Waterside	115	22M-10K-2	40000	16602	41.5	17592	44.0	17405	43.5
Weston	115	21M-1T-2	20000	9190	46.0	10299	51.5	10097	50.5

Note 1:Pequonnock is a United Illuminating substation. The breaker ratings and duties listed here are subject to verification by UI.

Note 2

:

Results are pre-1385 changes. Preliminary analysis shows that the new Northport PAR impacts short circuit current availability at Pequonnock by approximately 2000 Amps. This would have to be mitigated prior to either of the Phase I projects being implemented.

Southwestern Connecticut Electric Reliability Study

Appendix K - ACCC Output (CD Rom only)

Contact ISO-NE Customer Services Department at (413) 540-4220.

Appendix L - MUST Output (CD Rom only)

Contact ISO-NE Customer Services Department at (413) 540-4220.

ISO New England Inc.

Customer Service: (413) 540-4220

Web Site: <http://www.iso-ne.com>