



2007 Supplemental Report

Appendix C

Summary & Comparison of Collaborative Transmission Plans

May 16, 2008

Summary of the Collaborative Transmission Plans

	2006 Plan	2006 Supplemental Plan	2007 Plan	2007 Supplemental Plan
Number of projects with an estimated cost of \$10 million or more each	16	14	17	18
Total estimated cost of Plan	\$403 M	\$294 M	\$400 M	\$523 M
Planning horizon	2006-2016	2006-2016	2007-2017	2007-2017
Date Plan published	01/25/07	04/26/07	01/16/08	mm/dd/yy

Changes in the 2006 Supplemental Plan from the 2006 Plan:

- **Added project:**
 - Pleasant Garden to Asheboro 230 kV line, including replacing the Asheboro 230/115 kV transformers.
- **Modified project:**
 - Harris to Durham 230 kV line was modified in the 2006 Supplemental Plan. The Harris to RTP 230 kV section of the line was included in the 2006 Supplemental Plan. However, the RTP to Durham 230 kV section of the line was deferred, since this section of the line was not needed within the 10 year planning horizon.
- **Deferred projects beyond 2016 due to addition of Pleasant Garden to Asheboro 230 kV project:**
 - Third Wake 500/230 kV transformer.
 - Cape Fear to Siler City 230 kV line.
- **Deleted project replaced by Pleasant Garden to Asheboro 230 kV project:**
 - Buck to Asheboro 230 kV line.

Changes in the 2007 Plan from the 2006 Supplemental Plan:

- **In-service project:**
 - Marion-Whiteville 230 kV line: This new line was placed in-service on June 7, 2007 and is initially being operated at 115 kV.
- **Added and reinstated projects:**
 - Durham-Falls 230 kV line. This existing project was identified in the base reliability studies performed for the 2006 Plan but not described in the 2006 Plan because the estimated cost at that time was less than \$10 million. In the 2007 study, the revised estimated cost of this project was above \$10 million; therefore, the project was described in the 2007 Plan.
 - Needed to accommodate 600 MW of new confirmed transmission service from Duke to Progress East:
 - Third Rockingham-Lilesville 230 kV line.
 - Install a 230 kV series reactor on the Cape Fear-West End 230 kV line at the West End 230 kV substation.
 - Third Wake 500/230 kV transformer accelerated back into the 10 year planning horizon.
 - Reconductor Fisher 230 kV lines.
- **Modified project:**
 - Asheville-Enka 230 kV line project. The 2006 Plan included construction of a new Asheville-Enka 230 kV line. The modified project in the 2007 Plan provides for first converting an existing Asheville-Enka 115 kV line to 230 kV operations and later constructing a new Asheville-Enka 115 kV line.

Summary of the Collaborative Transmission Plans

➤ **Deferred projects:**

- Reconductor of the two London Creek 230 kV lines was deferred beyond 2017.

➤ **Deleted project:**

- Henderson-Kerr Dam 115 kV line was removed from the 2007 Plan since the revised estimated cost was less than \$10 million.

Changes in the 2007 Supplemental Plan from the 2007 Plan:

➤ **In-service project:**

- Marion-Whiteville 230 kV line: The 2007 Plan reported that this new line was placed in-service on June 7, 2007. Therefore, the project was removed from the 2007 Supplemental Plan.

➤ **Added projects:**

- Richmond-Fort Bragg Woodruff Street 230 kV line.
- Jacksonville Static VAR Compensator.

Summary of the Collaborative Transmission Plans

Comparison of Collaborative Transmission Plans – Major Project Listings (Estimated Cost > \$10M)										
Project ID	Reliability Project	Issue Resolved	2006 Plan		2006 Supplemental Plan		2007 Plan		2007 Supplemental Plan	
			Planned In-Service Date	Estimated Cost (\$M)	Planned In-Service Date	Estimated Cost (\$M)	Planned In-Service Date	Estimated Cost (\$M)	Planned In-Service Date	Estimated Cost (\$M)
0001	Marion-Whiteville 230 kV Line, Establish a new 230 kV line initially operated at 115 kV	Address loading on Marion-Whiteville 115 kV	6/1/2007	\$11	6/1/2007	\$11	In-service on 6/7/2007	\$10	In-service on 6/7/2007	
0002	Lee Sub-Wommack 230 kV South Line, Reconductor existing line	Address loading on Lee-Wommack 230 kV South Line	5/1/2008	\$13	5/1/2008	\$13	6/1/2008	\$13	6/1/2008	\$13
0003	Durham 500 kV Sub, Establish 500 kV at Durham & loop-in the Mayo Plant-Wake 500 kV Line	Address loading on Wake 500/230 kV transformers	6/1/2008	\$31	6/1/2008	\$31	6/1/2008	\$29	6/1/2008	\$31
0004	Clinton-Lee 230 kV Line, Construct new line	Address loading on Clinton-Vander 115 kV line & Lee Sub-Wallace 115 kV Line	6/1/2009	\$21	6/1/2009	\$21	6/1/2010	\$21	6/1/2010	\$21
0005	Rockingham-West End 230 kV Line, Construct Wadesboro Bowman School 230 kV Tap & uprate the portion between the tap & Rockingham 230 kV Sub	Address loading on Rockingham-Blewett-Tillery 115 kV corridor	6/1/2009	\$13	6/1/2009	\$13	6/1/2009	\$11	6/1/2009	\$11
0006	Cape Fear-Siler City 230 kV Line, Construct new 230 kV line	Address voltage in the Asheboro area	6/1/2010	\$19	Need for project deferred beyond 10 yr horizon by 0010B		Need for project deferred beyond 10 yr horizon by 0010B		Need for project deferred beyond 10 yr horizon by 0010B	
0007	Richmond 500 kV Substation, Install 500 kV series reactor in Richmond-Newport 500 kV Line	Address large post contingency phase angle differences at times of high 500 kV flow	6/1/2010	\$15	6/1/2010	\$15	12/1/2009	\$10	12/1/2009	\$10
0008	Greenville-Kinston Dupont 230 kV Line, Construct new 230 kV line	Address loading on Greenville-Everetts 230 kV Line	6/1/2011	\$18	6/1/2011	\$18	6/1/2011	\$19	6/1/2011	\$19

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0009	Henderson-Kerr Dam 115 kV Line, Construct new Warrenton 115 kV Tap & add line switches providing alternate service to Warrenton area	Address voltage in Warrenton area	6/1/2011	\$10	6/1/2011	\$10	Project needed; however, estimated cost < \$10 M		Project needed; however, estimated cost < \$10 M	
0010	Rockingham-West End 230 kV East Line, Construct new 230 kV line	Address loading on Rockingham-West End 230 kV Line	6/1/2011	\$33	6/1/2011	\$33	6/1/2011	\$32	6/1/2011	\$32
0010A	Harris Plant-RTP 230 kV Line, Establish a new 230 kV line by utilizing the Amberly 230kV Tap, converting existing Green Level 115kV Feeder to 230 kV operation, construction of new 230 kV line, remove 230/115 kV transformation and connection at Apex US1	Address the need for new transmission source to serve rapidly growing load in the western Wake County area; helps address loading on Cary Regency Park-Durham 230 kV line	-----	-----	6/1/2011	\$30	6/1/2011	\$46	6/1/2011	\$56
0010B	Asheboro-Pleasant Garden 230 kV Line, Construct new line, at Asheboro replace 2-200 MVA 230/115 kV banks with 2-300 MVA banks	Address loading on Badin-Tillery 100kV lines, Biscoe-Asheboro 115 kV line, Tillery-Biscoe 115 kV corridor, Newport-Richmond 500 kV line, Wake 500/230 banks	-----	-----	6/1/2011	\$29	6/1/2011	\$40	6/1/2011	\$42
0011	2006 Plans: Construct new Asheville-Enka 230 kV line & establish 230 kV at Enka 115 kV 2007 Plans: Convert Asheville-Enka 115 kV line to 230 kV & construct new 230 kV line	Address Asheville 230 kV transformer loading	12/1/2011	\$15	12/1/2011	\$15	12/1/2010 12/1/2012	\$28	12/1/2010 12/1/2012	\$28

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0012	Buck-Asheboro 230 kV Line, Construct new 230 kV interconnection	Address loadings on Badin-Tillery-Biscoe-Asheboro 115 kV corridor and Rockingham-Lilesville 230 kV Lines. Delays need for Cape Fear-Siler City 230 kV line and Harris-Durham 230 kV line.	6/1/2014	\$40	Need for project deleted by 0010B		Need for project deleted by 0010B		Need for project deleted by 0010B	
0013	Replace Antioch 500/230 kV transformers #1 & #2	Contingency loading of the remaining Antioch bank on loss of the parallel bank	6/1/2014	\$30	6/1/2013	\$30	2013	\$51.9	2013	\$52
0014	Reconductor London Creek 230 kV Lines (Peach Valley-Riverview #1 & #2)	Contingency loading of the remaining line on loss of the parallel line when an Oconee unit is off line	6/1/2015	\$25	6/1/2015	\$25	Need for project deferred beyond 10 yr horizon		Need for project deferred beyond 10 yr horizon	
0015	Harris-Durham 230 kV Line	Address loading on Cary Regency Park-Durham 230 kV Line	6/1/2016	\$88	Project replaced by 0010A, RTP-Durham portion of project not needed in 10 yr horizon		Project replaced by 0010A, RTP-Durham portion of project not needed in 10 yr horizon		Project replaced by 0010A, RTP-Durham portion of project not needed in 10 yr horizon	
0016	Wake 500 kV Sub, Install #3 500/230 kV Bank	Address loading on banks #1 & #2	6/1/2016	\$21	Need for project deferred beyond 10 yr horizon by 0010B		6/1/2013	\$23	6/1/2013	\$23
0017	Durham-Falls 230 kV Line, Construct line	Address loading on Method-East Durham 230 kV line	Project needed; however, estimated cost < \$10 M		Project needed; however, estimated cost < \$10 M		6/1/2008	\$10	6/1/2008	\$10
0018	Rockingham-Lilesville 230 kV Line, Add third line	Address loading on Lilesville-Rockingham 230 kV lines	-----	-----	-----	-----	6/1/2011	\$16	6/1/2011	\$19
0019	Cape Fear-West End 230 kV West Line, Install a 230 kV Series Reactor at West End 230 kV Sub	Address loading on Rockingham-West End 230 kV and Cape Fear-West End 230 kV lines	-----	-----	-----	-----	6/1/2016	\$12	6/1/2016	\$12
0020	Reconductor Fisher 230 kV Lines (Central-Shady Grove Tap #1 & #2)	Contingency loading of the remaining line on loss of the parallel line when Cliffside 5 is off line	-----	-----	-----	-----	2016	\$28.5	2016	\$29

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0021	Richmond-Ft Bragg Woodruff Street 230 kV Line	Address loading of several transmission lines out of the Richmond/Rockingham area due to Richmond Co. Combined Cycle generator	-----	-----	-----	-----	-----	-----	6/1/2011	\$85
0022	Jacksonville Static VAR Compensator	Address inadequate dynamic voltage recovery after system faults during periods of high imports	-----	-----	-----	-----	-----	-----	6/1/2012	\$30
Total				\$403		\$294		\$400.4		\$523