

**REVISED**  
**EXHIBIT A**

**TO**

**SUPPLEMENTAL TESTIMONY OF TIMOTHY F. LASKOWSKI  
AND ROGER C. ZAKLUKIEWICZ**

**CONCERNING THE NEED FOR  
THE INTERSTATE RELIABILITY PROJECT**

# New England East-West Solution (NEEWS) 2012 Follow-Up Study Needs and Solutions

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*Planning Advisory Committee Meeting  
Revision 1*

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# Purpose

- This presentation details the results of a follow-up needs assessment study which takes into account updates in load forecast and forecasted energy efficiency. The follow-up needs assessment study confirms the reliability needs identified in the April 2011 updated needs assessment
- This presentation details the results of a follow-up solutions study. The follow-up solutions study confirms that the preferred solution from the February 2012 solution study still meets the identified reliability needs



# Background

- See Appendix for recap of all previous presentations related to NEEWS
- Follow-up needs addendum posted to PAC website on July 9, 2012 for 30 day comment period
  - [http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpts\\_comm/pac/reports/2012/index.html](http://www.iso-ne.com/committees/comm_wkgrps/prtcpts_comm/pac/reports/2012/index.html)
- Follow-up solution study addendum will be posted to PAC website in the near future for 30-day comment period

# 2012 FOLLOW-UP STUDY

*Needs Assessment*

# Updated Assumptions

- 2012 CELT Report
  - Last study used 2010 CELT Report
- Year of Study – 2022
  - Last study modeled 2020
- Forward Capacity Auction #6 Results
  - Last study used FCA #4 results
- Forecasted Energy Efficiency through 2022
  - Last study did not model any forecasted energy efficiency
- Demand Resources Eligible for Termination Removed
  - In accordance with MR 1 Section III.13.3.4.(c)
  - Last study did not terminate any FCA cleared DR

# Updated Assumptions, *cont.*

- Load comparison between 2011 Needs Assessment and 2012 follow-up Needs Assessment assumptions

Assumption	2011		2012		Difference	
	Reference	(MW)	Reference	(MW)	(MW)	(%)
CELT Load	2020 90/10 2010 CELT	33,555	2022 90/10 2012 CELT	34,130	+575	+1.71%
Mfg. Load in ME		0		+364	+364	
Passive DR*	FCA #4	-1,494	FCA #6	-1,685	-191	+12.78%
Terminated Pass DR				+65	+65	
Forecasted EE	N/A	0	2022 2012 CELT	-1,362	-1,362	
Active DR*	FCA #4	-1,771	FCA #6	-1,574	+197	-11.12%
Terminated Act DR				+42	+42	
Active DR De-Rate		+443		+383	-60	
<b>Net ISO-NE Load</b>		<b>30,733</b>		<b>30,363</b>	<b>-370</b>	<b>-1.20%</b>

\* Following completion of the 2011 Needs Assessment, the DR values used were found to be overstated (Passive DR should have been 1,330 MW, Active DR 1,510 MW). These errors were discussed on pg. 24 of the associated [Solutions Study](#).

# Updated Assumptions, *cont.*

- May 2012 Revised NEEWS Greater Springfield and Rhode Island Reliability Projects assumed in network model
- Advanced NEEWS projects assumed in network model
  - 336 line (West Medway to NEA Bellingham) reconductor
  - 1410 line (Montville to Buddington) sag elimination
  - Additional series West Medway 106 breaker
- Lake Road generating station in service for all stresses
  - Last study units were assumed out of service for East → West stresses
- Pumped storage units kept at 50% of their output for all dispatches
  - Last study allowed them to go to 100% of their output when in exporting area





## Updated Assumptions, *cont.*

- Wind Power Output – On-shore 5% nameplate in the import area, 100% nameplate in the export area
  - Last study used Qualified Capacity values for all dispatches
- Hydro Power Output – Updated based on ongoing VT/NH, Pittsfield/Greenfield, and GHCC studies
  - Last study used QC values for all dispatches
- Salem Harbor, AES Thames, Bridgeport Harbor 2, Somerset 6, Somerset Jet 2, Holyoke 6&8, Potter Diesel, and Ansonia assumed out of service due to multiple delist bids / retirements / interconnection queue withdrawals
  - Last study all units were available

# Scope of Work

- Same dispatches as last study
  - E→W stress: Millstone 2 & 3 OOS, Berkshire Power OOS
  - W→E stress: Phase II & Seabrook OOS, NB Import 700 MW
  - RI stress: RISE & Manchester 09 OOS
- Two sensitivities run
  - E→W sensitivity: Millstone 2 & 3 OOS, West Springfield 3 OOS, and Berkshire Power In Service (new from last study)
  - W→E sensitivity: Phase II & Seabrook OOS, NB Import 0 MW (same as last study)
- Same N-0, N-1, and N-1-1 thermal and voltage analysis as done in last study. Transfer capability testing was not done as part of the follow-up study

# N-0 Thermal and Voltage Summary

- No voltage or thermal criteria violations



# N-1 Thermal and Voltage Summary

- West → East
  - 328 line (Sherman Rd. to West Farnum) overloads for NB Import 0 MW sensitivity
  - 115 kV path from CT to RI along shoreline overloads for both NB Import 700 and 0 MW cases
- East → West
  - No thermal or voltage violations
- Rhode Island
  - No thermal or voltage violations
- Connecticut
  - No thermal or voltage violations



# N-1-1 Thermal and Voltage Summary

- West → East
  - 345 kV thermal violations in MA and RI up to 126% of LTE rating
  - 115 kV thermal violations in MA, RI, and CT up to 152% of LTE rating
  - 115 kV voltage violations along CT to RI shoreline path
  - Voltage collapse seen in NB Import 0 MW sensitivity
- East → West
  - 345 kV thermal violations in MA up to 105% of LTE rating
  - 115 kV thermal violations along RI to CT shoreline path up to 108% of LTE rating
- Rhode Island
  - Voltage collapse seen in Rhode Island after loss of two 345 kV sources into area, without sufficient local generation, the 115 kV network cannot supply the load
- Connecticut
  - 115 kV thermal violations in CT up to 102% of LTE rating



# Needs Follow-Up Summary

- Confirmed there continues to be a reliability need within the 10-year planning horizon
- Updated assumptions reduced some loadings seen in last study but did not eliminate criteria violations
- Voltage collapse under certain conditions due to loss of 345 kV network in area indicates a strong reliability need for additional support in the Rhode Island area



# 2012 FOLLOW-UP STUDY

*Solutions Study*

# NEEWS Interstate Project Description

- Preferred solution A-1 from February 2012 solutions study
  - New 345 kV 366 line (Millbury to West Farnum)
  - New 345 kV 341 line (West Farnum to Lake Road)
  - New 345 kV 3271 line (Lake Road to Card Street)
  - Rebuild Sherman Rd substation to 2-bay AIS with double series breakers
  - Reconductor 345 kV 328 line (Sherman Road to West Farnum)





# Follow-Up Solution Study Summary

- Current preferred solution presented in February 2012 report continues to meet the identified needs
- All parts of preferred solution still needed within the 10-year planning horizon
- Expected in-service date of project: December 2015



# Questions



# APPENDIX

*Recap of Prior NEEWS Presentations*

# Recap of Prior Presentations

- May 4, 2005 PAC Presentation

[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2005/transmission\\_study\\_updates.ppt](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2005/transmission_study_updates.ppt)

- Preliminary problem statements

- March 15, 2006 PAC Presentation

[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/mtrls/2006/mar152006/transmission\\_planning\\_update.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2006/mar152006/transmission_planning_update.pdf)

- Interdependencies / expanded analysis
- Better defined problem statements
- Study method and schedule
- Preliminary alternatives

- July 27, 2006 RC Presentation

[http://www.iso-ne.com/committees/comm\\_wkgrps/trans\\_comm/tariff\\_comm/mtrls/2006/jul27282006/a4\\_southern\\_ne.ppt](http://www.iso-ne.com/committees/comm_wkgrps/trans_comm/tariff_comm/mtrls/2006/jul27282006/a4_southern_ne.ppt)

- Detailed problem statements



# Recap of Prior Presentations, *cont.*

- December 15, 2006 PAC Presentation
  - ISO discussed the alternative development process  
[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2006/southern\\_new\\_england\\_transmission\\_reinforcement\\_presentation\\_for\\_december\\_15\\_2006\\_rc-pac\\_meeting.ppt](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2006/southern_new_england_transmission_reinforcement_presentation_for_december_15_2006_rc-pac_meeting.ppt)
  - Northeast Utilities & National Grid presented their “tentative” preferred alternatives  
[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2006/review\\_of\\_project\\_solutions\\_by\\_the\\_national\\_grid\\_and\\_northeast\\_utilities\\_project\\_team.pdf](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2006/review_of_project_solutions_by_the_national_grid_and_northeast_utilities_project_team.pdf)
- December 3, 2007 PAC Presentation
  - Focused on advanced portions of Springfield & Rhode Island
  - Briefly reviewed the “needs”
    - Northeast Utilities discussed Springfield projects’ progression  
[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2007/springfield\\_area\\_solution.pdf](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2007/springfield_area_solution.pdf)
    - National Grid discussed Rhode Island projects’ progression  
[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2007/rhode\\_island\\_reliability.pdf](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2007/rhode_island_reliability.pdf)



# Recap of Prior Presentations, *cont.*

- May 19, 2008 PAC Presentation
  - ISO presented expanded needs and solutions discussion  
[http://www.iso-ne.com/trans/sys\\_studies/rsp\\_docs/pres/2008/a\\_snetr-neews\\_5-19-08.pdf](http://www.iso-ne.com/trans/sys_studies/rsp_docs/pres/2008/a_snetr-neews_5-19-08.pdf)
  - Northeast Utilities & National Grid presented additional background and proposed project details  
[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/ceii/mtrls/2008/may192008/grid-nu\\_news.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/ceii/mtrls/2008/may192008/grid-nu_news.pdf)
- June 17, 2009 PAC Presentation  
[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/ceii/mtrls/2009/jun172009/neews.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/ceii/mtrls/2009/jun172009/neews.pdf)
  - Focused on GSRP & RIRP updated needs assessments
  - These assessments showed continuing need
  - Updated assessments were in progress for Interstate and CCRP

# Recap of Prior Presentations, *cont.*

- August 12, 2010 PAC Presentation

[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/ceii/mtrls/2010/aug122010/neews\\_interstate.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/ceii/mtrls/2010/aug122010/neews_interstate.pdf)

- ISO presented the updated needs assessment results (long version) for the Interstate component

- November 16, 2010 PAC Presentation

[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/ceii/mtrls/2010/nov162010/neews.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/ceii/mtrls/2010/nov162010/neews.pdf)

- ISO presented the updated needs assessment results (short version) for the Interstate component

# Recap of Prior Presentations, *cont.*

- November 30, 2010 PAC Presentation
  - ISO again presented the updated needs assessment results (short version) for the Interstate component  
[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcnts\\_comm/pac/ceii/mtrls/2010/nov302010/news\\_irp.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcnts_comm/pac/ceii/mtrls/2010/nov302010/news_irp.pdf)
  - Northeast Utilities & National Grid presented the preferred Interstate solution  
[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcnts\\_comm/pac/ceii/mtrls/2010/nov302010/news\\_irp\\_nu\\_ngrid.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcnts_comm/pac/ceii/mtrls/2010/nov302010/news_irp_nu_ngrid.pdf)
- September 21, 2011 PAC Presentation
  - National Grid presented the revised Sherman Road Switching Station plan (part of Interstate solution)  
[http://www.iso-ne.com/committees/comm\\_wkgrps/prtcnts\\_comm/pac/ceii/mtrls/2011/sep212011/sherman\\_road\\_pres.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcnts_comm/pac/ceii/mtrls/2011/sep212011/sherman_road_pres.pdf)





# Recap of Prior Presentations, *cont.*

- March 13, 2012 RC Presentation

[http://www.iso-ne.com/committees/comm\\_wkgrps/relbty\\_comm/relbty/ceii/ceii\\_mtrls/2012/mar132012/a3\\_3\\_news\\_interstate.pdf](http://www.iso-ne.com/committees/comm_wkgrps/relbty_comm/relbty/ceii/ceii_mtrls/2012/mar132012/a3_3_news_interstate.pdf)

- Northeast Utilities & National Grid presented status updates for all 4 components of NEEWS as they are seeking an updated Proposed Plan Application approval (based on modifications since the 2008 approval)

- April 17, 2012 RC Meeting

[http://www.iso-ne.com/committees/comm\\_wkgrps/relbty\\_comm/relbty/ceii/ceii\\_mtrls/2012/apr172012/a3\\_1\\_news\\_lvl3\\_ppas.zip](http://www.iso-ne.com/committees/comm_wkgrps/relbty_comm/relbty/ceii/ceii_mtrls/2012/apr172012/a3_1_news_lvl3_ppas.zip)

- NEPOOL Reliability Committee scheduled to vote on PPA recommendation

- April 18, 2012 PAC Meeting

[http://smd.iso-ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/ceii/mtrls/2012/apr182012/iso\\_news\\_update.pdf](http://smd.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/ceii/mtrls/2012/apr182012/iso_news_update.pdf)

- ISO presented update on all changes associated with NEEWS since original 2008 version of project