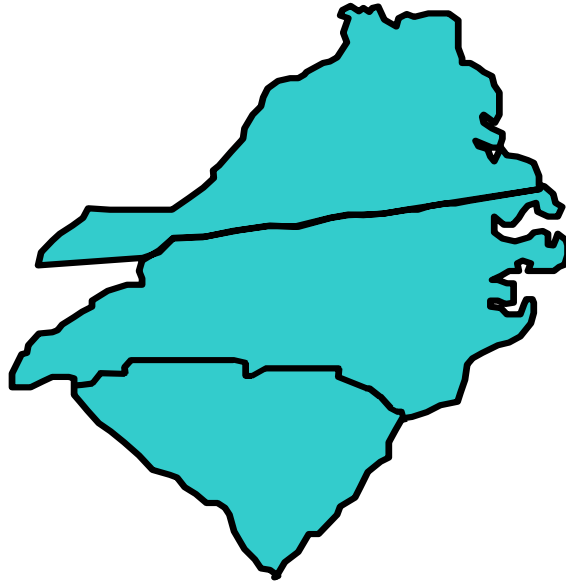


**VACAR  
2015 SUMMER PEAK  
RELIABILITY STUDY**

**FINAL**



**April 2009**

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## **I. EXECUTIVE SUMMARY**

## A. OVERVIEW

The purpose of this study is to analyze the transfer capabilities among the Virginia-Carolinas (VACAR) companies and determine the effect of heavy parallel transfers on those transfer capabilities using the 2015 summer peak power flow model developed by the SERC Long Term Study Group (LTSG) in June 2008.

Part 1 is an analysis of the capabilities of the transmission systems within VACAR by identifying limits and limiting conditions to power transfers between the transmission systems within VACAR.

The NITC and FCITC import limits for each company, resulting from the transfer capability evaluation, can be found in the Incremental Transfer Capability Tables in Section IV.

The following list provides a summary of the most significant facilities found to be limits to transfers in this study. Elimination of these facilities as transfer limits may require infrastructure upgrades or additional operating procedures. Details concerning these key facilities can be found in the significant facilities discussion in Section III.

- Weatherspoon-Marion 115 kV Line (CPL)
- Wateree 100/115 kV Transformer (Duke/CPL)
- Parkwood 500/230 kV Transformers (Duke)
- Belews Creek-Bob White 230 kV Lines (Duke)
- Shiloh-Pisgah 230 kV Lines (Duke)
- Bush River-Morris Switching Station 100 kV Black Line (Duke)
- Antioch 500/230 kV Transformers (Duke)
- Winyah-Campfield 230 kV Line (SCPSA)
- Pee Dee-Marion 230 kV Line (SCPSA)
- Tuckertown-High Rock 100 kV Line (Yadkin)

Part 2 is an analysis of the effects of heavy North to South and South to North parallel transfers on the VACAR inter-company transfer capabilities.

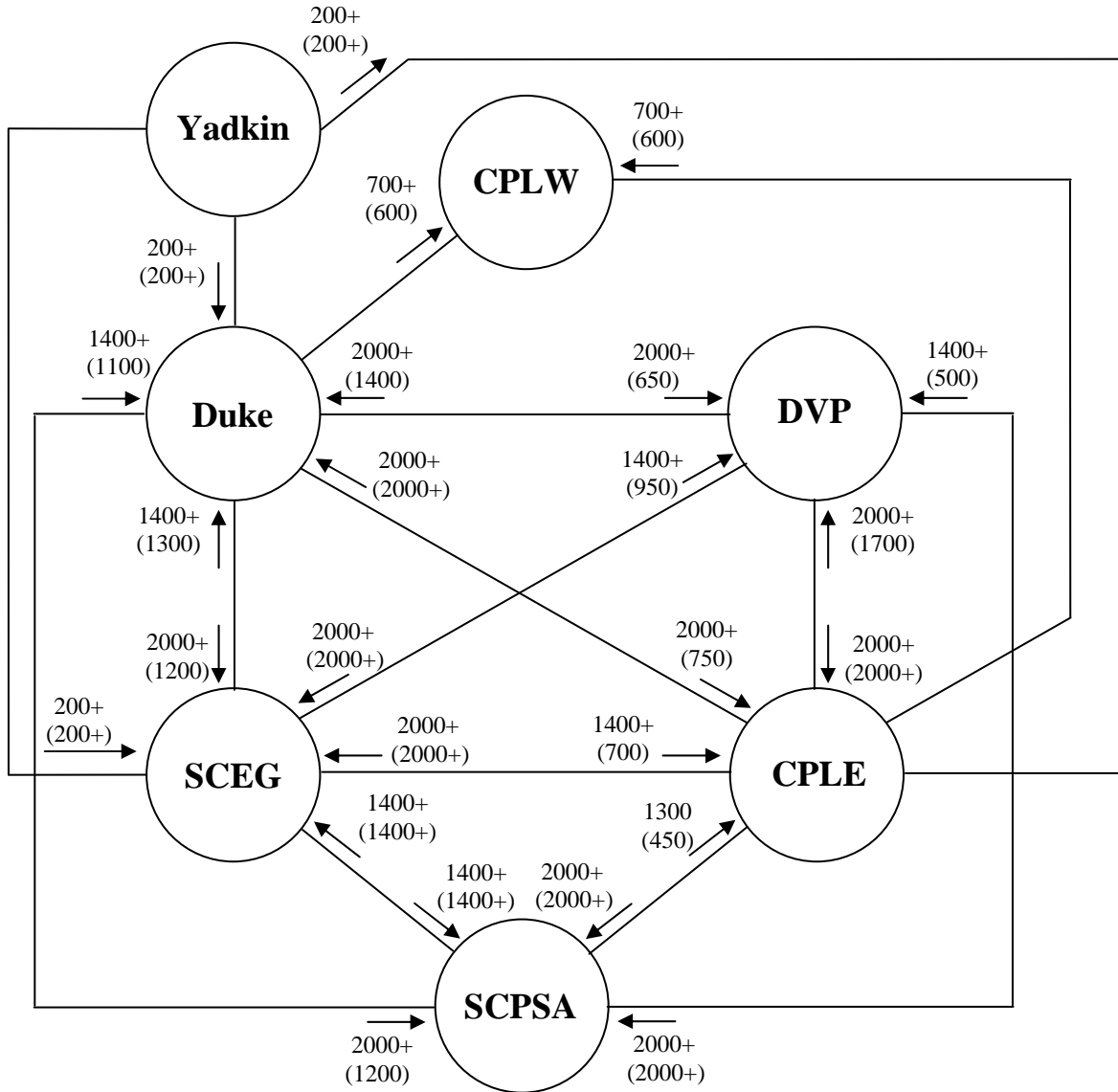
The parallel transfer evaluation was done by conducting a standard transfer capability analysis while simulating a North to South transfer of 4000 MW from PJM Mid-Atlantic (Pennsylvania-New Jersey-Maryland) to Florida Reliability Coordination Council (FRCC). The transfer was reversed to give a South to North transfer. The impacts of these parallel transfers vary widely from company to company. Detailed results can be found in Section III which includes graphical representations of each parallel transfer and its effect on each VACAR company's import capabilities.

Part 3 is an analysis of the effects of moderate West to East intra-PJM parallel transfers on the VACAR inter-company transfer capabilities.

The parallel transfer evaluation was done by conducting a standard transfer capability analysis while simulating a West to East transfer of 3000 MW from PJM's western most zones (AEP, Dayton, Northern Illinois/COMED) to PJM Mid-Atlantic. Detailed results can be found in Section III which includes graphical representations of the parallel transfer and its effect on each VACAR company's import capabilities.

**B. SUMMARY DIAGRAM**

**VACAR TRANSFER CAPABILITY  
Projected 2015 Summer Peak**



LEGEND: nnnn - Normal Incremental Transfer Capability (NITC in MW)  
(nnnn) - First Contingency Incremental Transfer Capability (FCITC in MW)

## **II. INTRODUCTION**

## **A. INTRODUCTION**

The VACAR Reliability Agreement requires that studies be conducted to assess the capability of the bulk power system to withstand various contingencies without suffering uncontrolled, cascading interruptions. As part of this activity, Progress Energy Carolinas (PEC), Duke Energy Carolinas (Duke), South Carolina Electric and Gas (SCEG), South Carolina Public Service Authority (SCPSA), Dominion Virginia Power (DVP) and Alcoa Power Generating, Inc. (Yadkin) have conducted this joint study to assess performance as required by the North American Electric Reliability Corporation (NERC) Reliability Standards for Transmission System Performance. This study is part of a continuing series of studies being made to accomplish the objectives of the VACAR Reliability Agreement.

At the direction of the VACAR Planning Task Force, the primary purpose of this study is to analyze the transfer capabilities among the VACAR companies, identifying the limits to power transfers and the effects of heavy parallel transfers.

This investigation was initiated in August 2008 as a part of the VACAR Power Flow Working Group's normal schedule for conducting studies of future system performance. The power flow base case for this study was derived by incorporating each VACAR company's updates to the power flow model developed by the SERC LTSG which was released in June 2008.

## **B. STUDY PROCEDURE**

This assignment is a three-part study to evaluate the performance of the VACAR members' transmission systems for the projected 2015 summer peak load, using an updated version of the 2015 summer power flow model developed by the SERC LTSG in June 2008. The MUST software was used to complete the linear results.

Part 1 is an analysis of the performance of the VACAR members' transmission systems that identifies limits to power transfers among the VACAR companies.

Part 2 is an analysis of the effects of heavy North to South and South to North parallel transfers on the VACAR inter-company transfer capabilities.

Part 3 is an analysis of the effects of moderate West to East intra-PJM parallel transfers on the VACAR inter-company transfer capabilities.

### **III. STUDY RESULTS**

## A. SIGNIFICANT FACILITIES DISCUSSION

The following is a list of significant facilities, as determined by the VACAR Power Flow Working Group representatives, and what generation, outages, transfers, and operating guides affect them. Factors which may be considered in determining whether a facility should be considered “significant” in regards to this study include:

- If the facility is a hard limit to a transfer
- The level at which it limits a transfer compared to the test level
- The response of the facility to the transfer
- The number of different transfers/companies impacted
- If the facility requires the use of an operating guide
- If the outage of the facility results in the overload of numerous major transmission elements

### Weatherspoon-Marion 115 kV Line (CPL)

This line limits SCPSA-CPL and SCPSA-DVP transfers during various conditions and at low transfer levels. This is a line that is sensitive to planned area generation and should continue to be monitored in the future.

### Wateree 115/100 kV Transformer (CPL/Duke)

The updated 2015 summer peak power flow case was created with the Wateree 115/100 kV transformer out of service to prevent overloads in the Great Falls-Wateree-Elgin-Camden area. This is similar to past studies where the DK1 operating guide (opening of the Great Falls-Wateree line) was invoked in order to accommodate additional transfers. System loading under 2015 summer peak conditions is predicted to require pre-contingency opening of the CPL/Duke tie at Wateree in order to avoid overloads in the area.

### Parkwood 500/230 kV Transformers (Duke)

The outage of either parallel bank limits Duke-CPL and Duke-DVP transfers. An ancillary equipment CT upgrade can eliminate the lower transfer limits caused by bank 6. The transfer limits caused by bank 5 are sufficiently high that there are no corrective actions planned at this time; however, Duke is evaluating future corrective actions.

### Belews Creek-Bob White 230 kV Lines (Duke)

Either circuit of the double circuit line limits Duke-CPL, Duke-SCEG, Duke-SCPSA, and Duke-DVP transfers for the outages of a Belews Creek-North Greensboro 230 kV line or the Pleasant Garden-Woodleaf 500 kV line. An ancillary equipment CT upgrade can eliminate these transfer limits. The limits are sufficiently high that there are no corrective actions planned at this time.

### Shiloh-Pisgah 230 kV Lines (Duke)

The outage of either circuit of the double circuit line limits CPL-CPLW and Duke-CPLW transfers. The limit is sufficiently high that there are no corrective actions planned. Duke and PEC are evaluating future corrective actions, including an ancillary equipment upgrade which would provide some additional line capacity. Potential PEC plans to serve the majority of the CPLW load from external resources would require a reconductor of these lines.

### Bush River-Morris Switching Station 100 kV Black Line (Duke)

This line limits SCEG-Duke transfers for the outage of the parallel Bush River-Morris Switching Station White 230 kV line. An ancillary equipment CT upgrade can eliminate this transfer limit. The limit is sufficiently high that there are no corrective actions planned at this time.

Antioch 500/230 kV Transformers (Duke)

The outage of either parallel bank limits DVP-Duke transfers. The impedance difference between the banks causes the limit to be different for each bank. The transfer limits are sufficiently high that there are no corrective actions planned at this time; however, Duke is evaluating future corrective actions.

Winyah-Campfield 230 kV Line (SCPSA)

This line limits SCE&G-CPLE and SCE&G-DVP transfers during various conditions. The transfer limits are sufficiently high that there are no corrective actions planned at this time; however, SCPSA is evaluating future corrective actions.

Pee Dee-Marion 230 kV Line (SCPSA)

This line limits SCPSA-CPLE and SCPSA-Duke transfers during various conditions. This line is sensitive to planned generation at Pee Dee and will be monitored in the future.

Tuckertown-High Rock 100 kV Line (Yadkin)

This line limits Yadkin-CPLE, Yadkin-SCE&G, and Yadkin-Duke transfers during various conditions. The outage of various circuits in Duke's northern region can limit Yadkin exports to Duke, CP&LE, and SCE&G. This line is very responsive to Yadkin and Duke's generation when Duke's generation in the northern region is off-line. An approved operating procedure (YD1) is available to eliminate this line as a limit to transfer.

## **B. INDIVIDUAL ASSESSMENTS**

The following discussions center on each company's adequacy of import and/or export transfer capabilities for the 2015 summer peak season.

## **Progress Energy Carolinas - Carolina Power and Light (CPL)**

Carolina Power and Light (CPL) is now doing business as Progress Energy Carolinas, Inc. (PEC) This new name has begun to appear in reports and data. In this report, however, Carolina Power and Light transfer results related to its eastern and western control areas are noted using CPLE or CPLW.

### ***Transfer Capability***

#### **CPLE**

NITC import capability exceeds test levels for CPLE imports from Duke, SCEG, DVP and Yadkin. NITC import capability for CPLE imports from SCPSA was limited to 1300 MW by SCPSA's Pee Dee-Marion 230kV Line.

Under assumed study conditions testing single contingency events, FCITC for a CPLE import from Duke is limited to 750 MW by Duke's Parkwood 500/230 kV 6 transformer for the outage of the parallel transformer. Duke's Belews Creek-Bob White Tap 230 kV lines limit the transfer at 1000 MW for an outage of the Duke's Belews Creek-North Greensboro 230 kV line. Duke's Belews Creek-Bob White 230 kV lines limit the transfer at 1100 MW for an outage of the Duke's Woodleaf-Pleasant Garden 500 kV line. Duke's Parkwood 500/230 kV 5 transformer also limits this transfer at 1400 MW for an outage of the parallel transformer.

Under assumed study conditions testing single contingency events, FCITC for a CPLE import from SCEG is limited to 700 MW by SCPSA's Winyah-Campfield 230 kV line for an outage of Winyah-Hemingway 230 kV. At 1100 MW SCPSA's Pee Dee-Marion 230 kV line is the limit for an outage of Kingtree-Kingtree 230 kV line. At 1200 MW CPLE's Marion-Whiteville 115 kV is the limit for an outage of CPLE's Marion-Whiteville 230 kV line. Also at 1300 MW Duke's Parkwood 500/230 kV 6 transformer for the outage of the parallel transformer is the limit.

Under assumed study conditions testing single contingency events, FCITC for a CPLE import from SCPSA is limited to 450 MW by CPLE's Marion-Weatherspoon 115 kV for an outage of CPLE's Latta-Weatherspoon 230 kV line. At 700 MW the limit is again Marion-Weatherspoon 115 kV line for the outage of the Marion-Whiteville 230 kV line. The transfer is limited at 800 MW by SCPSA's Pee Dee-Marion 230 kV line for the Kingtree-Kingtree 230 kV line. Also at 800 MW CPLE's Marion-Weatherspoon 115 kV Line is the limit with the Bennettsville-Laurinburg 230 kV Line contingency. At 900 MW SCPSA's Pee Dee-Marion 230 kV line is the limit for CPLE's Kingtree-Florence 230 kV line contingency. At 1000 MW the limit is CPLE's Marion-Whiteville 115 kV line for the Marion-Whiteville 230 kV contingency. Also limiting at 1200 MW is SCPSA's Conway-4 Mile 115 kV line for the outage of SCPSA's Pee Dee-Marion 230 kV line.

Under assumed study conditions testing single contingency events, FCITC for a CPLE import from DVP is not limited by any facility up to the transfer test level of 2000 MW.

Under assumed study conditions testing single contingency events, FCITC for a CPLE import from Yadkin is not limited by any facility up to the transfer test level of 200 MW.

#### **CPLW**

NITC import capability exceeds test levels for CPLW imports from CPLE and Duke up to the 700 MW test level.

Under assumed study conditions testing single contingency events, FCITC for a CPLW import from CPLE is limited to 600 MW by Duke's Shiloh-Pisgah 230 kV line for an outage of the parallel line.

Under assumed study conditions testing single contingency events, FCITC for a CPLW import from Duke is limited to 600 MW by Duke's Shiloh-Pisgah 230 kV line for an outage of the parallel line.

A complete listing of the resulting CPLE and CPLW transfer capabilities is provided in Section IV.

### ***Parallel Transfers***

#### North-South (PJM Mid-Atlantic-FRCC)

##### CPLE

A North to South (PJM Mid-Atlantic to FRCC) transfer with a test level of 4000 MW was run in parallel with each of the five standard CPLE imports. The results illustrated remaining FCITC for CPLE imports from Duke, SCEG, SCPSA, DVP and Yadkin at the parallel transfer test level of 4000 MW.

Import transfer capability from Duke is 750 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then increases to 1100 MW at a parallel transfer level of 800 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer. The transfer limit then increases to 1250 MW at a parallel transfer level of 4000 MW. This limit is due to an overload of the Belews Creek-Bob White Tap 230 kV lines for an outage of the Belews Creek-Noth Greensboro 230 kV line.

Import transfer capability from SCEG is 700 MW for a 0 MW parallel transfer level (FCITC). The transfer limit increases to 2300 MW at a parallel transfer level of 4000 MW. This limit is due to an overload of Winyah-Campfield 230 kV line for an outage of Winyah-Hemingway 230 kV line.

Import transfer capability from SCPSA is 450 MW for a 0 MW parallel transfer level (FCITC). The transfer limit increases to 1650 MW at a parallel transfer level of 4000 MW. This limit is due to an overload of Marion-Weatherspoon 115 kV for an outage of Latta-Weatherspoon 230 kV line.

Import transfer capability from DVP is 2100 MW for a 0 MW parallel transfer level (FCITC). The transfer limit decreases to 900 MW at a parallel transfer level of 4000MW. This limit is due to an overload of the Everetts-Trowbridge 115 kV Line for the outage of the Everetts-Earleys 230 kV Line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level (FCITC). The transfer limit remains at 200 MW at a parallel transfer level of 4000 MW

##### CPLW

A North to South (PJM Mid-Atlantic to FRCC) transfer with a test level of 4000 MW was run in parallel with the two CPLW imports. The results illustrated remaining FCITC for CPLW imports from CPLE and Duke at the parallel transfer test level of 4000 MW.

Import transfer capability from CPLE is 600 MW at 0 MW parallel transfer level (FCITC). The transfer increases to 700 MW for a parallel transfer level of 1700 MW. This limit is due to an overload of the Pisgah-Shiloh 230 kV 2/1 line for and outage of the parallel Pisgah-Shiloh 230 kV 1/2 line. The transfer limit then decreases to 0 MW at a parallel transfer level of 4000 MW. This limit is due to an overload of the Peach Valley-Riverview 230 kV 2/1 line for an outage of the parallel Peach Valley-Riverview 230 kV 1/2 line.

Import transfer capability from Duke is 600 MW at 0 MW parallel transfer level (FCITC). The transfer limit increases to 650 MW for a parallel transfer level of 1600 MW. This limit is due to an overload of

the Pisgah-Shiloh 230 kV 2/1 line for and outage of the Pisgah-Shiloh 230 kV 1/2 line. The transfer limit then decreases to 0 MW at a parallel transfer level of 4000 MW. This limit is due to an overload of the Peach Valley-Riverview 230 kV 2/1 line for an outage of the parallel Peach Valley-Riverview 230 kV 1/2 line.

#### South-North (FRCC-PJM Mid-Atlantic)

##### CPLÉ

A South to North (FRCC to PJM Mid-Atlantic) transfer with a test level of 4000 MW was run in parallel with each of the five standard CPLÉ imports. The results illustrated that FCITC for CPLÉ imports from Duke, SCEG, SCPSA and Yadkin decline to zero under this parallel transfer.

Import transfer capability from Duke is 750 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 0 MW at a parallel transfer level of 1700 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

Import transfer capability from SCEG is 700 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 0 MW at a parallel transfer level of 1600 MW. This limit is due to an overload of the Winyah-Campfield 230 kV line for an outage of Winyah-Hemingway 230 kV line.

Import transfer capability from SCPSA is 450 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 0 MW at a parallel transfer level of 1500 MW. This limit is due to an overload of the Marion-Weatherspoon 115 kV for an outage of the Weatherspoon- Latta 230 kV line.

Import transfer capability from DVP is 2100 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then increases to 2800 MW at a parallel transfer level of 1300 MW. This limit is due to an overload of the Everetts-Trowbridge 115 kV Line for the outage of the Everetts-Earleys 230 kV Line. The transfer limit then decreases to 0 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Marion-Pee Dee 230 kV line for an outage of the Kingtree-Kingtree 230kV line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level (FCITC). The transfer limit remains at 200 MW for a parallel transfer level of 1200 MW. This is due to overload of the High Rock-Tuckertown 100 kV line for the outage of the Pleasant Garden-Woodleaf 500 kV line. The transfer limit then decreases to 0 MW at a parallel transfer level of 1700 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

##### CPLW

A South to North (FRCC to PJM Mid-Atlantic) transfer with a test level of 4000 MW was run in parallel with each of the two CPLW imports. The results illustrated that FCITC for CPLW imports from Duke, and CPLÉ decline to zero under this parallel transfer.

Import transfer capability from CPLÉ is 600 MW test level for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 500 MW at a parallel transfer level of 2100 MW. This limit is due to an overload of the Pisgah-Shiloh 230 kV 2/1 line for an outage of the parallel Pisgah-Shiloh 230 kV 1/2 line. The transfer limit then decreases to 100 MW at a parallel transfer level of 3600 MW. This limit is due to an overload of the Weatherspoon-Fayetteville Dupont 115 kV line for an outage of the Weatherspoon-Fayetteville 230 kV line. This particular loading issue is due primarily to a localized generation dispatch at Weatherspoon Plant. The limit then decreases to 0 MW at a parallel transfer level

of 4000 MW. This limit is due to an overload of the Central-Shady Grove 230 kV Black/White line for and outage of the parallel Central-Shady Grove 230 kV White/Black line.

Import transfer capability from Duke is 600 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 550 MW at a parallel transfer level of 900 MW. The transfer limit then decreases to 0 MW at a parallel transfer level of 1700 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

#### Intra-PJM West-East (PJM West-PJM Mid-Atlantic)

##### CPL E

A West to East intra-PJM (PJM West-PJM Mid-Atlantic) transfer with a test level of 3000 MW was run in parallel with each of the five standard CPL E imports. The results illustrated remaining FCITC for CPL E imports from Duke, SCEG, SCPSA, DVP, and Yadkin at the parallel transfer test level of 3000 MW.

Import transfer capability from Duke is 750 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 250 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

Import transfer capability from SCEG is 700 MW for a 0 MW parallel transfer level (FCITC). The transfer limit decreases to 550 MW at a parallel transfer level of 2500 MW. This limit is due to an overload of the Winyah-Campfield 230 kV line for an outage of Winyah-Hemingway 230 kV line. The transfer limit decreases to 450 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

Import transfer capability from SCPSA is 450 MW test level for a 0 MW parallel transfer level (FCITC). The transfer limit decreases to 300 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Marion-Weatherspoon 115 kV for an outage of the Weatherspoon- Latta 230 kV line.

Import transfer capability from DVP is 2100 MW for a 0 MW parallel transfer level (FCITC). The transfer limit then decreases to 2000 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Weatherspoon 230/115 kV transformer for an outage of the Weatherspoon-Marion 115 kV line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level (FCITC). The transfer limit remains at 200 MW at a parallel transfer level of 3000 MW. This is due to overload of the High Rock-Tuckertown 100 kV line for the outage of the Pleasant Garden-Woodleaf 500 kV line.

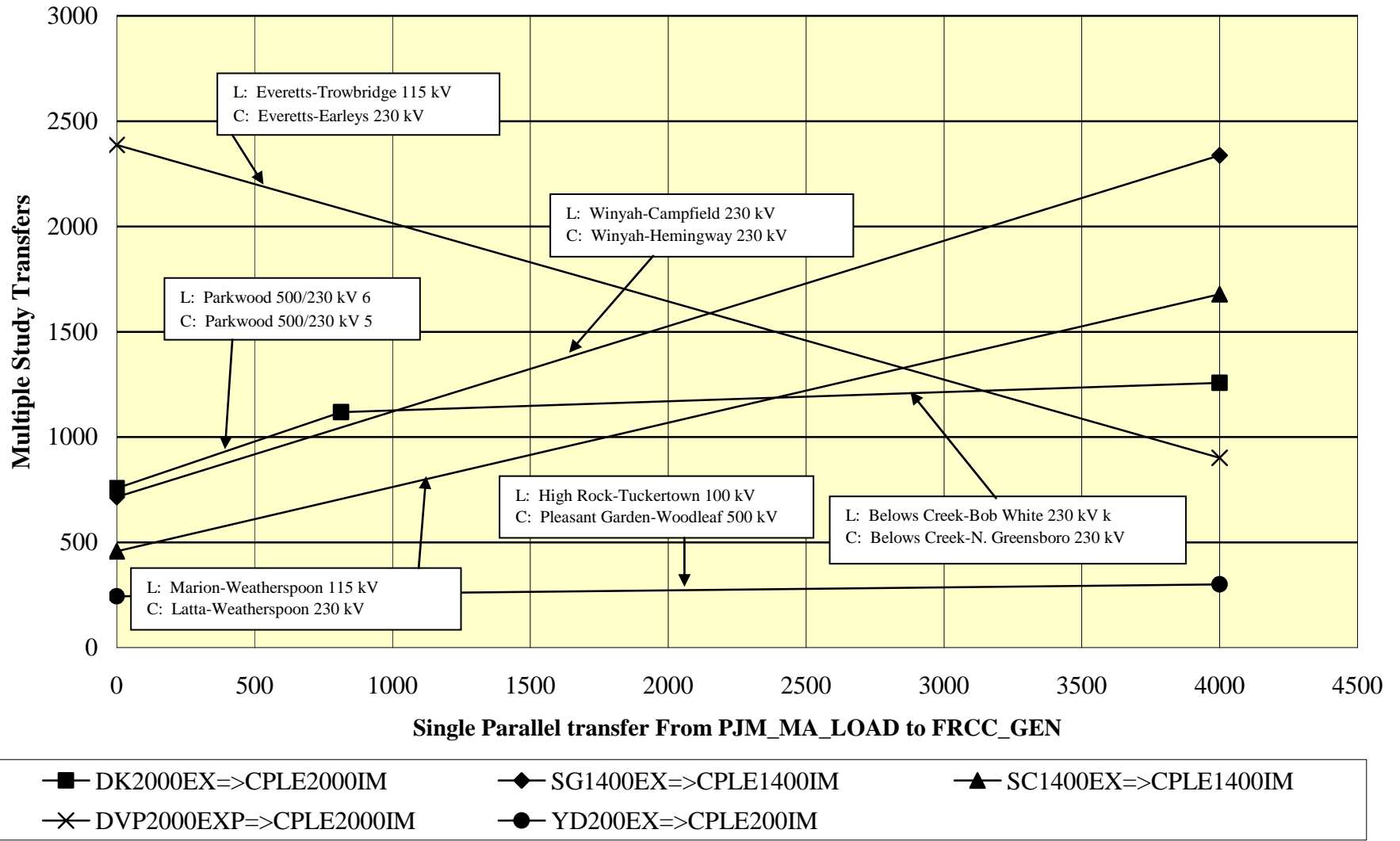
##### CPL W

A West to East intra-PJM (PJM West-PJM Mid-Atlantic) transfer with a test level of 3000 MW was run in parallel with each of the two CPL W imports. The results illustrated remaining FCITC for CPL W imports from CPL E and Duke at the parallel transfer test level of 3000 MW.

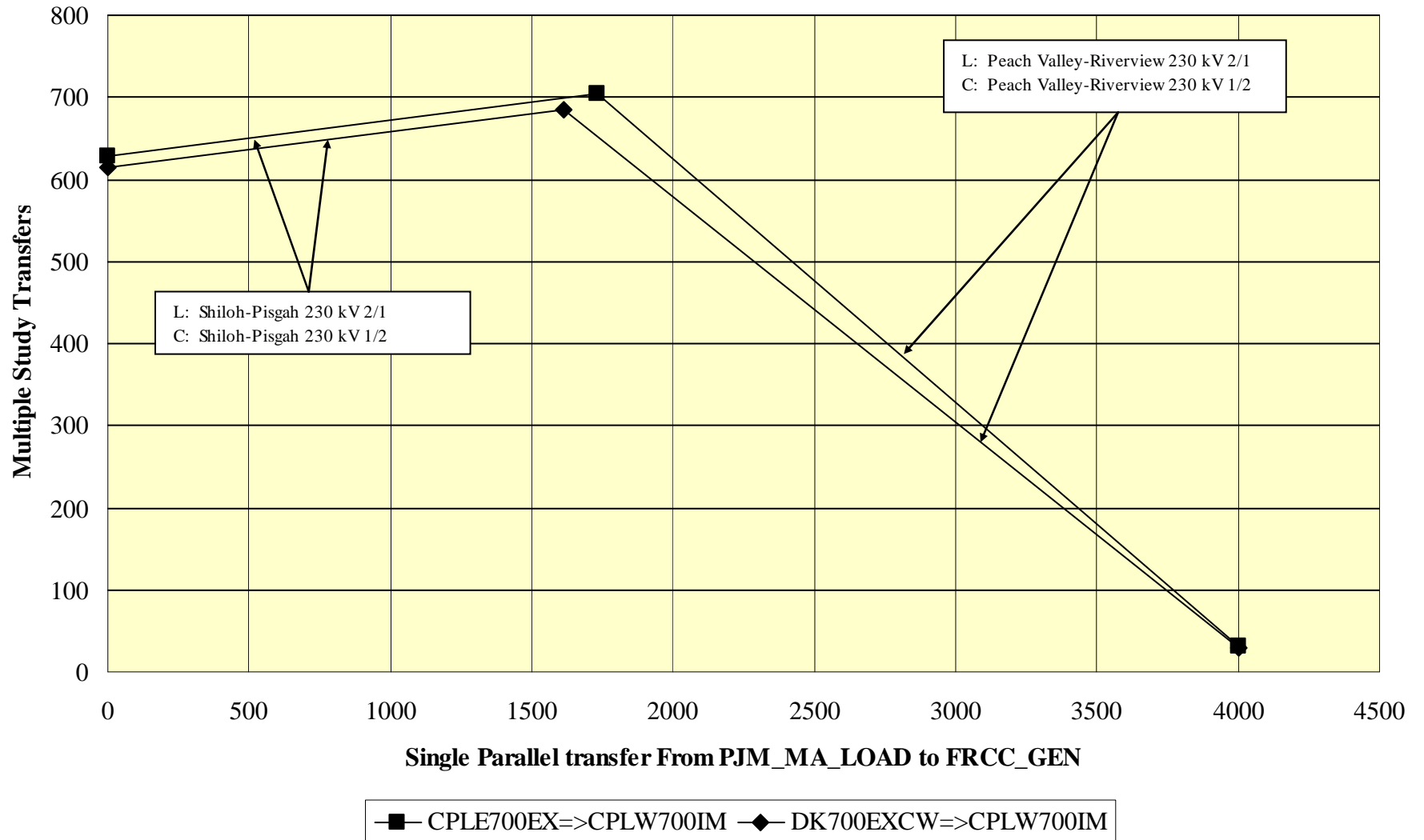
Import transfer capability from CPL E is 600 MW for a 0 MW parallel transfer level (FCITC). The transfer limit increases to 650 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Pisgah-Shiloh 230 kV 2/1 line for an outage of the parallel Pisgah-Shiloh 230 kV 1/2 line.

Import transfer capability from Duke is 600 MW for a 0 MW parallel transfer level (FCITC). The transfer limit remains at 600 MW for a parallel transfer level of 2100 MW. This limit is due to an overload of the Pisgah-Shiloh 230 kV 2/1 line for an outage of the parallel Pisgah-Shiloh 230 kV 1/2 line. The transfer limit decreases to 400 MW at a parallel transfer level of 3000 MW. This limit is due to an overload of the Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

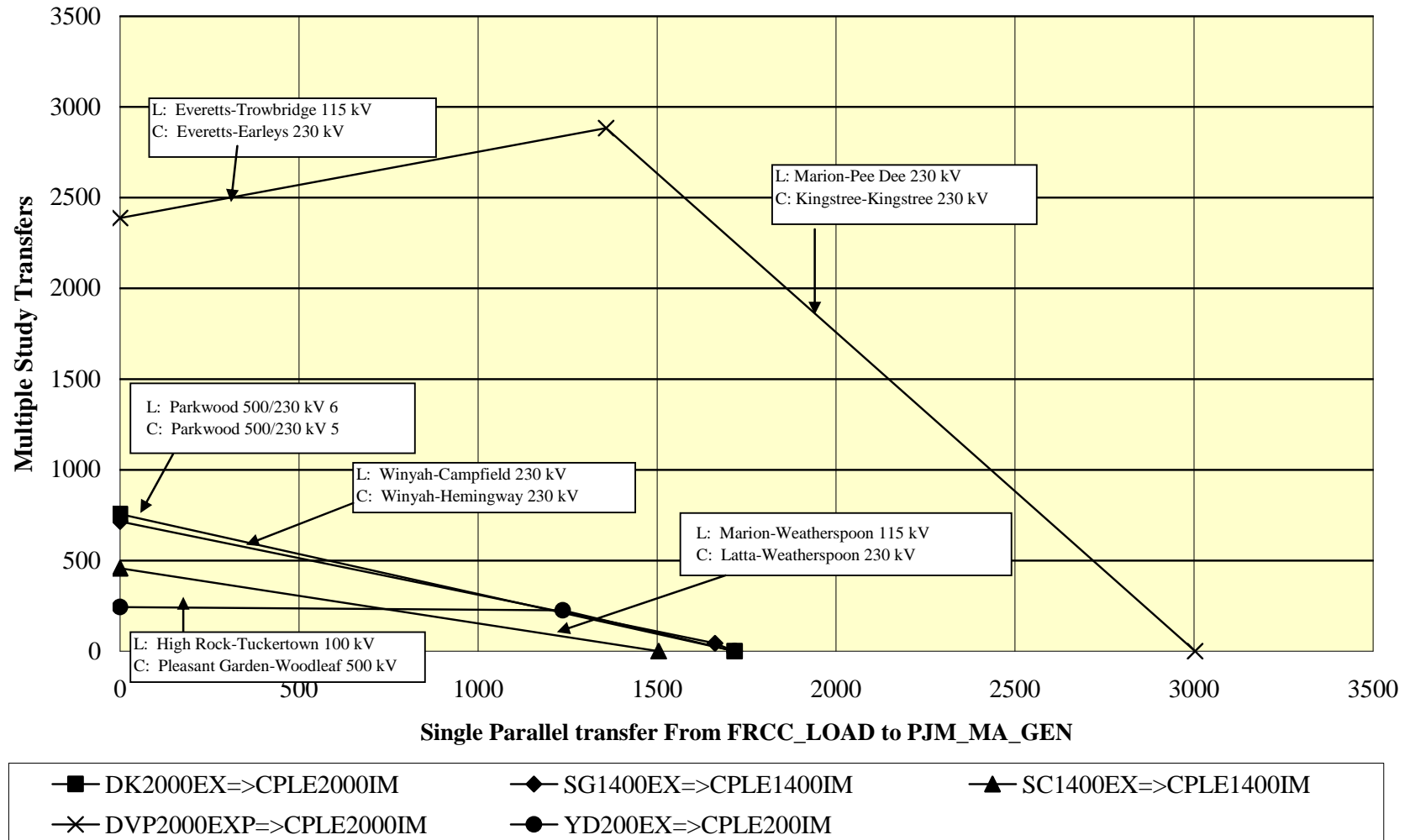
## Progress Energy Carolinas - Carolina Power and Light East North to South Parallel Transfer



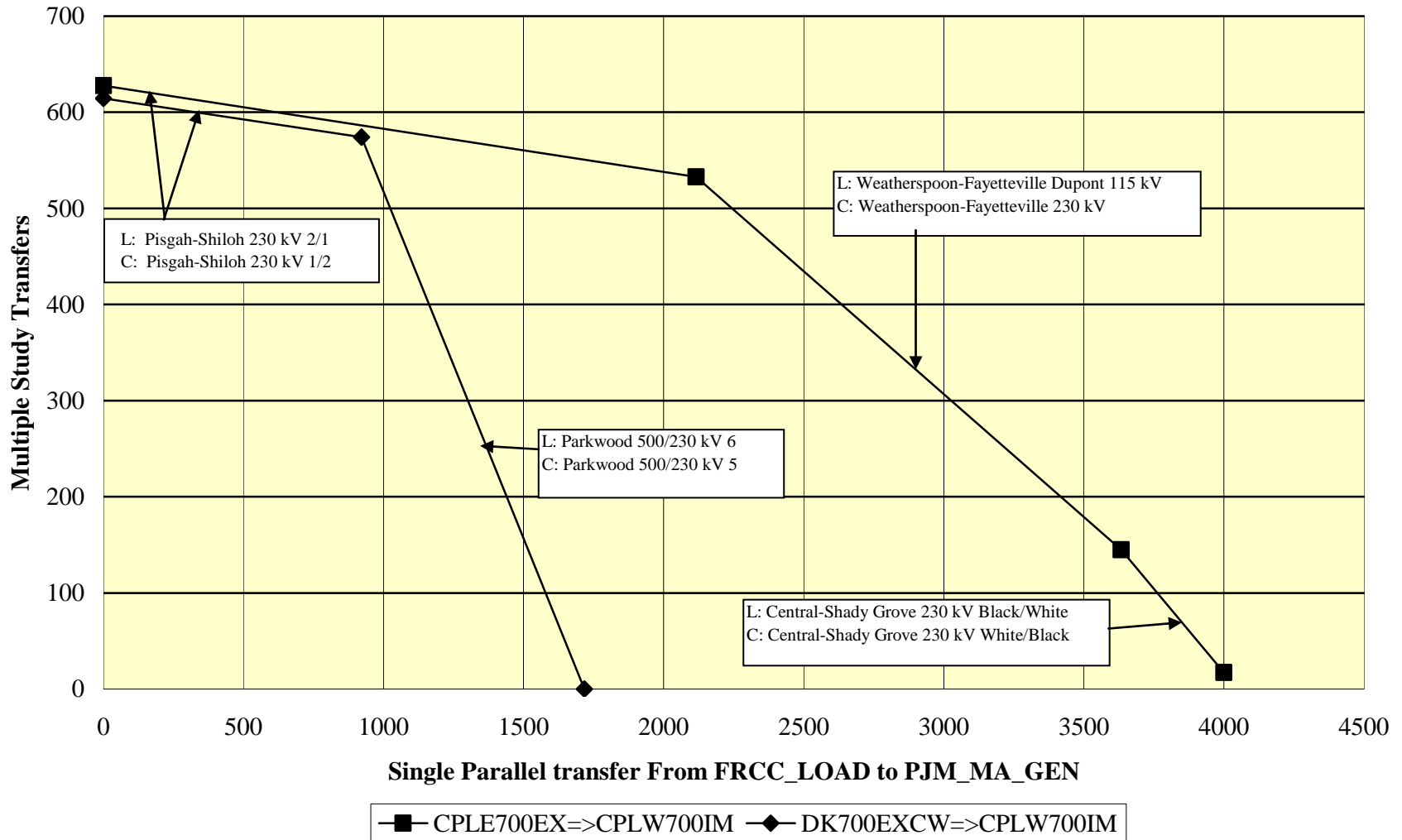
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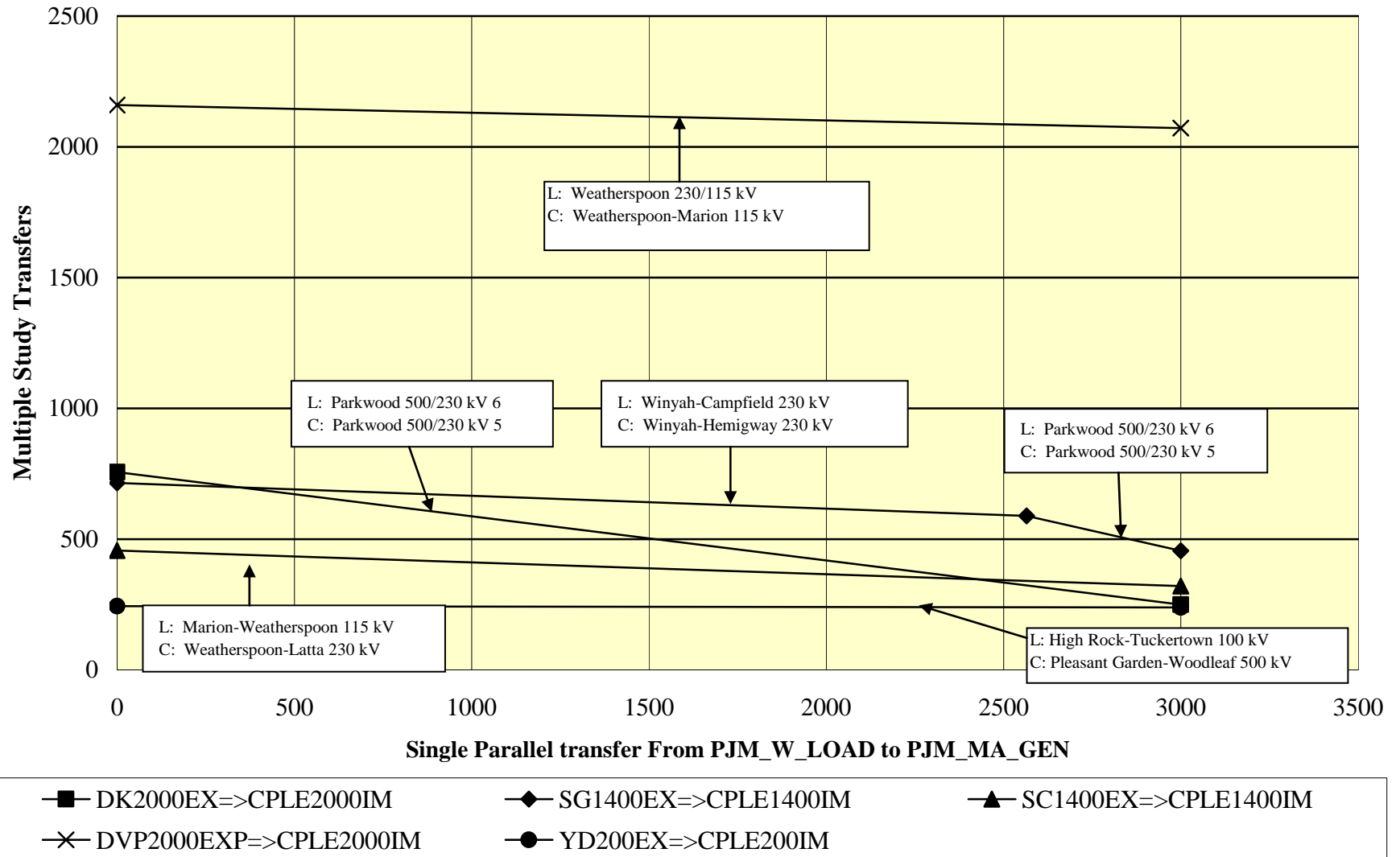
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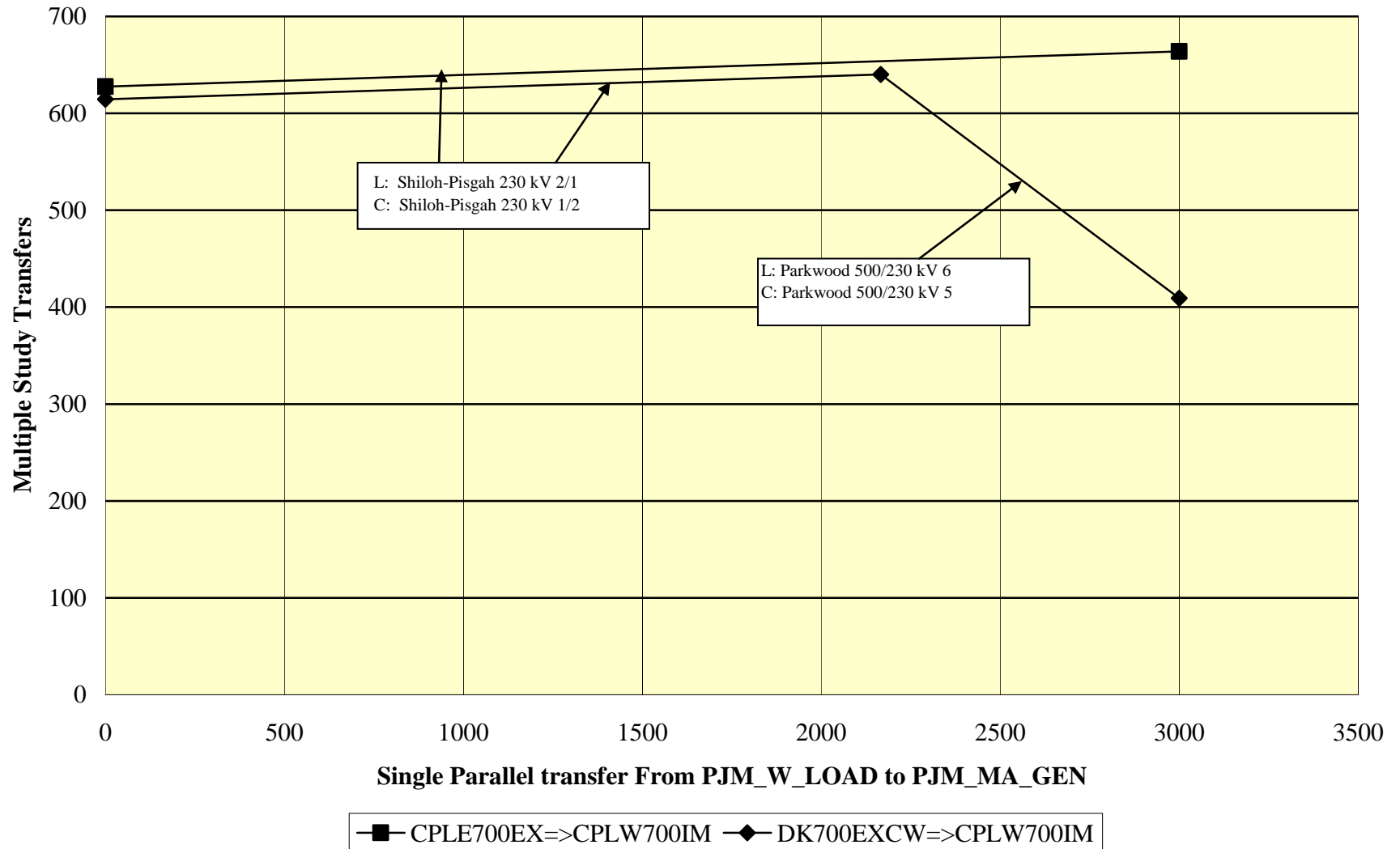
## Progress Energy Carolinas - Carolina Power and Light West South to North Parallel Transfer



## Progress Energy Carolinas - Carolina Power and Light East PJM West to PJM Mid-Atlantic Parallel Transfer



## Progress Energy Carolinas - Carolina Power and Light West PJM West to PJM Mid-Atlantic Parallel Transfer



## **Duke Energy Carolinas (Duke)**

### ***Transfer Capability***

#### **Imports**

Under normal operating conditions assumed for this investigation, no elements are reported as a limit to Duke import capability. For the network conditions represented in this study, NITC levels for Duke imports from CPLE, SCEG, SCPSA, DVP, and Yadkin all exceed their respective transfer test levels.

Under assumed study conditions testing single contingency events, FCITC for a Duke import from CPLE is not limited by any facility up to the transfer test level of 2000 MW.

Under assumed study conditions testing single contingency events, FCITC for a Duke import from SCEG is limited to 1300 MW by Duke's Bush River-Morris Switching Station Black 100 kV line for an outage of Duke's Bush River-Morris Switching Station White 100 kV line. This limit is a minor restriction on Duke's import capability from SCEG. No other limits exist up to the 1400 MW test level.

Under assumed study conditions testing single contingency events, FCITC for a Duke import from SCPSA is limited to 1100 MW by SCPSA's Pee Dee-Marion 230 kV line for an outage of CPLE/SCPSA's Kingstree-Kingstree 230 kV line. This limit is a minor restriction on Duke's import capability from SCPSA. SCPSA's Pee Dee-Marion 230 kV line is also the next limiting elements providing 1200 MW of import capability.

Under assumed study conditions testing single contingency events, FCITC for a Duke import from DVP is limited to 1400 MW by Duke's Antioch 500/230 kV transformer bank 2 for an outage of Duke's parallel Antioch 500/230 kV transformer bank 1. This limit is a minor restriction on Duke's import capability from DVP. Duke's Antioch 500/230 kV transformer bank 1 is the next limiting elements providing 1700 MW of import capability.

Under assumed study conditions testing single contingency events, FCITC for a Duke import from Yadkin is not limited by any facility up to the transfer test level of 200 MW.

#### **Exports**

Under normal operating conditions assumed for this investigation, no elements are reported as a limit to Duke export capability. For the network conditions represented in this study, NITC levels for Duke exports to CPLE, CPLW, SCEG, SCPSA, and DVP all exceed the respective transfer test levels.

Under assumed study conditions testing single contingency events, FCITC for a Duke export to CPLE is limited to 700 MW by Duke's Parkwood 500/230 kV transformer bank 6 for an outage of Duke's parallel Parkwood 500/230 kV transformer bank 5. This limit is a significant restriction on Duke's export capability to CPLE. Duke's Belews Creek-Bob White Tap 230 kV lines are the next limiting elements providing 1000 MW of export capability.

Under assumed study conditions testing single contingency events, FCITC for a Duke export to CPLW is limited to 600 MW by Duke's Shiloh-Pisgah 230 kV line for an outage of its parallel line. This limit is a minor restriction on Duke's export capability to CPLW. No other limits exist up to the 700 MW test level.

Under assumed study conditions testing single contingency events, FCITC for a Duke export to SCEG is limited to 1200 MW by Belews Creek-Bob White Tap 230 kV line for an outage of Belews Creek-North

Greenboro 230 kV line. This limit is a significant restriction on Duke's export capability to SCEG. Duke's Belews Creek-Bob White Tap 230 kV lines are also the next limiting elements providing 1400 MW of export capability.

Under assumed study conditions testing single contingency events, FCITC for a Duke export to SCPSA is limited to 1200 MW by Belews Creek-Bob White Tap 230 kV line for an outage of Belews Creek-North Greenboro 230 kV line. This limit is a significant restriction on Duke's export capability to SCPSA. Duke's Belews Creek-Bob White Tap 230 kV lines are also the next limiting elements providing 1400 MW of export capability.

Under assumed study conditions testing single contingency events, FCITC for a Duke export to DVP is limited to 650 MW by Duke's Parkwood 500/230 kV transformer bank 6 for an outage of Duke's parallel Parkwood 500/230 kV transformer bank 5. This limit is a significant restriction on Duke's export capability to DVP. Duke's Belews Creek-Bob White Tap 230 kV lines are the next limiting elements providing 1100 MW of export capability.

A complete listing of the resulting Duke transfer capabilities is provided in Section IV.

### ***Parallel Transfers***

#### North-South (PJM Mid-Atlantic-FRCC)

A North to South (PJM Mid-Atlantic to FRCC) transfer with a test level of 4000 MW was run in parallel with each of the five standard Duke imports. The results illustrated remaining FCITC for Duke imports from CPLE, SCEG, SCPSA, DVP, and Yadkin at the parallel transfer test level of 4000 MW. FCITCs for Duke imports from CPLE and DVP were significantly reduced and from SCEG and SCPSA were significantly increased at the parallel transfer test level.

Import from CPLE drops slightly from its initial limit of 2200 MW to 2100 MW at a parallel transfer level of 2000 MW and then drops to 1600 MW at the parallel transfer test level of 4000 MW.

Import from SCEG rises significantly from its initial limit of 1300 MW to 2100 MW at a parallel transfer level of 3900 MW and then remains at 2100 MW up to the parallel transfer test level of 4000 MW.

Import from SCPSA rises significantly from its initial limit of 1000 MW to 2200 MW at a parallel transfer level of 3200 MW, remains at 2200 MW up to a parallel transfer level of 3500 MW, and then drops slightly to 2100 MW at the parallel transfer test level of 4000 MW.

Import from DVP drops slightly from its initial limit of 2100 MW to 2000 MW at a parallel transfer level of 2200 MW and then continues to drop to 1600 MW at the parallel transfer test level of 4000 MW.

Import from Yadkin remains at its initial limit of 200 MW up to the parallel transfer test level of 4000 MW.

#### South-North (FRCC-PJM Mid-Atlantic)

A South to North (FRCC to PJM Mid-Atlantic) transfer with a test level of 4000 MW was run in parallel with each of the five standard Duke imports. The results illustrated remaining FCITC for Duke imports from CPLE, DVP, and Yadkin at the parallel transfer test level of 4000 MW. FCITCs for Duke imports from SCEG and SCPSA were significantly reduced to 0 MW at a parallel transfer level of 3000 MW.

Import from CPLE rises slightly from its initial limit of 2200 MW to 2400 MW at a parallel transfer level of 3500 MW and then drops slightly to 2300 MW at the parallel transfer test level of 4000 MW.

Import from SCEG drops slightly from its initial limit of 1300 MW to 1100 MW at a parallel transfer level of 1200 MW and then drops significantly to 0 MW at a parallel transfer level of 3000 MW.

Import from SCPSA drops significantly from its initial limit of 1000 MW to 0 MW at a parallel transfer level of 3000 MW.

Import from DVP rises slightly from its initial limit of 2100 MW to 2400 MW at a parallel transfer level of 3900 MW and then drops slightly to 2300 MW at the parallel transfer test level of 4000 MW.

Import from Yadkin remains drops slightly from its initial limit of 200 MW to 150 MW at the parallel transfer test level of 4000 MW.

#### Intra-PJM West-East (PJM West-PJM Mid-Atlantic)

A West to East intra-PJM (PJM West to PJM Mid-Atlantic) transfer with a test level of 3000 MW was run in parallel with each of the five standard Duke imports. The results illustrated remaining FCITC for Duke imports from CPLE, SCEG, SCPSA, DVP, and Yadkin at the parallel transfer test level of 3000 MW.

Import from CPLE remains at its initial limit of 2200 MW up to the parallel transfer test level of 3000 MW.

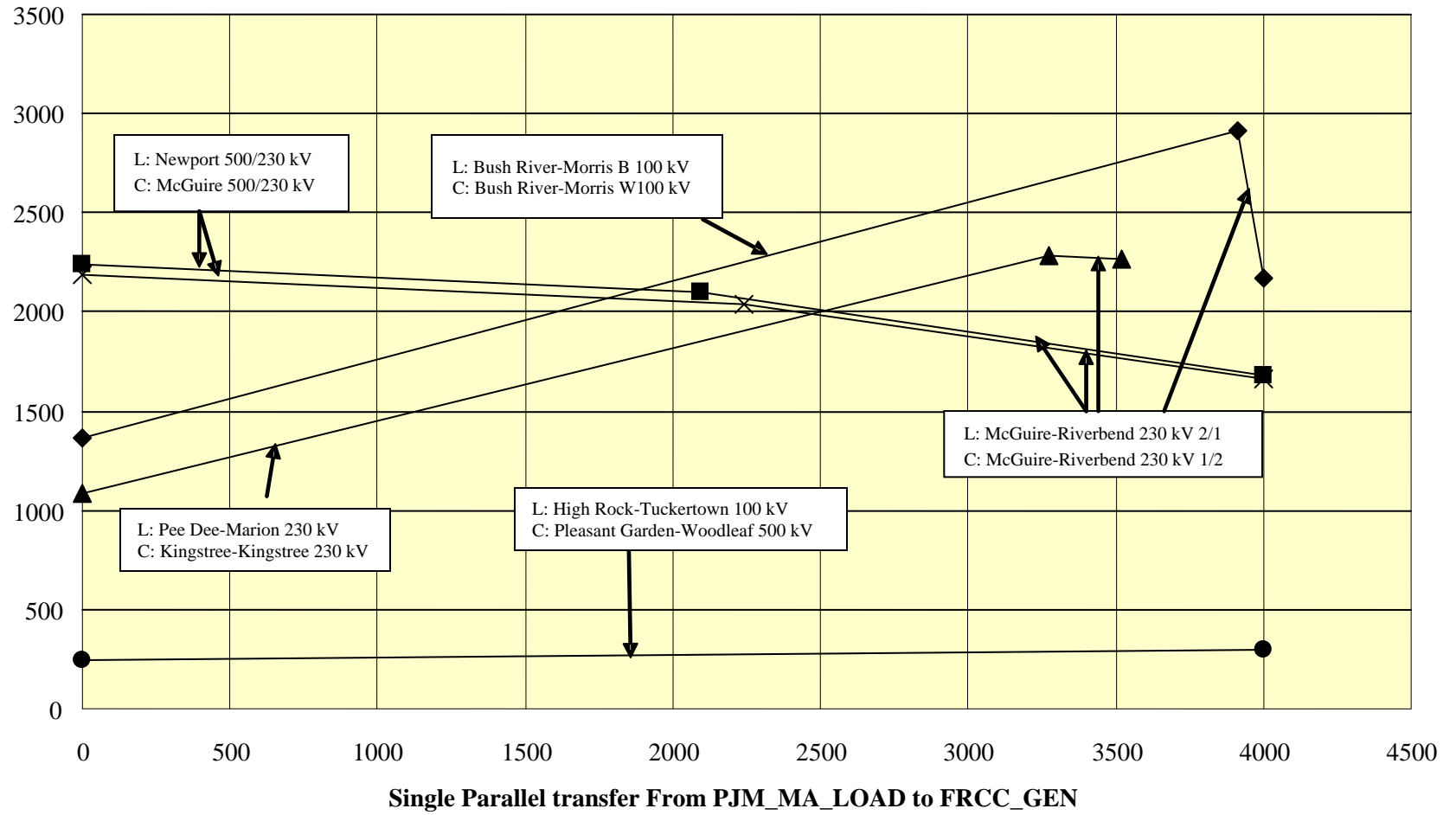
Import from SCEG remains at its initial limit of 1300 MW up to the parallel transfer test level of 3000 MW.

Import from SCPSA drops slightly from its initial limit of 1100 MW to 950 MW at the parallel transfer test level of 3000 MW.

Import from DVP drops slightly from its initial limit of 1400 MW to 1300 MW at the parallel transfer test level of 3000 MW.

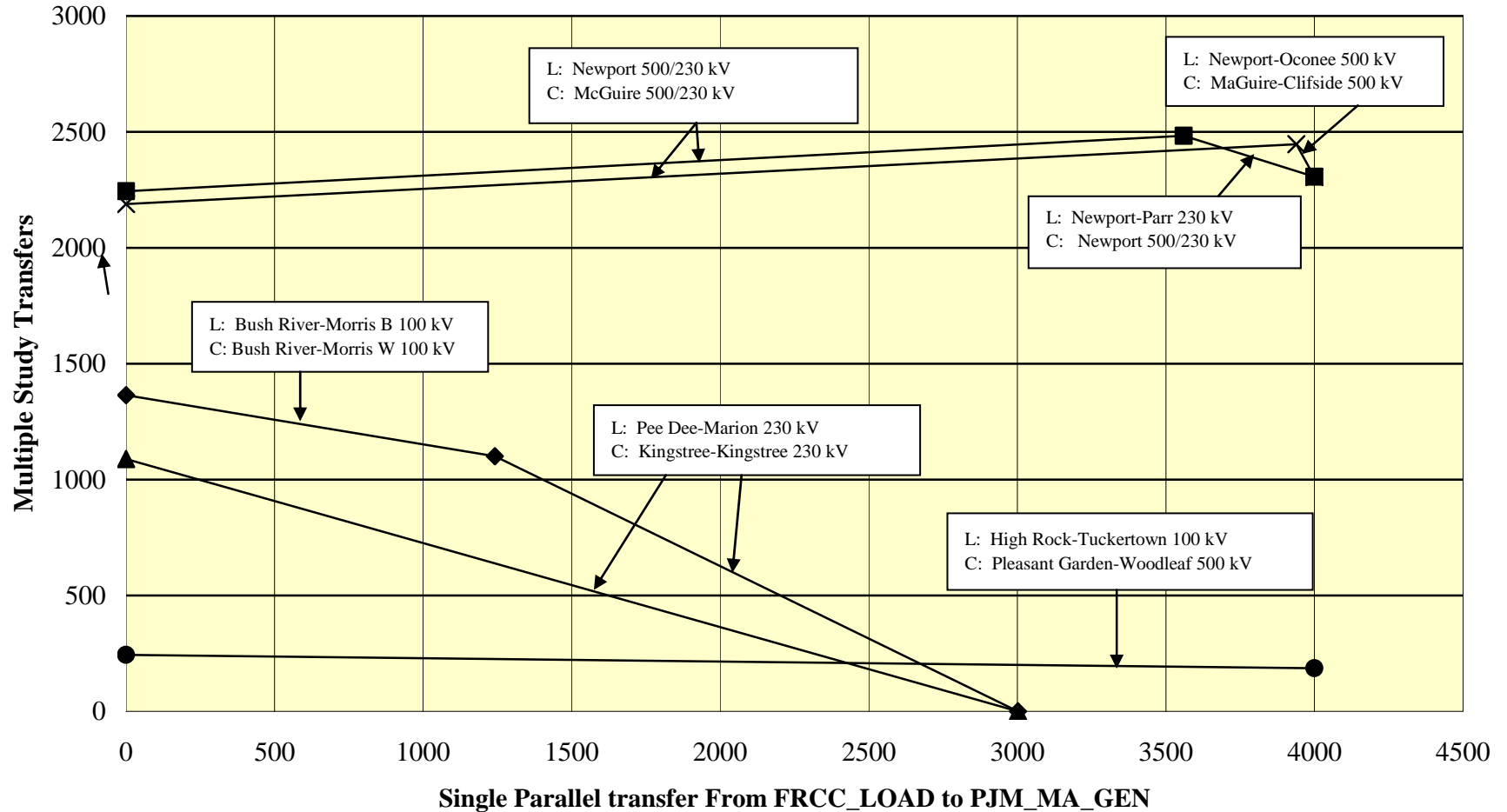
Import from Yadkin remains at its initial limit of 200 MW up to the parallel transfer test level of 3000 MW.

## Duke Power North to South Parallel Transfer



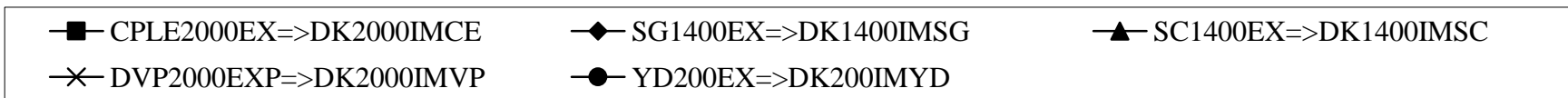
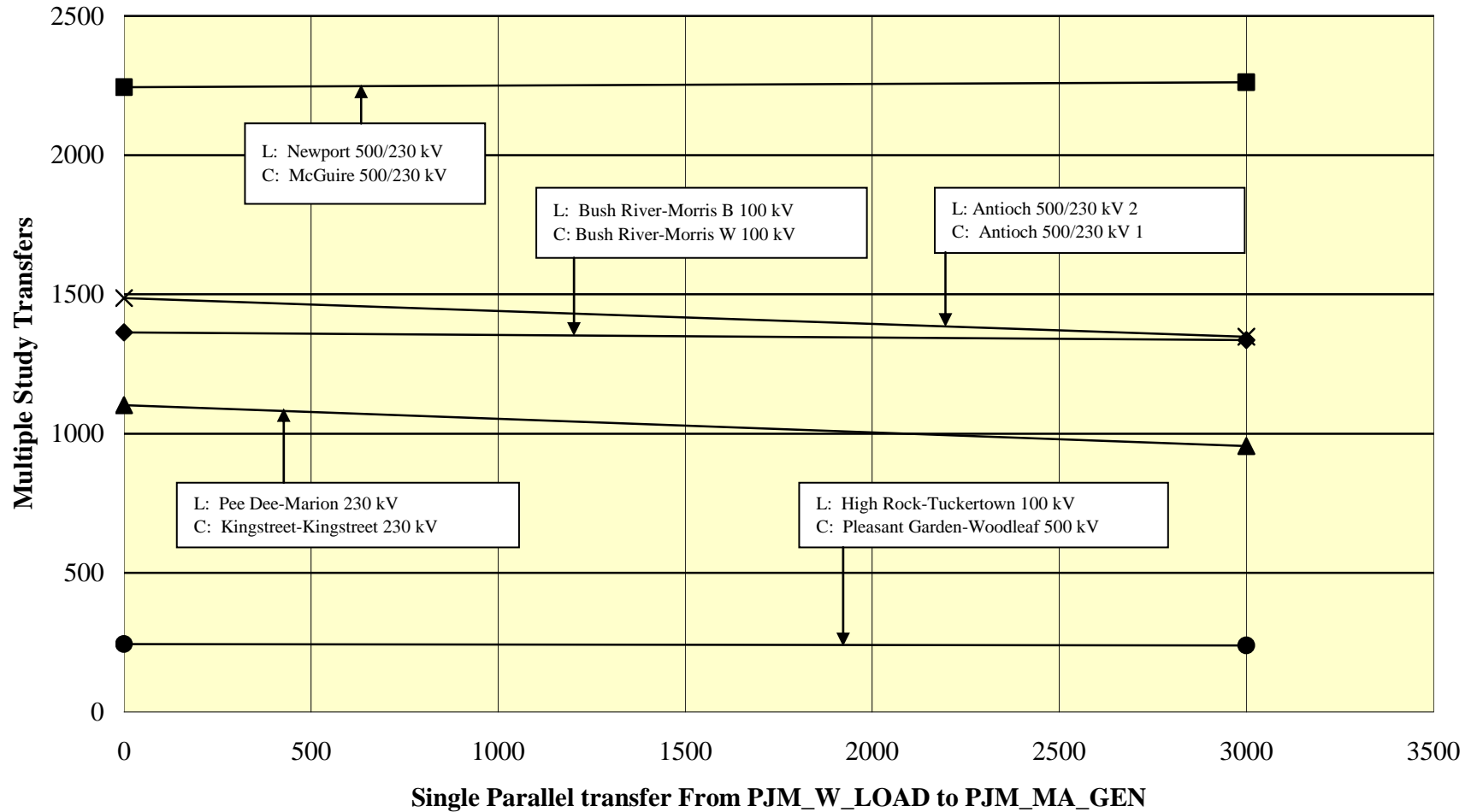
■ CPLE2000EX=>DK2000IMCE	◆ SG1400EX=>DK1400IMS	▲ SC1400EX=>DK1400IMS
✕ DVP2000EXP=>DK2000IMV	● YD200EX=>DK200IMYD	

## Duke Power South to North Parallel Transfer



■ CPLE2000EX=>DK2000IMCE	◆ SG1400EX=>DK1400IMSG	▲ SC1400EX=>DK1400IMSC
× DVP2000EXP=>DK2000IMVP	● YD200EX=>DK200IMYD	

## Duke Power PJM West to PJM Mid-Atlantic Parallel Transfer





## **South Carolina Electric and Gas (SCEG)**

### ***Transfer Capability***

SCEG tested the strength of its transmission system using test levels of 1400 MW exports to all VACAR companies. Imports were tested at 2000 MW from CPLE, Duke, and DVP. Imports were tested at 1400 MW from SCPSA and 200 MW from Yadkin.

### **Imports**

NITC import capability exceeds test levels for SCEG imports from CPLE, Duke, SCPSA, DVP and Yadkin.

Under assumed study conditions testing single contingency events, FCITC for a SCEG import from CPLE is not limited by any facility up to the transfer test level of 2000 MW.

Under assumed study conditions testing single contingency events, FCITC for a SCEG import from Duke is limited to 1200 MW by Duke's Belews Creek-Bob White Tap 230 kV for the outage of Duke's Belews Creek-North Greensboro 230 kV line.

Under assumed study conditions testing single contingency events, FCITC for a SCEG import from SCPSA is not limited by any facility up to the transfer test level of 1400 MW.

Under assumed study conditions testing single contingency events, FCITC for a SCEG import from DVP is not limited by any facility up to the transfer test level of 2000 MW.

Under assumed study conditions testing single contingency events, FCITC for a SCEG import from Yadkin is not limited by any facility up to the transfer test level of 200 MW after Yadkin imposes Operating Procedure YD1.

### **Exports**

Under assumed study conditions testing single contingency events, FCITC for a SCEG export to CPLE is limited to 700 by SCPSA's Winyah-Campfield 230 kV line for the outage of SCPSA's Winyah-Hemingway 230 kV line.

Under assumed study conditions testing single contingency events, FCITC for a SCEG export to Duke is limited to 1300 MW by Duke's Bush River-Morris Sw Sta B 100 kV for the outage of Duke's Bush River-Morris Sw Sta W 100 kV line.

Under assumed study conditions testing single contingency events, FCITC for a SCEG export to SCPSA is not limited by any facility up to the transfer test level of 1400 MW.

Under assumed study conditions testing single contingency events, FCITC for a SCEG export to DVP is limited 950 MW by SCPSA's Winyah-Campfield 230 kV line for the outage of SCPSA's Winyah-Hemingway 230 kV line.

A complete listing of the resulting SCEG transfer capabilities is provided in Section IV.

## ***Parallel Transfers***

### North-South (PJM Mid-Atlantic-FRCC)

A North to South (PJM Mid-Atlantic to FRCC) transfer with a test level of 4000 MW was simulated in parallel with each of the five standard SCEG imports from VACAR companies. The results illustrated remaining FCITC for SCEG imports from CPLE, Duke, SCPSA, DVP, and Yadkin at the parallel transfer test level of 4000 MW.

Import transfer capability from CPLE is 2600 MW for a 0 MW parallel transfer level. The transfer limit decreases to 2400 MW FCITC at a parallel transfer level of 1500 MW. The transfer limit decreases to 1800 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to SCPSA and SCEG's Mateeba-Pepperhill 230 kV tie line for the outage of SCPSA and SCEG's Charity-Williams Station 230 kV tie line.

Import transfer capability from Duke is 1200 MW for a 0 MW parallel transfer level. The transfer limit increases to 1400 MW FCITC at a parallel transfer level of 2800 MW. This limit is due to Duke's Belews Creek-Bob White Tap 230 kV line for the outage of Duke Belews Creek-North Greensboro 230 kV line. The transfer limit decreases to 0 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to SEPA and SOCO's Hartwell-Athena 230 kV tie line for the outage of Duke and SOCO's Oconee-South Hall 500 kV tie line.

Import transfer capability from SCPSA is 1700 MW for a 0 MW parallel transfer level. The transfer limit decreases to 1500 MW FCITC at a parallel transfer level of 2800 MW. This limit is due to SCPSA and SCEG's Mateeba-Pepperhill 230 kV tie line for the outage of SCPSA and SCEG's Charity-Williams Station 230 kV tie line. The transfer limit decreases to 1200 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to SCPSA and SCEG's Charity-Williams Station 230 kV tie line for the outage of SCPSA's Carnes-Mateeba 230 kV line.

Import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit decreases to 2600 MW FCITC at a parallel transfer level of 1500 MW. The transfer limit decreases to 1300 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to DVP's Everets-Poplar C 115 kV line for the outage of DVP's Earleys-Everets 230 kV line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level. The transfer limit increases to 250 MW FCITC for a parallel transfer level of 3600 MW. This limit is due to Yadkin's High Rock-High Rock Jct 100 kV line for the outage of Duke's Pl Garden-Woodleaf 500 kV line. The transfer limit decreases to 60 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to Duke's Peach Valley-Riverview 2 230 kV line for the outage of Duke's Peach Valley-Riverview 1 230 kV line.

### South-North (FRCC-PJM Mid-Atlantic)

A South to North (FRCC to PJM Mid-Atlantic) transfer with a test level of 4000 MW was simulated in parallel with each of the five standard SCEG imports. The results illustrated that FCITC for SCEG imports from CPLE, Duke, and SCPSA decline to zero while import from Yadkin allows minimal MW under this parallel transfer.

Import transfer capability from CPLE is 2600 MW for a 0 MW parallel transfer level. The transfer limit increases to 2700 MW FCITC at a parallel transfer level of 1500 MW. The transfer limit decreases to 0 MW FCITC at a parallel transfer level of 4000 MW. This limit is due to SCPSA and SCEG's Yemassee-

Yemassee 230 kV tie line for the outage of SCPSA Bluffton-Purrysburg 230 kV line.

Import transfer capability from Duke is 1200 MW for a 0 MW parallel transfer level. The transfer limit remains 1200 MW FCITC at a parallel transfer level of 350 MW. The transfer limit decreases to 0 MW FCITC at a parallel transfer level of 1700 MW. This limit is due to an overload of Duke's Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

Import transfer capability from SCPSA is 1700 MW for a 0 MW parallel transfer level. The transfer limit increases to 1800 MW FCITC at a parallel transfer level of 1500 MW. The transfer limit decreases to 0 MW FCITC at a parallel transfer level of 3000 MW. This limit is due to SCPSA's Pee Dee-Marion 230 kV line for the outage of CPLE and SCPSA's Kingstree-Kingstree 230 kV tie line.

Import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit remains 2800 MW FCITC at a parallel transfer level of 600 MW. The transfer limit decreases to 0 MW FCITC at a parallel transfer level of 3200 MW. This limit is due to SCPSA and SCEG's Yemassee-Yemassee 230 kV tie line for the outage of SCPSA Bluffton-Purrysburg 230 kV line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level. The transfer limit decrease by to 150 MW FCITC for a parallel transfer level of 4000 MW. This limit is due to Yadkin's High Rock-High Rock Jct 100 kV line for the outage of Duke's Pl Garden-Woodleaf 500 kV line.

#### Intra-PJM West-East (PJM West-PJM Mid-Atlantic)

A West to East intra-PJM (PJM West-PJM Mid-Atlantic) transfer with a test level of 3000 MW was simulated in parallel with each of the five standard SCEG imports. The results illustrated remaining FCITC for CPLE imports from Duke, SCEG, SCPSA, DVP, and Yadkin at the parallel transfer test level of 3000 MW.

Import transfer capability from CPLE is 2600 MW for a 0 MW parallel transfer level. The transfer limit remains 2600 MW FCITC at a parallel transfer level of 3000 MW. This limit is due to SCPSA and SCEG's Mateeba-Pepperhill 230 kV tie line for the outage of SCPSA and SCEG's Charity-Williams Station 230 kV tie line.

Import transfer capability from Duke is 1200 MW for a 0 MW parallel transfer level. The transfer limit remains 1200 MW FCITC at a parallel transfer level of 1000 MW. The transfer limit decreases to 500 MW FCITC at a parallel transfer level of 3000 MW. This limit is due to an overload of Duke's Parkwood 500/230 kV 6 transformer for an outage of the parallel Parkwood 500/230 kV 5 transformer.

Import transfer capability from SCPSA is 1700 MW for a 0 MW parallel transfer level. The transfer limit remains 1700 MW FCITC at a parallel transfer level of 3000 MW. This limit is due to SCPSA and SCEG's Mateeba-Pepperhill 230 kV tie line for the outage of SCPSA and SCEG's Charity-Williams Station 230 kV tie line.

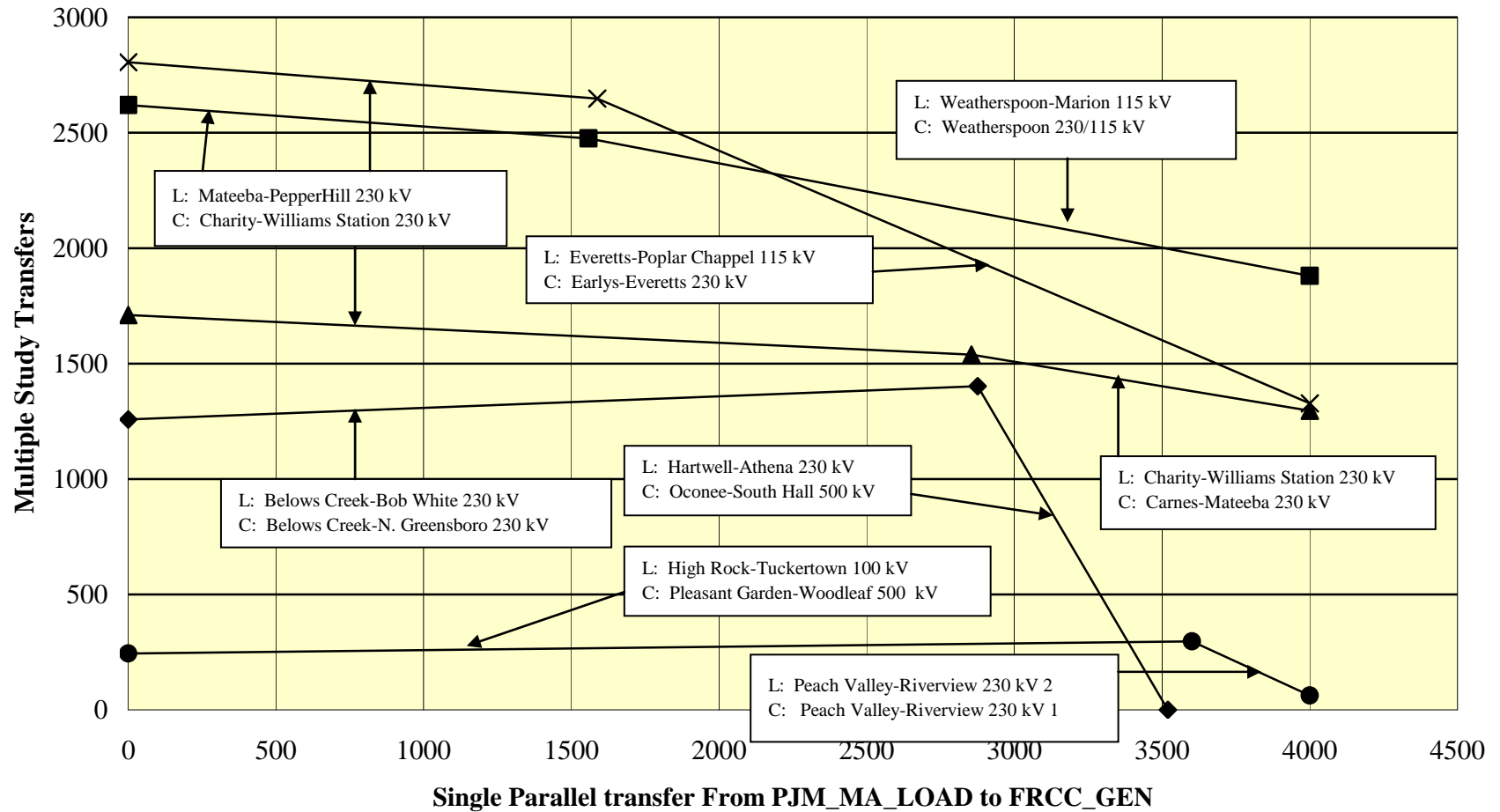
Import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit remains 2800 MW FCITC at a parallel transfer level of 3000 MW. This limit is due to SCPSA and SCEG's Mateeba-Pepperhill 230 kV tie line for the outage of SCPSA and SCEG's Charity-Williams Station 230 kV tie line.

Import transfer capability from Yadkin is 200 MW for a 0 MW parallel transfer level. The transfer limit remains 200 MW FCITC for a parallel transfer level of 3000 MW. This limit is due to Yadkin's High

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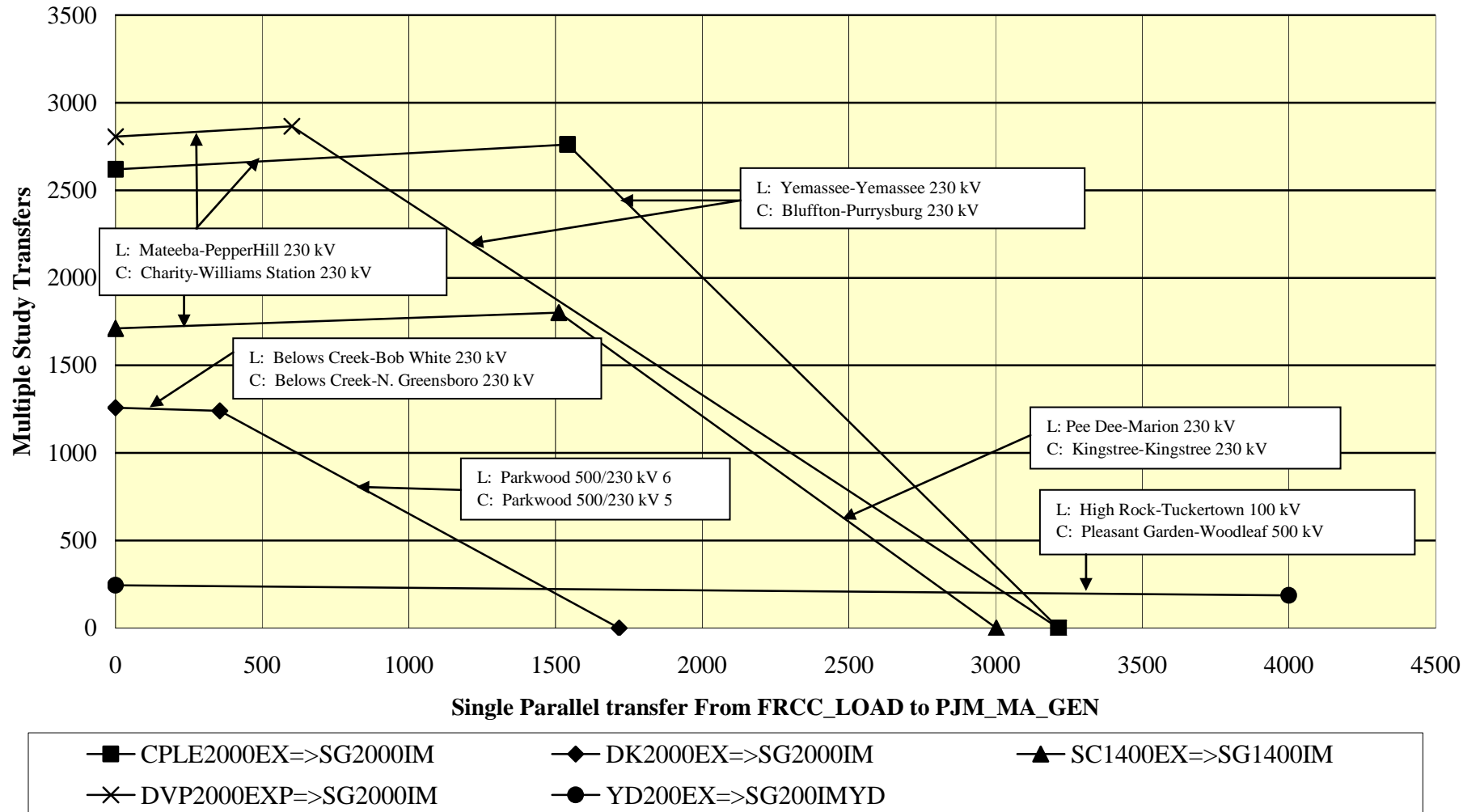
Rock-High Rock Jct 100 kV line for the outage of Duke's Pl Garden-Woodleaf 500 kV line.

### South Carolina Electric and Gas North to South Parallel Transfer

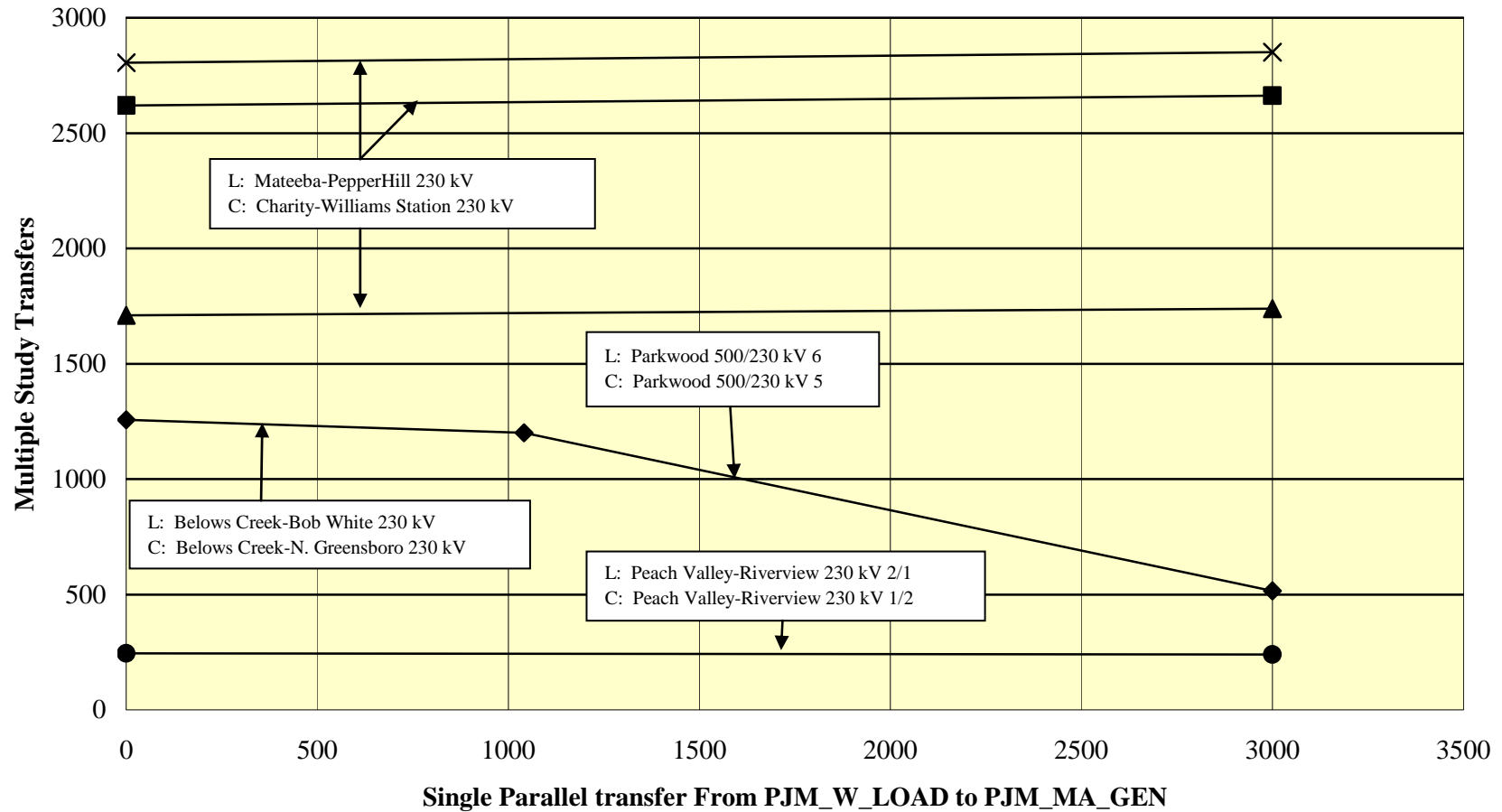


■ CPLE2000EX=>SG2000IM	◆ DK2000EX=>SG2000IM	▲ SC1400EX=>SG1400IM
✕ DVP2000EXP=>SG2000IM	● YD200EX=>SG200IMYD	

### South Carolina Electric and Gas South to North Parallel Transfer



### South Carolina Electric and Gas PJM West to PJM Mid-Atlantic Parallel Transfer



■ CPLE2000EX=>SG2000IM	◆ DK2000EX=>SG2000IM	▲ SC1400EX=>SG1400IM
✕ DVP2000EXP=>SG2000IM	● YD200EX=>SG200IMYD	

**South Carolina Public Service Authority (SCPSA)*****Transfer Capability***

All import NITCs exceed transfer test levels.

The import FCITC's from CPLE and DVP were not limited by any facility up to the transfer test level of 2000 MW.

The import FCITC from SCEG is not limited by any facility up to the transfer test level of 1400 MW.

The import FCITC from Duke is limited to 1200 MW by loading on Duke's Belews Creek-Bob White Tap 230 kV line for the outage of Duke's Belews Creek-North Greensboro 230 kV line.

A complete listing of the resulting SCPSA transfer capabilities is provided in Section IV.

***Parallel Transfers*****North-South (PJM Mid-Atlantic-FRCC)**

A North to South (PJM Mid-Atlantic to FRCC) transfer with a test level of 4000 MW was run in parallel with each of the four standard SCPSA imports from VACAR companies. The results illustrated remaining FCITC for SCPSA imports from CPLE, Duke, SCEG, and DVP at the parallel transfer test level of 4000 MW.

SCPSA's import transfer capability from CPLE is 2700 MW for a 0 MW parallel transfer level. The transfer limit decreases to a 1700 MW FCITC at the parallel transfer level of 4000 MW. This limit is due to loading on the Weatherspoon Plant-Fairmont 115 kV line for the outage of the Weatherspoon-Weatherspoon Plant 230/115 kV transformer.

SCPSA's import transfer capability from Duke is 1200 MW for a 0 MW parallel transfer level. The transfer limit increases slightly to 1300 MW at a parallel transfer level of 2100 MW. This limit is due to Duke's Belews Creek-Bob White Tap 230 kV line for the outage of Duke's Belews Creek-N Greensboro 230 kV line. The transfer limit then decreases to 50 MW at a parallel transfer level of 4000 MW. This limit is due to Duke's Peach Valley-Riverview 230 kV 1/2 line for the outage of Duke's Peach Valley-Riverview 230 kV 2/1 line.

SCPSA's import transfer capability from SCEG is 2000 MW for a 0 MW parallel transfer level. The transfer limit decreases slightly to 1700 MW at a parallel transfer level of 4000 MW. This limit is due to loading on SCPSA's Columbia-Lexington 115 kV line for the outage of SCPSA and SCEG's Silver Lake-Lyles 115 kV tie line.

SCPSA's import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit increases slightly to 3200 MW at a parallel transfer level of 400 MW. The transfer limit then decreases to 1300 MW at a parallel transfer level of 4000 MW. This limit is due to DVP's Everetts-Poplar Chapel 115 kV line for the outage of DVP's Earleys-Everetts 230 kV line.

South-North (FRCC-PJM Mid-Atlantic)

A South to North (FRCC to PJM Mid-Atlantic) transfer with a test level of 4000 MW was run in parallel with each of the four standard SCPSA imports. The results illustrated that the FCITC for SCPSA imports from CPLE, Duke, SCEG, and DVP decline to zero under this parallel transfer.

SCPSA's import transfer capability from CPLE is 2700 MW for a 0 MW parallel transfer level. The transfer limit increases slightly to 2900 MW at the parallel transfer level of 2900 MW. The transfer limit then decreases to 0 MW at the parallel transfer level of 4000 MW due to loading on the SCPSA and SCEG Yemassee-Yemassee 230 kV tie for the outage of SCPSA's Bluffton-Purrysburg 230 kV line.

SCPSA's import transfer capability from Duke is 1200 MW for a parallel transfer level up to 300 MW, limited by loading of Duke's Belews Creek-Bob White Tap 230 kV line for the outage of Duke's Belews Creek-North Greensboro 230 kV line. The transfer limit then decreases to 0 MW at a parallel transfer level of 4000 MW due to loading on Duke's Parkwood 500/230 kV transformer for the outage of the parallel transformer.

SCPSA's import transfer capability from SCEG is 2000 MW for a 0 MW parallel transfer level. The FCITC then increases slightly to 2100 MW, limited due to loading on SCPSA's Columbia-Lexington 115 kV line for the outage of SCPSA and SCEG's Silver Lake-Lyles 115 kV tie line. The FCITC then decreases to 0 MW at a parallel transfer level of 4000 MW due to loading on SCPSA and SCEG's Yemassee-Yemassee 230 kV tie for the outage of SCPSA's Bluffton-Purrysburg 230 kV line.

SCPSA's import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit decreases to 0 MW at a parallel transfer level of 4000 MW due to loading on SCPSA and SCEG's Yemassee-Yemassee 230 kV tie for the outage of SCPSA's Bluffton-Purrysburg 230 kV line.

Intra-PJM West-East (PJM West-PJM Mid-Atlantic)

A West to East intra-PJM (PJM West-PJM Mid-Atlantic) transfer with a test level of 3000 MW was run in parallel with each of the four standard SCPSA imports. The results illustrated remaining FCITC for SCPSA imports from CPLE, Duke, SCEG, and DVP at the parallel transfer test level of 3000 MW.

SCPSA's import transfer capability from CPLE is 2700 MW for a 0 MW parallel transfer level. The transfer limit increases slightly to 2800 MW at the parallel transfer level of 3000 MW due to loading on the Weatherspoon Plant-Fairmont 115 kV line for the outage of the Weatherspoon-Weatherspoon Plant 230/115 kV transformer.

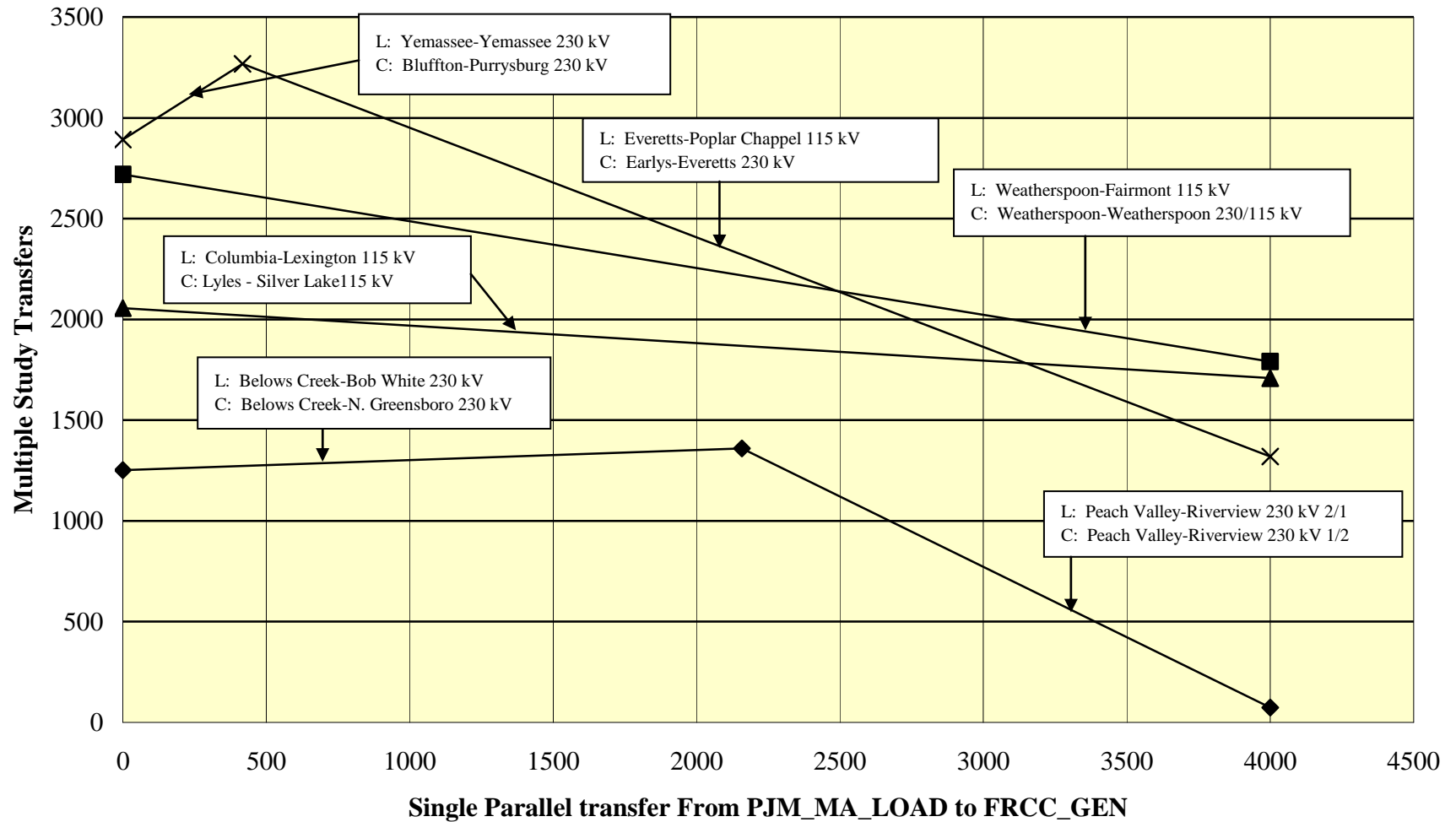
SCPSA's import transfer capability from Duke is 1200 MW for a 0 MW parallel transfer level. The FCITC then decreases slightly to 1100 MW due to loading on Duke's Belews Creek-Bob White Tap 230 kV line for the outage of Duke's Belews Creek-North Greensboro 230 kV line. As the parallel transfer increases to 3000 MW, the FCITS decreases to 500 MW due to loading on Duke's Parkwood 500/230 kV transformer for the outage of the parallel transformer.

SCPSA's import transfer capability from SCEG is 2000 MW for a 0 MW parallel transfer level. The FCITC then decreases by 3 MW at a parallel transfer level of 3000 MW due to loading on SCPSA's Columbia-Lexington 115 kV tie for the outage of SCPSA and SCEG's Silver Lake-Lyles 115 kV tie.

SCPSA's import transfer capability from DVP is 2800 MW for a 0 MW parallel transfer level. The transfer limit decreases slightly to 2600 MW at a parallel transfer level of 3000 MW due to loading on

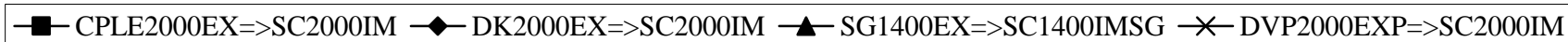
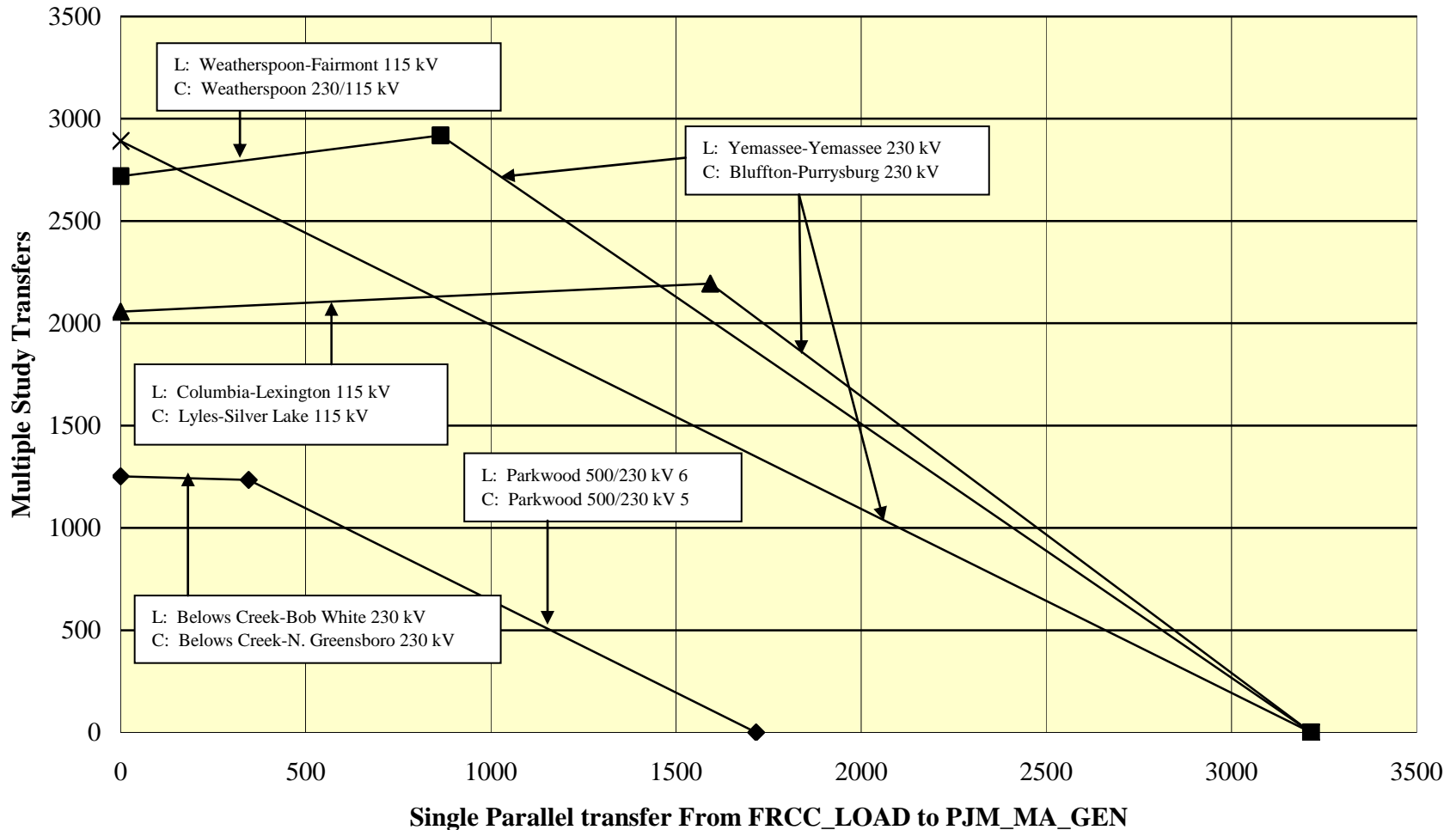
SCPSA and SCEG's Yemassee-Yemassee 230 kV tie for the outage of SCPSA's Bluffton-Purrysburg 230 kV line.

## South Carolina Public Service Authority North to South Parallel Transfer

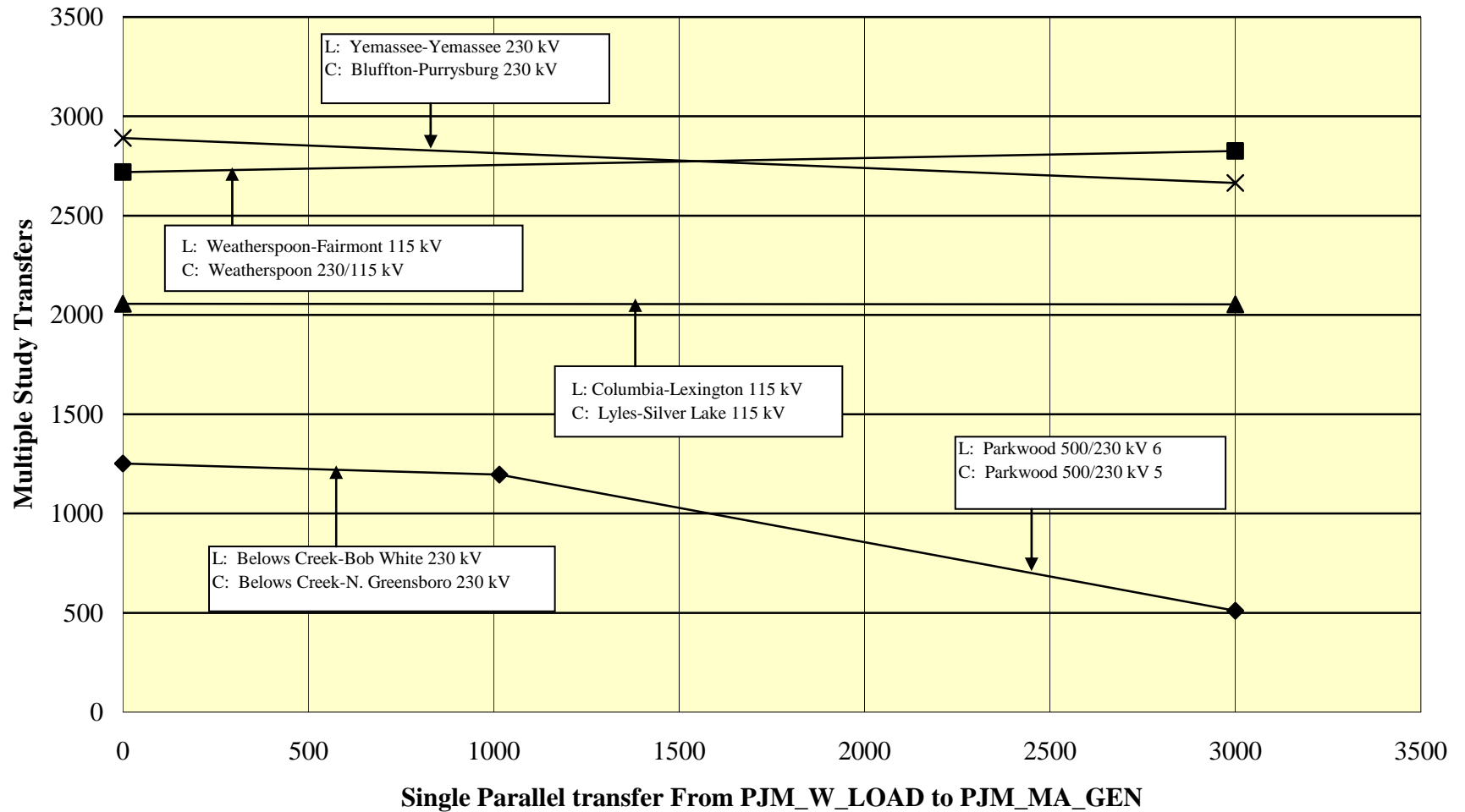


■ CPLE2000EX=>SC2000IM 
 ◆ DK2000EX=>SC2000IM 
 ▲ SG1400EX=>SC1400IMSG 
 ✕ DVP2000EXP=>SC2000IM

## South Carolina Public Service Authority South to North Parallel Transfer



## South Carolina Public Service Authority PJM West to PJM Mid-Atlantic Parallel Transfer



CPLE2000EX=>SC2000IM
 
 DK2000EX=>SC2000IM
 
 SG1400EX=>SC1400IMSG
 
 DVP2000EXP=>SC2000IM

### **Dominion Virginia Power (DVP)**

Dominion Virginia Power expects to serve its customers demand and firm contracts with a combination of native generation and purchased power as depicted in the SERC LTSG network model for the 2015 summer case. Based on the results from this study, DVP does not anticipate any problems or negative impacts, due to its operations or facilities, on the VACAR systems during this period.

### **DVP Import and Export Capability**

For the network conditions represented in this study, NITC levels for all transfers meet or exceed test levels. Under assumed study conditions testing single contingency events, the following facilities appear as limits to DVP's import and export capabilities with FCITC at levels below that established for testing.

<b>Imports From</b>	<b>Limiting Facility (Owner)</b>	<b>Outaged Facility</b>	<b>FCITC</b>
CPLE	Clover 500/230 kV (DVP)	Wake-Carson 500 kV (DVP/CPLE)	1700
Duke	Parkwood 500/230 kV 6 (Duke)	Parkwood 500/230 kV 5 (Duke)	650
SCEG	Winyah-Campfield 230 kV (SCPSA)	Winyah-Hemingway 230 kV (SCPSA)	950
SCPSA	Marion-Weatherspoon 115 kV (CPLE)	Latta-Weatherspoon 230 kV (CPLE)	500

<b>Exports To</b>	<b>Limiting Facility (Owner)</b>	<b>Outaged Facility</b>	<b>FCITC</b>
Duke	Antioch 500/230 kV 2 (Duke)	Antioch 500/230 kV 2 (Duke)	1400

A complete listing of the resulting DVP transfer capabilities is provided in Section IV.

### ***Parallel Transfers***

In the second phase of the study, two 4000 MW parallel transfers in conjunction with the normal intra-VACAR transfers were studied. One transfer from North (PJM Mid-Atlantic) to South (FRCC) and another transfer from South (FRCC) to North (PJM Mid-Atlantic) were studied.

#### **North-South (PJM Mid-Atlantic-FRCC)**

DVP import limit from CPLE rises from 1780 MW to 3450 MW as the parallel flow rises to 4000 MW with DVP's Clover 500/230 kV transformer as the limit.

DVP import limit from Duke rises from 670 MW to 1200 MW as the parallel flow rises to 1350 MW with Duke's Parkwood 500/230 kV transformer 6 as the limit. At 3500 MW flow, the FCITC decreased to 0 MW with Hartwell - Athena 230 kV line as the limit.

SCEG to DVP transfer rises from 950 MW to 2300 MW as the parallel flow rises to 2400 MW limited by SCPSA's Winyah-Campfield 230 kV line. The FCITC decreased to 2100 MW as the North to South flow rises to 4000 MW with DVP's Elmont-NorthWest 230 kV line as the limit.

SCPSA to DVP transfer rises from 500 MW to 1900 MW as the parallel flow rises to 4000 MW with CPLE's Marion-Dillon 115 kV line as the limit.

South-North (FRCC-PJM Mid-Atlantic)

DVP's import limit from CPL drops from 1780 MW to 120 MW as the parallel flow rises to 4000 MW with DVP's Clover 500/230 kV transformer as the limit.

DVP's import limit from Duke, SCEG, and SCPSA follows the same pattern as CPL with slightly different FCITC values.

Intra-PJM West-East (PJM West-PJM Mid-Atlantic)

In the third phase of the study, a 3000 MW intra-PJM parallel transfer in conjunction with the normal intra-VACAR transfers were studied.

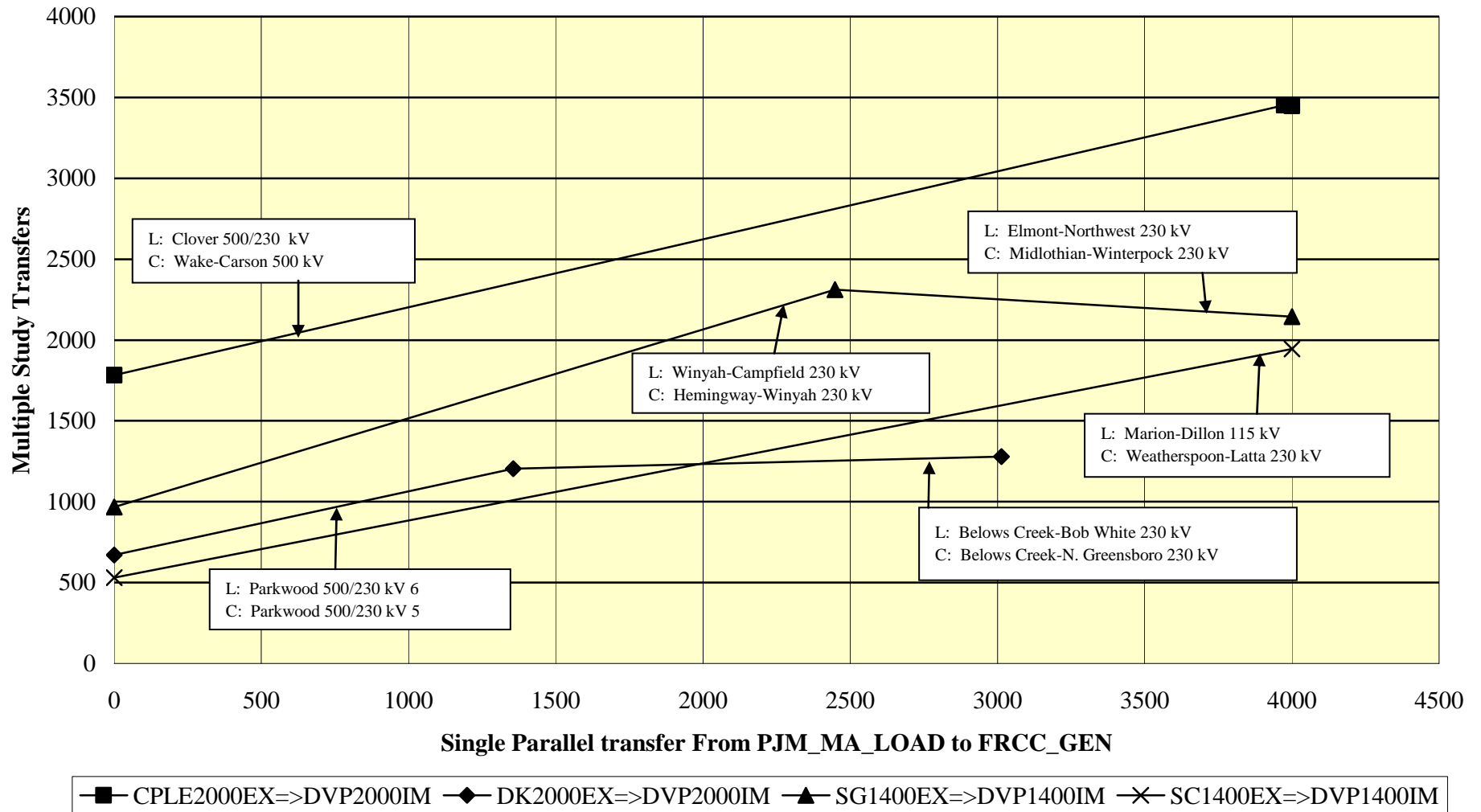
DVP's import limit from CPLE drops from 1780 MW to 1100 MW as the parallel flow rises to 3000 MW with DVP's Clover 500/230 kV transformer as the limit.

DVP's import limit from Duke drops from 650 MW to 200 MW as the parallel flow rises to 3000 MW with Duke's Parkwood 500/230 kV transformer 6 as the limit.

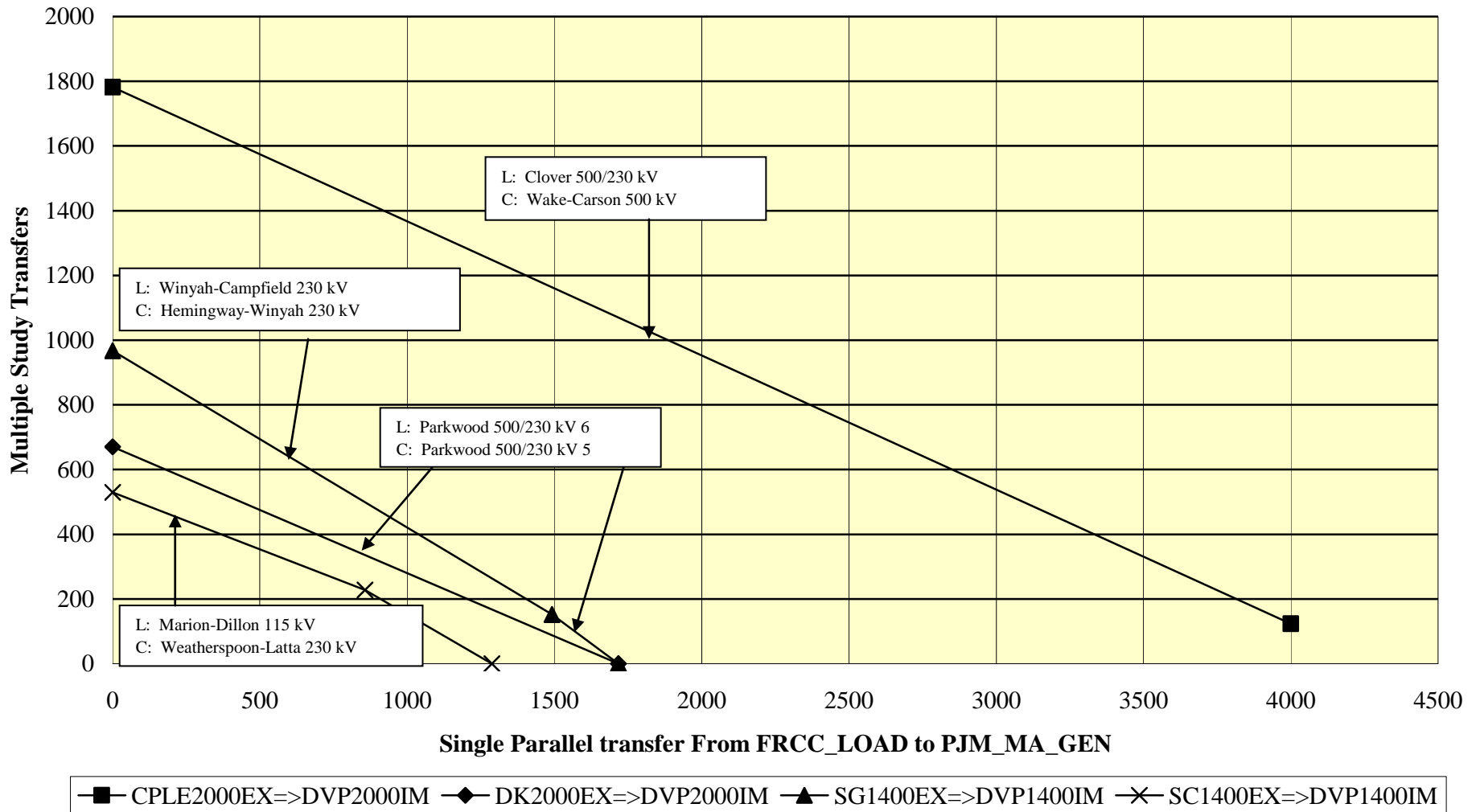
SCEG to DVP transfer drops slightly from 950 MW to 900 MW as the parallel flow rises to 1000 MW limited by SCPSA's Winyah-Campfield 230 kV line. At 3000 MW flow FCITC drops to 350 MW, Duke's Parkwood 500/230 kV transformer 6 is the limit.

SCPSA to DVP transfer follows the same pattern as SCEG, limited by CPLE's Marion-Dillon 115 kV line.

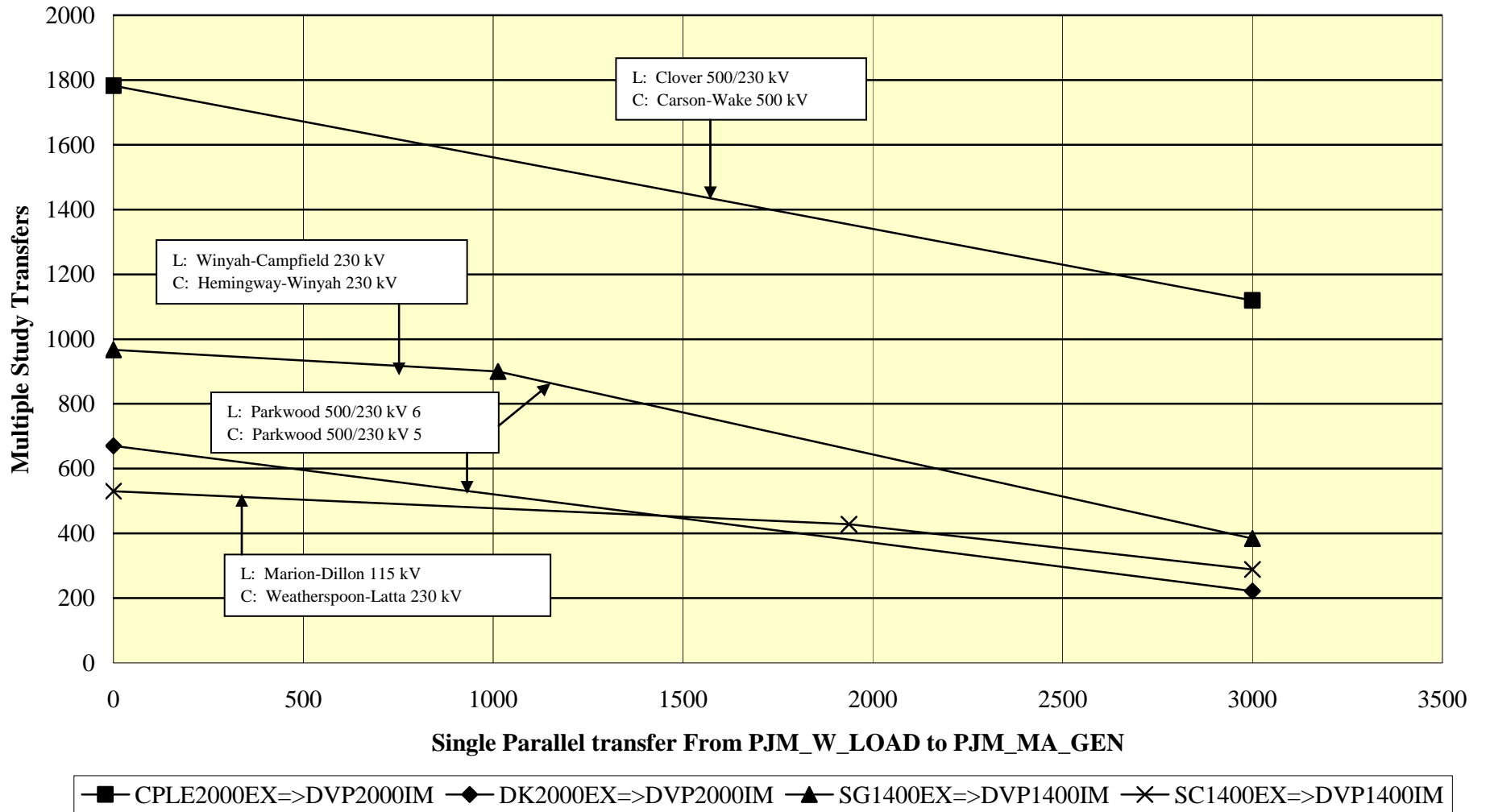
## Dominion Virginia Power North to South Parallel Transfer



## Dominion Virginia Power South to North Parallel Transfer



## Dominion Virginia Power PJM West to PJM Mid-Atlantic Parallel Transfer



**APGI – Yadkin**

The load, generation and transmission systems configuration included as part of Yadkin's system model represent the current transmission plan that will be installed before the 2015 summer period. Yadkin expects to serve its Badin load during this period with internal generation. Based on the results of this study, transfer capability will be maintained at acceptable levels on all interfaces.

***Transfer Capability***

Imports into Yadkin were not tested. The Badin load is small as compared to internal generation.

NITC for Yadkin exports exceed the study test level.

With assumed study conditions and testing single contingency events, FCITC from Yadkin to Duke, CP&LE, and SCEG are limited by the Tuckertown-High Rock 100 kV. The FCITC is limited for an outage of either the Woodleaf-Pleasant Garden 500 kV line, the McGuire-Woodleaf 500 kV line or the Tillery-Biscoe 115 kV line. But, with the operating guide YD1 invoked Yadkin's exports exceed the 200 MW tested transfer level. The Duke, CP&LE, and SCEG imports from Yadkin are considered to be satisfactory for the 2015 summer study period.

***Parallel Transfers***

Yadkin has no import transfer so parallel were not performed.

## **IV. TRANSFER TABLES AND OPERATING GUIDES**

**TABLE A**  
**PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT**  
**SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC</u> <u>(MW)</u>	<u>FCITC</u> <u>(MW)</u>	<u>Limiting Facility</u>	<u>Rating</u> <u>(MVA)</u>	<u>TDF</u> <u>(%)</u>	<u>LODF</u> <u>(%)</u>	<u>Outaged Facility</u>	<u>Operating</u> <u>Guide</u>
Duke to CPLE (4)	2000+		No limit found at 2000 MW				None	
		*750	Parkwood 500/230 kV 6	797	7.5	72.9	Parkwood 500/230 kV 5	
		1000	Belews Creek-Bob White 230 kV 1/2	478	4.2	22.7	Belews Creek-N. Greensboro 230 kV	
		1100	Belews Creek-Bob White 230 kV 1/2	478	3.9	4.9	Woodleaf-Pleasant Garden 500 kV	
		1400	Parkwood 500/230 kV 5	840	7.4	72.2	Parkwood 500/230 kV 6	
		2000+	No other limit found at 2000 MW				Any other tested facility	
SCEG to CPLE (4)	1400+		No limit found at 1400 MW				None	
		*700	Winyah-Campfield 230 kV	550	4.3	33.3	Winyah-Hemingway 230 kV	
		1100	Pee Dee- Marion 230 kV	797	15.3	32.2	Kingstree-Kingstree 230 kV	
		1200	Marion-Whiteville 115 kV	179	3.8	16.1	Marion-Whiteville 230 kV	
		1200	Pee Dee-Marion 230 kV	797	15.6	33.2	Kingstree-Florence 230 kV	
		1300	Parkwood 500/230 kV 6	797	4.1	72.9	Parkwood 500/230 kV 5	
		1400+	No other limit found at 1400 MW				Any other tested facility	
SCPSA to CPLE (4)	1300		Pee Dee-Marion 230 kV	797	19.4	-	None	
	1400+		No other limit found at 1400 MW				Any other tested facility	
		*450	Marion-Weatherspoon 115 kV	97	3.6	9.8	Latta-Weatherspoon 230 kV	
		700	Marion-Weatherspoon 115 kV	97	3.1	4.7	Marion-Whiteville 230 kV	
		800	Pee Dee-Marion 230 kV	797	22.1	32.2	Kingstree-Kingstree 230 kV	
		800	Marion-Weatherspoon 115 kV	97	3.0	5.2	Bennettsville-Laurinburg 230 kV	
		900	Pee Dee-Marion 230 kV	797	21.8	33.2	Kingstree-Florence 230kV	
		1000	Marion-Whiteville 115 kV	179	4.6	16.1	Marion-Whiteville 230 kV	
		1200	Conway-4 Mile 115 kV	122	5.0	9.6	Pee Dee-Marion 230 kV	
		1400+	No other limit found at 1400 MW				Any other tested facility	
DVP to CPLE (4)	2000+		No limit found at 2000 MW					
		2000+	No limit found at 2000 MW				Any tested facility	

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE A**  
**PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT**  
**SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC</u> <u>(MW)</u>	<u>FCITC</u> <u>(MW)</u>	<u>Limiting Facility</u>	<u>Rating</u> <u>(MVA)</u>	<u>TDF</u> <u>(%)</u>	<u>LODF</u> <u>(%)</u>	<u>Outaged Facility</u>	<u>Operating</u> <u>Guide</u>
Yadkin to CPLE	200+	0	(1) Tuckertown-High Rock 100 kV	102	8.9	1.9	Woodleaf-Pleasant Garden 500 kV	YD1
		0	(1) Tuckertown-High Rock 100 kV	102	8.9	1.9	McGuire-Woodleaf 500 kV	YD1
		0	(1) Tuckertown-High Rock 100 kV	102	12.2	17.7	Tillery-Biscoe 115 kV	YD1
		200+	No other limit found at 200 MW				Any other tested facility	YD1
CPLE to CPLW	700+	*600	No limit found at 700 MW Shiloh-Pisgah 230 kV 2/1	507	43.0	64.2	None	Shiloh-Pisgah 230 kV 1/2 Any other tested facility
		700+	No other limit found at 700 MW					
Duke to CPLW	700+	*600	No limit found at 700 MW Shiloh-Pisgah 230 kV 2/1	507	43.9	64.2	None	Shiloh-Pisgah 230 kV 1/2 Any other tested facility
		700+	No other limit found at 700 MW					

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE B  
DUKE ENERGY CAROLINAS  
SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC (MW)</u>	<u>FCITC (MW)</u>	<u>Limiting Facility</u>	<u>Rating (MVA)</u>	<u>TDF (%)</u>	<u>LODF (%)</u>	<u>Outaged Facility</u>	<u>Operating Guide</u>
CPLE to Duke (4)	2000+	2000+	No limit found at 2000 MW No limit found at 2000 MW				None None	
SCEG to Duke (4)	1400+	*1300 1400+	No limit found at 1400 MW Bush River-Morris Sw Sta B 100 kV No other limit found at 1400 MW	69.3	3.5	30.3	None Bush River-Morris Sw Sta W 100 kV Any other tested facility	
SCPSA to Duke (4)	1400+	*1100 1200 1300 1400+	No limit found at 1400 MW Pee Dee-Marion 230 kV Pee Dee-Marion 230 kV Pee Dee-Marion 230 kV No other limit found at 1400 MW	797 797 797	16.4 16.1 16.1	32.2 33.2 33.2	None Kingstree-Kingstree 230 kV Kingstree-Kingstree North 230 kV Kingstree North-Sardis 230 kV Any other tested facility	
DVP to Duke (4)	2000+	*1400 1700 1800 2000+	No limit found at 2000 MW Antioch 500/230 kV 2 Antioch 500/230 kV 1 Antioch-Mitchell River 230 kV 2/1 No other limit found at 2000 MW	840 840 717	18.0 17.0 17.3	72.0 68.1 67.3	None Antioch 500/230 kV 1 Antioch 500/230 kV 2 Antioch-Mitchell River 230 kV 1/2 Any other tested facility	
Yadkin to Duke	200+	0 50 50 200+	No limit found at 200 MW (1) Tuckertown-High Rock 100 kV (1) Tuckertown-High Rock 100 kV (1) Tuckertown-High Rock 100 kV No other limit found at 200 MW	102 102 102	8.8 8.8 12.1	1.9 1.9 17.7	None Woodleaf-Pleasant Garden 500 kV McGuire-Woodleaf 500 kV Tillery-Biscoe 115 kV Any other tested facility	YD1 YD1 YD1

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE C  
SOUTH CAROLINA ELECTRIC AND GAS  
SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC (MW)</u>	<u>FCITC (MW)</u>	<u>Limiting Facility</u>	<u>Rating (MVA)</u>	<u>TDF (%)</u>	<u>LODF (%)</u>	<u>Outaged Facility</u>	<u>Operating Guide</u>
CPLE to SCEG	2000+	2000+	No limit found at 2000 MW No limit found at 2000 MW				None Any tested facility	
Duke to SCEG	2000+	*1200 1400 1500 2000+	No limit found at 2000 MW Belews Creek-Bob White 230 kV 1/2 Belews Creek-Bob White 230 kV 1/2 Parkwood 500/230 kV 6 No other limit found at 2000 MW	478 478 797	3.6 3.1 3.6	22.7 4.9 72.9	None Belews Creek-N. Greensboro 230 kV Woodleaf-Pleasant Garden- 500 kV Parkwood 500/230 kV 5 Any other tested facility	
SCPSA to SCEG (4)	1400+	1400+	No limit found at 1400 MW No limit found at 1400 MW				None Any tested facility	
DVP to SCEG (4)	2000+	2000+	No limit found at 2000 MW No limit found at 2000 MW				None Any tested facility	
Yadkin to SCEG	200+	0 (1) 50 (1) 50 (1) 200+	No limit found at 1400 MW Tuckertown-High Rock 100 kV Tuckertown-High Rock 100 kV Tuckertown-High Rock 100 kV No other limit found at 200 MW	102 102 102	8.7 8.7 12.1	1.9 1.9 17.7	None Woodleaf-Pleasant Garden 500 kV McGuire-Woodleaf 500 kV Tillery-Biscoe 115 kV Any other tested facility	YD1 YD1 YD1

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE D  
SOUTH CAROLINA PUBLIC SERVICE AUTHORITY  
SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC (MW)</u>	<u>FCITC (MW)</u>	<u>Limiting Facility</u>	<u>Rating (MVA)</u>	<u>TDF (%)</u>	<u>LODF (%)</u>	<u>Outaged Facility</u>	<u>Operating Guide</u>
CPLE to SCPSA	2000+	2000+	No limit found at 2000 MW No limit found at 2000 MW				None Any tested facility	
Duke to SCPSA	2000+	1200 1400 1500 2000+	No limit found at 2000 MW Belews Creek-Bob White 230 kV 1/2 Belews Creek-Bob White 230 kV 1/2 Parkwood 500/230 kV 6 No other limit found at 2000 MW	478 478 739.8	3.6 3.1 3.7	22.7 49.4 72.9	None Belews Creek-N. Greensboro 230 kV Woodleaf-Pleasant Garden 500 kV Parkwood 500/230 kV 5 Any other tested facility	
SCEG to SCPSA	1400+	1400+	No limit found at 1400 MW No limit found at 1400 MW				None Any tested facility	
DVP to SCPSA (4)	2000+	2000+	No limit found at 2000 MW No limit found at 2000 MW				None Any tested facility	

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE E  
DOMINION VIRGINIA POWER  
SUMMARY OF INCREMENTAL TRANSFER CAPABILITIES**

<u>Transfer</u>	<u>NITC (MW)</u>	<u>FCITC (MW)</u>	<u>Limiting Facility</u>	<u>Rating (MVA)</u>	<u>TDF (%)</u>	<u>LODF (%)</u>	<u>Outaged Facility</u>	<u>Operating Guide</u>
CPLE to DVP	2000+		No limit found at 2000 MW				None	
		*1700	Clover 500/230 kV	927	16.64	22.0	Wake-Carson 500 kV	
		2000+	No other limit found at 2000 MW				Any other tested facility	
Duke to DVP	2000+		No limit found at 2000 MW				None	
		*650	Parkwood 500/230 kV 6	797	8.5	72.8	Parkwood 500/230 kV 5	
		1100	Belews Creek-Bob White 230 kV 1/2	478	4.0	22.7	Belews Creek-N. Greensboro 230 kV	
		1200	Belews Creek-Bob White 230 kV 1/2	478	3.7	4.9	Pleasant Garden-Woodleaf 500 kV	
		1200	Parkwood 500/230 kV 5	840	8.4	72.2	Parkwood 500/230 kV 6	
		1800	Clover 500/230 kV	927	16.1	22.0	Wake-Carson 500 kV	
		2000+	No other limit found at 2000 MW				Any other tested facility	
SCEG to DVP (4)	1400+		No limit found at 1400 MW				None	
		*950	Winyah-Campfield 230 kV	550	3.2	33.3	Winyah-Hemingway 230 kV	
		1100	Parkwood 500/230 kV 6	797	4.9	72.8	Parkwood 500/230 kV 5	
		1200	Fayetteville East-Erwin 230 kV	478	6.3	13.5	Cumberland-Wake 500 kV	
		1400+	No other limit found at 1400 MW				Any other tested facility	
SCPSA to DVP (4)	1400+		No limit found at 1400 MW				None	
		*500	Marion- Weatherspoon 115 kV	97	3.1	9.8	Latta-Weatherspoon 230 kV	
		650	Rockingham-West End 230 kV West	539	3.1	59.8	Rockingham-West End 230 kV East	
		1000	Pee Dee-Marion 230 kV	797	16.4	32.2	Kingstree-Kingstree 230 kV	
		1100	Pee Dee-Marion 230 kV	797	17.8	33.1	Kingstree-Kingstree North 230 kV	
		1100	Fayetteville East-Erwin 230 kV	478	7.0	13.5	Cumberland-Wake 500 kV	
		1100	Pee Dee-Marion 230 kV	797	17.8	33.2	Kingstree North-Sardis 230 kV	
		1300	Parkwood 500/230 kV 6	797	4.2	72.8	Parkwood 500/230 kV 5	
		1400+	No other limit found at 1400 MW				Any other tested facility	

Notes: \* Identified limit for this transfer  
 (1) Operating procedure identified  
 (2) Operating procedure in effect  
 (3) An operating procedure is in effect; another operating procedure is identified  
 (4) Denotes exporting area has reduced load

Notes: (A) FCITC limits are reported a maximum of 3 times for the same limiting facility  
 (B) FCITC limits are not reported for limiting facilities with a TDF of less than 3%.  
 (C) Outaged facilities in parenthesis indicate an operating procedure in effect.  
 (D) Available operating guide descriptions with corresponding identifier are provided.

**TABLE F  
OPERATING GUIDES**

<b><u>Guide</u></b>	<b><u>Action</u></b>	<b><u>Limiting Facility</u></b>	<b><u>Outaged Facility</u></b>	<b><u>Approved</u></b>
DK1	Open Wateree 115/100 kV Transformers (Duke)	Wateree-Great Falls 100 kV 1/2 (Duke) Camden-Elgin Tap-Wateree 115 kV (CPL) Wateree 115/100 kV Transformers (Duke)	Any outaged facility with full generation at Wateree Plant (Duke) and at Darlington County and Robinson Plants (CPL)	Duke CPL
DK2	Open Nantahala-Robbinsville 161 kV (Duke)	Santeetlah-Robbinsville 161 kV (Duke) Nantahala-Robbinsville 161 kV (Duke)	Any outaged facility	Duke
SC2	Open Camden-Cleveland School 69 kV	Camden-Cleveland School 69 kV	Any outaged facility	SCPSA
SC3	Open Dalzell-Dalzell 69 kV	Dalzell 230/69 kV 1/2	Dalzell 230/69 kV 2/1	SCPSA
YD1	Open Tuckertown-High Rock 100 kV	Tuckertown-High Rock 100 kV	Any outaged facility	Yadkin Duke

## **V. SUPPORTING DATA**

**EXHIBIT A**  
**MAJOR GENERATION AND TRANSMISSION FACILITY CHANGES**

**TABLE A.1**  
**MAJOR GENERATION FACILITY CHANGES**

<u>Company</u>	<u>Generation Facility Changes</u>	<u>Date</u>
PEC	Wayne County Generation (CPLE, 157 MW)	March-09
PEC	Richmond County Generation (CPLE, 660 MW)	Jun-11
Duke	Retire Buck Unit 4 (39 MW)	Jun-11
Duke	Retire Buck Unit 3 (73 MW)	Jun-12
Duke	Install Buck Combined Cycle (621 MW)	Jun-12
Duke	Install new Cliffside Steam Station Unit 6 (880 MW)	Jun-12
Duke	Retire Cliffside Steam Station Units 1-4 (202 MW)	Jun-12
Duke	Install Dan River Combined Cycle (621 MW)	Jun-12
Duke	Retire Dan River Units 1-2 (136 MW)	Jun-12
Duke	Retire Dan River Unit 3 (145 MW)	Jun-13
Duke	Retire Buzzard Roost Combustion Turbines (196 MW)	Jun-14
Duke	Retire Riverbend Combustion Turbines (120 MW)	Jun-15
Duke	Retire Buck Combustion Turbines (93 MW)	Jun-15
Duke	Retire Dan River Combustion Turbines (85 MW)	Jun-15
Duke	Retire Riverbend Units 4-5 (190 MW)	Jun-15
Duke	Retire Riverbend Unit 6 (134 MW)	Jun-16
Duke	Retire Riverbend Unit 7 (135 MW)	Jun-17
SCEG	Unsit Generation modeled at Jasper 131 MW	Jun-08
SCEG	Unsit Generation modeled at Jasper 131 MW	Jun-09
SCEG	Unsit Generation modeled at Yemassee 131 MW	Jun-09
SCEG	Unsit Generation modeled at Yemassee 131 MW	Jun-10
SCEG	Unsit Generation modeled at Canadys 131 MW	Jun-10
SCPSA	Pee Dee Unit #1	Jun-13
DVP	Bath County Uprate 85 MW	Apr-09
DVP	Possum Point 6 uprate 60 MW	May-09
DVP	Ladysmith #3 & #4, 340 MW	May-10
DVP	Surry #1 uprate 15 MW	Dec-10
DVP	Surry #2 uprate 15 MW	Dec-10
DVP	North Anna 1 uprate 85 MW	Jun-10
DVP	North Anna 2 uprate 85 MW	Jun-12
Yadkin	None	

**TABLE A.2**  
**MAJOR TRANSMISSION FACILITY CHANGES**

<u>Compan</u> <u>y</u>	<u>Transmission Facility Changes</u>	<u>Date</u>
PEC	Clinton-Lee 230 kV Line, Construct new line	Jun-10
PEC	Asheville-Enka 230 kV Line, Convert existing 115 kV Line to 230 kV	Dec-10
PEC	Mt. Olive 230 kV Sub, Construct Sub, Loop-in 1-230 kV and 1-115 kV line	Jun-11
PEC	Rockingham-West End 230 kV East, Construct new line	Jun-11
PEC	Asheboro- (Duke) Pleasant Garden 230 kV, Construct new line	Jun-11
PEC	Harris Plant-RTP 230 kV, Construct new line	Jun-11
PEC	Rockingham-Lilesville 230 kV, Construct new line	Jun-11
PEC	Richmond-Ft. Bragg Woodruff Street 230 kV, Construct new line	Jun-11
PEC	Asheville-Enka 115 kV, Construct new 115 kV Line	Dec-12
PEC	Greenville-Kinston Dupont 230 kV line, Construct line	Jun-13
PEC	Folkstone 230/115 kV Substation	Jun-13
PEC	Wake 500kV, Install 3rd 500/230 kV Transformer	Jun-13
PEC	Durham-RTP 230kV Line, Reconductor	Jun-14
Duke	Rebuild Logan (Fairview-McDowell) 100 kV Line to 954 ACSR	Jun-05
Duke	Rebuild High Point (High Rock Hydro-Healing Springs-Energy United 32) 100 kV Line to 954 ACSR	Oct-05
Duke	Add Kelsey Creek (Pacolet-Tiger) 230 kV Line 2 <sup>nd</sup> circuit	Jun-06
Duke	Rebuild Clinchfield (Fairview-Cliffside) 100 kV Line to 556 ACSR	Jun-06
Duke	Uprate Draytonville (Ripp-Riverview) 230 kV Line to 659 MVA	Jun-06
Duke	Remove Dutchman (McGuire-Lincoln) 230 kV Line	Dec-06
Duke	Remove Schoonover (Riverbend-McGuire) 230 kV Line	Dec-06
Duke	Add Dutchover (Riverbend-Lincoln) 230 kV Line	Dec-06
Duke	Add Nantahala-Fontana 161 kV Line double circuit tie line to TVA 358 MVA per circuit, replaces existing single circuit tie line	Aug-09
Duke	Add Cliffside tap of existing McGuire-Jocassee 500 kV Line for new generation site and connection to 230 kV	Jun-11
SCEG	Landfill 115kV Sw. Sta and Cap Bank	5/8
SCEG	Hopkins 230/115kV Sub and Foldin	5/8
SCEG	Hopkins 115kV 60 MVAR Cap Bank	5/8
SCEG	Pepperhill 230/115kV Sub and Line Upgrades	5/9
SCEG	Pepperhill-Ladson Tap 115kV Double Circuit	5/9
SCEG	Killian 115kV 60 MVAR Cap Bank	5/8
SCEG	Urquhart-Stevens 115kV Rebuild Double Circuit	5/9
SCEG	Thomas Isl-Hobcaw 115kV UG Cable	6/8
SCEG	Cola Ind Pk-Master Foods 115kV Upgrade	5/9
SCEG	Denny Terrace-Pineland 230kV Line	12/9
SCEG	Pineland Add 336 MVA Autotransformer #2	12/9
SCEG	Salem Sw Sta 115kV 24 MVAR Cap Bank	5/9
SCEG	Church Ck-Savage 115kV Rebuild Double Ckt	5/9
SCEG	Yemassee-Burton 115kV Rebuild Double Ckt	5/10
SCEG	Hamlin-Osceola Tap 115kV Line	12/9
SCEG	Belvedere-Belvedere Sw 115kV Rebuild SPDC	5/10
SCEG	Cainhoy 230/115kV Sub	5/10

SCEG	AM Williams -Cainhoy 115kV Convert to 230kV	5/10
SCEG	AM Williams-Cainhoy 115kV Construct	5/12
SCEG	St Andrews-Queensboro 115kV Line Upgrade	5/10
SCEG	Accabee-Hagood-Charlotte St 115kV SPDC	5/10
SCEG	Bayview-Charlotte St 115kV Line Upgrade	5/10
SCEG	Ritter 36MVAR Cap Bank #2	5/10
SCEG	Graniteville 336 MVA Autotransformer #3	12/10
SCEG	Lake Murray 336 MVA Autotransformer #2	5/11
SCEG	Mt Pleasant-Bayview 115kV Line Upgrade	12/11
SCEG	Edenwood-Lake Murray 230kV Double Ckt	5/12
SCEG	Pepperhill-Summerville 230kV Line Construct	5/12
SCEG	Ritter 230/115kV Sub and Foldin	5/12
SCEG	Aiken #3-Aiken Hampton 115kV Line Upgrade	5/12
SCEG	Lyles-Denny Terrace 115kV Lines 1&2 Upgrade	12/12
SCEG	Lyles-Williams St 115kV Line Upgrade	5/13
SCEG	Canadys-Chuch Ck 230kV Rebuild to SPDC	12/13
SCEG	Belvedere-Stevens Ck 115kV Rebuild to SPDC	5/14
SCEG	Yemassee 336 MVA Autotransformer #3	5/14
SCPSA	Bennettsville-Bennettsville (PEC) 230 kV Interconnection	5/2008
SCPSA	Reconductor Conway-Singleton Ridge Rd. 115 kV Line	5/2008
SCPSA	Bluffton 230/115 kV Substation Transformer Replacement	9/2008
SCPSA	Kingstree-Lake City 230 kV Line	12/2008
SCPSA	Shamrock 230/115/69 kV Substation	6/2009
SCPSA	<u>Varnville</u> -Bluffton 115 kV Line Reconfiguration	6/2009
SCPSA	<u>Rebuild</u> Georgetown-Campfield 115 kV for 230/115 kV	11/2009
SCPSA	Rebuild Burke Road 69 kV Tap for 115 kV	12/2009
SCPSA	Carolina Forest 230/115 kV Substation	6/2010
SCPSA	Carolina Forest-Dunes #2 115 kV Line	6/2010
SCPSA	Pee Dee-Lake City 230 kV Line	1/2011
SCPSA	Mateeba-Johns Island #2 230 kV Line	6/2011
SCPSA	<u>Chime</u> Bell 115 kV Switching Station	11/2011
SCPSA	<u>Arcadia-Garden</u> City #2 115 kV Line	6/2012
SCPSA	<u>Johns</u> Island 115 kV Capacitors (30 MVAR)	6/2012
SCPSA	<u>Hilton</u> Head Gas Turbine-Market Place #2 115 kV Line	6/2012
SCPSA	<u>Pomaria</u> 230/69 kV Substation	12/2012
SCPSA	Carnes Crossroads-Sangaree Tap 115 kV Double-Circuit Rebuild	12/2012
SCPSA	<u>Bennettsville</u> 230/69 kV Substation: Add 230/69 kV Transformer	6/2014
DVP	Garrisonville 230 kV Line (Loop Line #252)	5/09
DVP	Greenwhich 230 kV Cap Bank	5/09
DVP	Bristers-Gainesville 230 kV Line	5/09
DVP	Endless Caverns - Mt Jackson 115 kV Uprate	5/09
DVP	Landstown 230 kV Capbank	5/09
DVP	Shellbank-Whealton 115 kV Uprate	5/09
DVP	Reeves Avenue 230 kV Cap Bank	5/09
DVP	Fentress 230 kV Cap Bank	5/09
DVP	Kitty Hawk-Colington 2 <sup>nd</sup> 115 kV Line	5/09
DVP	Endless Caverns 2 <sup>nd</sup> 230/115 kV TX	5/09
DVP	Possum Point 2 <sup>nd</sup> 230/115 kV TX	5/09

DVP	Chickahominy-Old Church 230 kV Line	11/09
DVP	Elmont 2 <sup>nd</sup> 230/115 kV TX	5/10
DVP	2 <sup>nd</sup> Harrisonburg-Valley 230 kV Line	5/10
DVP	Lanexa 2 <sup>nd</sup> 230/115 kV TX	5/10
DVP	Pleasant View-Hamilton 230 kV	5/10
DVP	Chickahominy – Old Church 230 kV	11/10
DVP	Iron Bridge-Southwest 230 kV Uprate	5/11
DVP	Mount Storm-Meadowbrook-Loudoun 500 kV Line	5/11
DVP	Carson-Suffolk 500 kV Line	5/11
DVP	Suffolk-Thrasher 230 kV Line	5/11
DVP	Pleasant View-Dickerson 230 kV Uprate	5/11
DVP	Everetts 2 <sup>nd</sup> 230/115 kV TX	5/11
DVP	Possum Point 500 kV Interconnect PEPCO	12/11
DVP	Northwest 230 kV Cap Bank	5/12
DVP	Somerset 115 kV Cap Bank	5/12
DVP	Hayes-Yorktown 115 kV Line	5/12
DVP	Remington CT-Gainsville 230 kV Line	4/12
DVP	Arlington-Ballston 230 kV Line	5/12
DVP	Dooms-Lexington 500 kV Line Uprate	5/12
DVP	Ladysmith-North Anna 500 kV Line Uprate	5/13
DVP	Chancellor 2 <sup>nd</sup> 500/115 kV TX	5/13
DVP	Hamilton-Middleburg 230 kV Line	5/13
DVP	Burk-Sideburn 230 kV Line	11/13
DVP	Northern Neck 2 <sup>nd</sup> 230/115 kV TX	5/14
DVP	Harrisonburg-Merk 230 kV Line	5/14
DVP	Landstown-VA Beach 230 kV Uprate	5/15
Yadkin	None	

**EXHIBIT B**  
**GENERATION DISPATCH**

**TABLE B.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000 (MW)</u>	<u>Export 700 (MW)</u>	<u>Import 2000 (MW)</u>	<u>Import 1400 (MW)</u>	<u>Import 200 (MW)</u>
304097	6CG ROXB	230	56			-14		
304458	6I-PCS G	230	42					
304472	6CRVWOOD	230	45					
304552	6E WILM	230	7					
304578	3CG-ELIZ	115	32					
304601	6CGSOPRT	230	103					
304605	3CGKORNG	115	30					
304606	3CG-LUMB	115	32					
304641	3ICG-SMF	115	68					
304862	1BRUN #1	24	950			-950	-950	-200
304863	1BRUN #2	24	940					
304864	1ROB #2	22	720					
304865	1HARR #1	22	910					
304866	1SUTT #1	13.8	93					
304867	1SUTT #2	13.8	102					
304868	1SUTT #3	24	398					
304869	1ROX #1	22	369					
304870	1ROX #2	24	662					
304871	1ROX #3	24	682					
304872	1ROX #4	24	686					
304873	1MAYO #1	20	723					
304874	1ROB #1	18	176					
304875	1LEE #1	13.8	74					
304876	1LEE #2	13.8	77					
304877	1LEE #3	18	248					
304878	1CAPE #5	13.8	139					
304879	1CAPE #6	18	168					
304880	1CAPE #1	12	0	14	14			
304881	1CAPE #2	12	0	14	14			

**TABLE B.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000 (MW)</u>	<u>Export 700 (MW)</u>	<u>Import 2000 (MW)</u>	<u>Import 1400 (MW)</u>	<u>Import 200 (MW)</u>
304883	1WSP #1	13.8	48					
304884	1WSP #2	13.8	49					
304885	1WSP #3	13.8	76					
304888	1TILL #1	13.8	21					
304889	1TILL #2	13.8	18					
304890	1TILL #3	13.8	21					
304891	1TILL #4	13.8	26					
304892	1BLEW1-3	4.8	3					
304892	1BLEW1-3	4.8	3					
304892	1BLEW1-3	4.8	4					
304893	1BLEW4-6	4	4					
304893	1BLEW4-6	4	4					
304893	1BLEW4-6	4	4					
304897	1DCP #1	13.8	56			-46		
304898	1DCP #2	13.8	49			-39	-41	
304899	1DCP #3	13.8	46			-36		
304900	1DCP #4	13.8	52			-42	-42	
304901	1DCP #5	13.8	52			-42	-40	
304902	1DCP #6	13.8	50			-40		
304903	1DCP #7	13.8	54			-44		
304904	1DCP #8	13.8	49			-39	-39	
304905	1DCP #9	13.8	52			-42	-42	
304906	1DCP #10	13.8	51			-41	-41	
304907	1DCP #11	13.8	50			-40	-40	
304913	1LEEIC#1	13.8	0	12	12			
304915	1LEEIC#2	13.8	0	21	21			
304916	1LEEIC#3	13.8	0	21	21			
304918	1LEEIC#4	13.8	0	21	21			
304919	1MORHDIC	13.8	0	12	12			

**TABLE B.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000 (MW)</u>	<u>Export 700 (MW)</u>	<u>Import 2000 (MW)</u>	<u>Import 1400 (MW)</u>	<u>Import 200 (MW)</u>
304920	IROB IC	13.8	8			-8	-8	
304921	1SUTIC#1	13.8	0	11	11			
304922	1SUTIC2A	13.8	0	24	24			
304923	1SUTIC2B	13.8	0	24	24			
304924	1WSPIC#1	13.8	0	33	33			
304925	1WSPIC#2	13.8	0	32	32			
304927	1WSPIC#3	13.8	0	34	34			
304928	1WSPIC#4	13.8	0	33	33			
304930	1CFIC1&2	13.8	0	11	11			
304930	1CFIC1&2	13.8	0	10	10			
304931	1CFIC3&4	13.8	0	11	11			
304931	1CFIC3&4	13.8	0	10	10			
304933	1BLIC1&2	13.8	0	13	13			
304933	1BLIC1&2	13.8	0	13	13			
304934	1BLIC3&4	13.8	0	13	13			
304934	1BLIC3&4	13.8	0	13	13			
304940	1FAYPWC1	13.8	20			-20	-6	
304941	1FAYPWC2	13.8	20			-20	-6	
304942	1FAYPWC3	13.8	20					
304943	1FAYPWC4	13.8	20					
304944	1FAYPWC5	13.8	20					
304945	1FAYPWC6	13.8	20					
304946	1FAYPWC7	13.8	20					
304947	1FAYPWC8	13.8	20					
304948	1FAYPWC9	13.8	65					
304954	1DCP #12	13.8	121			-86	-2	
304955	1DCP #13	13.8	114			-79		

**TABLE B.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
GENERATION DISPATCH**

<u>Bus</u> <u>Number</u>	<u>Generating</u> <u>Station</u>	<u>kV</u>	<u>Base</u> <u>(MW)</u>	<u>Export</u> <u>2000</u> <u>(MW)</u>	<u>Export</u> <u>700</u> <u>(MW)</u>	<u>Import</u> <u>2000</u> <u>(MW)</u>	<u>Import</u> <u>1400</u> <u>(MW)</u>	<u>Import</u> <u>200</u> <u>(MW)</u>
304956	1WYNCO#1	18	170			-75		
304957	1WYNCO#2	18	175			-80		
304958	1WYNCO#3	18	169			-74	-74	
304959	1WYNCO#4	18	165			-70	-70	
304960	1WYNCO#5	18	169			-74		
304971	1RICHCT1	18	156					
304972	1RICHCT2	18	158					
304973	1RICHCT3	18	158					
304974	1RICHCT4	18	160					
304975	1RICHCT5	18	156					
304976	1RICHEMC	13.8	282					
304977	1RICHCC1	18	466					
304978	1RICH CC2	18	643					
304986	1LILEMC	13.8	336					
	Load Scale			1600	300			
	<b>Total</b>			2000	700	-2000	-1400	-200

**TABLE B.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
GENERATION DISPATCH**

<b>Bus Number</b>	<b>Generating Station</b>	<b>kV</b>	<b>Base (MW)</b>	<b>Import 700 (MW)</b>
304803	6ASHEVL	230	110	-110
304851	1ASHV #1	18	191	-191
304852	1ASHV #2	20	170.5841	
304853	1WALT #1	13.8	36	
304854	1WALT #2	13.8	40	-28
304855	1WALT #3	13.8	36	-36
304856	1MARS1&2	4.16	2.5	
304856	1MARS1&2	4.16	2.5	
304858	1ASHVCT1	18	168	-168
304859	1ASHVCT2	18	167	-167
	<b>Total</b>		924	-700

**TABLE B.2  
DUKE ENERGY CAROLINAS  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000 (MW)</u>	<u>Export CW 700 (MW)</u>	<u>Import CE 2000 (MW)</u>	<u>Import SG 1400 (MW)</u>	<u>Import SC 1400 (MW)</u>	<u>Import DVP 2000 (MW)</u>	<u>Import YD 200 (MW)</u>
306001	McGuire 1	230	1145							-200
306002	McGuire 2	500	1145							
306003	Catawba 1	230	1160			-1160		-1160		
306004	Catawba 2	230	1160			-840		-240		
306005	Oconee 1	230	863				-834			
306006	Oconee 2	230	863							
306007	Oconee 3	500	863							
306008	Belews 1	230	1137						-1137	
306009	Belews 2	230	1137						-863	
306010	Marshall 1	230	356							
306011	Marshall 2	230	358							
306012	Marshall 3	230	694							
306013	Marshall 4	230	708							
306014	Allen 1	100	174							
306015	Allen 2	100	172							
306016	Allen 3	230	271							
306017	Allen 4	230	286							
306018	Allen 5	100	290							
306021	Buck 5	100	129							
306022	Buck 6	100	126	4	4					
306028	Cliffside 5	230	566				-566			
306460	Cliffside 6	500	880							
306033	Lee 1	100	68	28	28					
306034	Lee 2	100	73	29	29					
306035	Lee 3	100	149	23	23					
306036, 306462	Lee CTs 7-8	100	86							
306039	Riverbend 6	230	134							
306040	Riverbend 7	100	135							
306042	Lincoln CTs	230	1027	237	237					
306059	Bad Creek	500	1400							
306061	Jocassee	230	804							
306065	Keowee	230	160							
306096	Cowans Ford 1	230	81							
306097	Cowans Ford 2	230	81							
306098	Cowans Ford 3	230	81							
306099	Cowans Ford 4	230	81							

**TABLE B.2  
DUKE ENERGY CAROLINAS  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000 (MW)</u>	<u>Export CW 700 (MW)</u>	<u>Import CE 2000 (MW)</u>	<u>Import SG 1400 (MW)</u>	<u>Import SC 1400 (MW)</u>	<u>Import DVP 2000 (MW)</u>	<u>Import YD 200 (MW)</u>
306108-9	Cherokee	100	92							
306435	Rockingham	230	825							
306445	Mill Creek	230	608							
306537	Rowan	500	637	308	308					
306540	Broad River Energy Center	230	875							
306565-67	Buck CC	230	621							
306570-72	Dan River CC	100	621							
306574-76	Newport CC	230	0							
306736-39	Rockingham CTs 6-9	230	0	700	71					
306066	Misc. Hydro	-	672.19							
	Load Scale			671						
	Total		23794.19	2000	700	-2000	-1400	-1400	-2000	-200

**TABLE B.3  
SOUTH CAROLINA ELECTRIC AND GAS  
GENERATION DISPATCH**

<u>Bus No</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base Case (MW)</u>	<u>Import 200</u>	<u>Import 1400</u>	<u>Import 2000</u>	<u>Export 1400</u>
370330	Stevens Creek	115	9				
370800	A.M. Williams	20	615		-615	-615	
370801	Parr Hydro	2.3	7				
370803	V.C. Summer 1	22	966				
370804	Wateree 1	22	350		-350	-350	
370805	Wateree 2	22	350		-350	-250	
370808	McMeekin 1	13.2	125				
370809	McMeekin 2	13.2	125				
370811	Hagood Gas Turbine	13.8	88				
370812	Canadys 1	14.4	105				
370813	Canadys 2	14.4	115				
370814	Canadys 3	19	185				
370821	Fairfield 1	13.8	72	-72	-22	-53	
370822	Fairfield 2	13.8	72	-72	-22	-52	
370823	Fairfield 3	13.8	72	-56	-21	-52	
370824	Fairfield 4	13.8	72		-20	-52	
370825	Fairfield 5	13.8	70			-52	
370826	Fairfield 6	13.8	70			-52	
370827	Fairfield 7	13.8	72			-52	
370828	Fairfield 8	13.8	72				
370831	Jasper 1	18	153				
370832	Jasper 2	18	158				
370833	Jasper 3	18	160				
370834	Jasper 4	21	382				
370841	Urquhart GT 1	13.8	0				12
370842	Urquhart GT 2	13.8	0				14
370843	Urquhart GT 3	13.8	0				12
370851	Saluda Hydro 1	13.2	0				34
370852	Saluda Hydro 2	13.2	0				34
370853	Saluda Hydro 3	13.2	0				34
370854	Saluda Hydro 4	13.2	0				34
370855	Saluda Hydro 5	13.2	50.9				
370861	Bushy Park Gas Turbine	13.8	40				
370871	Urquhart 1	13.8	70				
370872	Urquhart 2	13.8	67				
370873	Urquhart 3	13.8	94				
370874	Urquhart ICT 4	13.8	0				49
370875	Urquhart ICT 5	18	173				
370876	Urquhart ICT 6	18	171				
370880	Cope	24	420			-420	
370881	Columbia Energy 1	18	0				
370882	Columbia Energy 2	18	0				
370883	Columbia Energy 3	18	0				
370884	Canadys UN1	13.8	0				
370885	Yemasee UN1	13.8	0				
370886	Yemasee UN2	13.8	0				132
370887	Jasper UN1	13.8	131.8				
370888	Jasper UN2	13.8	0				
370891	Parr 1	13.8	0				27
370893	Parr 3	13.8	0				28
370894	Westvaco	23.8	90				
370895	Union Camp 1	13.8	0				26
370896	Union Camp 2	13.8	0				33

<b><u>Bus No</u></b>	<b><u>Generating Station</u></b>	<b><u>kV</u></b>	<b><u>Base Case (MW)</u></b>	<b><u>Import 200</u></b>	<b><u>Import 1400</u></b>	<b><u>Import 2000</u></b>	<b><u>Export 1400</u></b>
370911	Station 41 Load Scale	115	10.6				931
Totals				-200	-1400	-2000	1400

**TABLE B.4**  
**SOUTH CAROLINA PUBLIC SERVICE AUTHORITY**  
**GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 1400 (MW)</u>	<u>Import 1400 (MW)</u>	<u>Import 2000 (MW)</u>
311450	Cross 1	115	573		-573	
311451	Cross 2	20	570			
311452	Winyah 2	2.3	285			
311453	Winyah 3	22	285	-285	-285	
311454	Winyah 4	22	285			
311463	Grainger 1	22	83			
311464	Grainger 2	13.2	83			
311465	HHGT 3	13.2	52			
311466	Jefferies Hydro 1	13.8	30			
311467	Jefferies Hydro 2	14.4	29			
311468	Jefferies Hydro 3	14.4	29			
311469	Jefferies Hydro 4	19	29			
311470	Jefferies Hydro 6	13.8	10			
311471	Jefferies 1	13.8	46			-27
311472	Jefferies 2	13.8	46			
311473	Jefferies 3	13.8	153			
311474	Jefferies 4	13.8	153			
311475	MBGT 3	13.8	19			
311476	MBGT 4	13.8	19			
311477	MBGT 5	13.8	27			
311478	Winyah 1	18	275			
311479	St. Stephen 1	18	28			
311480	St. Stephen 2	18	28			
311481	St. Stephen 3	21	28			
311482	Hilton Head GT 1	13.8	19			
311483	Hilton Head GT 2	13.8	19			
311484	Myrtle Beach GT 1	13.8	10			
311485	Myrtle Beach GT 2	13.2	10			
311493	Rainey 1A	13.2	146	-146	-146	
311494	Rainey 1B	13.2	146	-146	-146	
311495	Rainey 1C	13.2	155	-155	-155	
311496	Rainey 2A	13.2	146			
311497	Rainey 2B	13.8	146			
311499	Cross 3	13.8	590	-590	-590	
311500	Cross 4	13.8	620			
311502	Rainey 3	13.8	74	-74	-74	
311503	Rainey 4	18	74	-4	-4	
311504	Rainey 5	18	74			
311653	Pee Dee 1	18	609			
	Load Scale					1400
	Totals			-1400	-2000	1400

**TABLE B.5  
DOMINION VIRGINIA POWER  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 2000* (MW)</u>	<u>Import 1400 (MW)</u>	<u>Import 2000 (MW)</u>
315058	Chesterfield 3	14.4	100		-79	
315060	Chesterfield 5	22	329		-329	-286
315061	Chesterfield G7	13.8	135		-135	
315116	Surry 1	22	857		-857	-857
315233	Surry 2	22	857			-857
	Scaled Load			2000		
Total				2000	-1400	-2000

**TABLE B.6  
YADKIN  
GENERATION DISPATCH**

<u>Bus Number</u>	<u>Generating Station</u>	<u>kV</u>	<u>Base (MW)</u>	<u>Export 200 (MW)</u>
339001	Badin - Narrows	100	8	90
339001	Badin - Falls	100	0	35
339003	High Rock	100	0	33
339005	Tuckertown	100	0	<u>42</u>
	Total		8	200

**EXHIBIT C**  
**DETAILED INTERCHANGE**

**TABLE C.1**  
**PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT**  
**DETAILED INTERCHANGE**

Carolina Power and Light East Scheduled Imports/Purchases

CPLW	150 MW
SCPSA (Foster-Wheeler)	9 MW
Duke (Broad River)	850 MW
Duke (NCEMC/CNS)	105 MW
DVP (Kerr Dam)	95 MW
AEP (NCEMC)	100 MW
AEP (NCEMC #2)	<u>100 MW</u>
Total	1409 MW

Carolina Power and Light East Scheduled Exports/Sales

Duke (City of Seneca)	30 MW
Duke (NEMC)	100 MW
DVP (NCEMPA and Littleton)	176 MW
DVP (Craven County Wood Energy)	<u>47 MW</u>
Total	353 MW

CPLW Net Interchange -1056 MW

Carolina Power and Light West Scheduled Imports/Purchases

Duke	150 MW
TVA (SEPA)	<u>1 MW</u>
Total	151 MW

Carolina Power and Light West Scheduled Exports/Sales

CPLW	<u>150 MW</u>
Total	150 MW

CPLW Net Interchange -1 MW

Note:

Positive net interchange indicates an export and negative interchange an import.

**TABLE C.2**  
**DUKE ENERGY CAROLINAS**  
**DETAILED INTERCHANGE**

Duke Energy Carolinas Scheduled Imports/Purchases

CPLE (City of Seneca)	30 MW
CPLE (NCEMC)	100 MW
SCEG (City of Greenwood)	56 MW
SCPSA (New Horizons/NHEC)	985 MW
SEPA (Hartwell)	155 MW
SEPA (Thurmond)	<u>113 MW</u>
Total	1439 MW

Duke Energy Carolinas Scheduled Exports/ Sales

CPLE (Broad River)	850 MW
CPLE (NCEMC/CNS)	105 MW
CPLE (PEC/Rowan)	150 MW
DVP (NCEMC/CNS)	100 MW
SCEG (City of Orangeburg)	<u>189 MW</u>
Total	1394 MW

Net Interchange	-45 MW
-----------------	--------

Note:

Positive net interchange indicates an export and negative interchange an import.

**TABLE C.3**  
**SOUTH CAROLINA ELECTRIC AND GAS**  
**DETAILED INTERCHANGE**

South Carolina Electric & Gas Interchange Schedule

CPLC (NCEMC)	0 MW
Duke (Greenwood)	57 MW
SCPSA (VC Summer)	322 MW
SCPSA (Charleston Navy Yard)	-21 MW
SCPSA (Woodland Hills)	-17 MW
SCPSA (NHEC)	<u>-18 MW</u>
	266 MW Net
SETH (SEPA)	-22 MW
Total Net Interchange	300 MW

Note:

Positive net interchange indicates an export and negative interchange an import.



**TABLE C.5**  
**DOMINION VIRGINIA POWER**  
**DETAILED INTERCHANGE**

Dominion Virginia Power Scheduled Imports/Purchases

AEP (Philpot)	15 MW
AEP (Aquenergy)	2 MW
CPLE (Power Agency and Littleton)	176 MW
CPLE (PJM-Cravenwood)	47 MW
Duke (NCEMC)	<u>100 MW</u>
Total	340 MW

Dominion Virginia Power Scheduled Exports/Sales

AP (Bath County)	1212 MW
CPLE (Kerr Dam)	<u>95 MW</u>
Total	1307 MW

Net Interchange	967 MW
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Note:

Positive net interchange indicates an export and negative interchange an import.

**TABLE C.6  
YADKIN  
DETAILED INTERCHANGE**

APGI - Yadkin Scheduled Imports/Purchases

No Imports

APGI - Yadkin Scheduled Exports/Sales

No Exports

Yadkin Net Interchange                      0 MW

Note:

Positive net interchange indicates an export and negative interchange an import.

**EXHIBIT D**  
**OUTAGED FACILITIES**

**TABLE D.1  
PROGRESS ENERGY CAROLINAS - CAROLINA POWER AND LIGHT  
OUTAGED FACILITIES**

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Asheboro	Asheboro East	115	North	Wateree	Transformer	115/100	1
Asheboro	Asheboro East	115	South	Robinson	Transformer	230/115	1
Asheboro	Biscoe	230	1	Robinson	Transformer	230/115	2
Asheboro	Siler City	230	1	Cape Fear	Transformer	230/115	1
Asheboro	Siler City	115	1	Cape Fear	Transformer	230/115	2
Asheboro E	Biscoe	115	1	Weatherspoon	Transformer	230/115	1
Aurora	Greenville	230	1	Henderson	Transformer	230/115	1
Aurora	New Bern	230	1	Henderson	Transformer	230/115	2
Biscoe	Rockingham	230	1	Concord	Transformer	230/115	1
Black Creek	Wilson	115	East	Method	Transformer	230/115	1
Black Creek	Wilson	115	West	Method	Transformer	230/115	2
Blewett	Rockingham	115	1	Milburnie	Transformer	230/115	1
Blewett	Tillery	115	1	Milburnie	Transformer	230/115	2
Brunswick1	Castle Hayne	230	1	Selma	Transformer	230/115	1
Brunswick1	Delco	230	1	Selma	Transformer	230/115	2
Brunswick1	Jacksonville	230	1	Falls	Transformer	230/115	1
Brunswick1	Weatherspoon Plant	230	1	Falls	Transformer	230/115	2
Brunswick2	Delco	230	1	Erwin	Transformer	230/115	1
Brunswick2	Wallace	230	1	Erwin	Transformer	230/115	2
Brunswick2	Whiteville	230	1	Zebulon	Transformer	230/115	1
Brunswick2	Wilmington Corn. Sw Sta	230	1	Clinton	Transformer	230/115	1
Camden	Camden Dupont	115	1	Rocky Mt	Transformer	230/115	1
Camden	Camden Junction	115	1	Rocky Mt	Transformer	230/115	2
Camden	Lugoff	230	1	Wilson	Transformer	230/115	1
Camden Dup.	Wateree	115	1	Wilson	Transformer	230/115	2
Camden Junction	Wateree	115	1	Lee	Transformer	230/115	1
Cape Fear	Biscoe	115	1	Lee	Transformer	230/115	2
Cape Fear	Erwin	115	1	Mt Olive	Transformer	230/115	1
Cape Fear	Harris	230	North	Biscoe	Transformer	230/115	1
Cape Fear	Harris	230	South	Asheboro	Transformer	230/115	1
Cape Fear	Method	230	1	Asheboro	Transformer	230/115	2
Cape Fear	West End	230	1	Siler City	Transformer	230/115	1
Cary Regency	Durham	230	1	Badin	Transformer	115/100	1
Cary Regency	Method	230	1	Badin	Transformer	115/100	2
Castle Hayne	Jacksonville	230	1	Rockingham	Transformer	230/115	1
Castle Hayne	Wilmington Corn. Sw Sta	230	1	Rockingham	Transformer	230/115	2
Castle Hayne	Jacksonville City	115	1	West End	Transformer	230/115	1
Castle Hayne	Wallace	115	1	West End	Transformer	230/115	2
Chestnut Hills	Falls	115	1	Fayetteville	Transformer	230/115	1
Chestnut Hills	Milburnie	115	1	Fayetteville	Transformer	230/115	2
Clinton	Erwin	230	1	Ft Bragg Wdrf St	Transformer	230/115	1
Clinton	Vander	115	1	Raeford	Transformer	230/115	1
Clinton	Wallace	230	1	Raeford	Transformer	230/115	2
Concord	Roxboro	115	1	Laurinburg	Transformer	230/115	1
Cumberland	Delco	230	1	Laurinburg	Transformer	230/115	2
Cumberland	Fayetteville	230	North	New Bern	Transformer	230/115	1
Cumberland	Fayetteville	230	South	New Bern	Transformer	230/115	2
Cumberland	Richmond	500	1	Kinston Dup	Transformer	230/115	1
Cumberland	Wake	500	1	Havelock	Transformer	230/115	1
Cumberland	Whiteville	230	1	Havelock	Transformer	230/115	2
Darlington	Florence	230	1	Morehead WW	Transformer	230/115	1
Darlington	Laurinburg	230	1	Wommack	Transformer	230/115	1
Darlington	Sumter	230	1	Wommack	Transformer	230/115	2
Darlington	Robinson	230	North	Wallace	Transformer	230/115	1
Darlington	Robinson	230	South	Jacksonville	Transformer	230/115	1
Darlington	South Bethune	230	1	Jacksonville	Transformer	230/115	2
Delco	Whiteville	115	1	Castle Hayne	Transformer	230/115	1
Durham	E. Durham	230	1	Castle Hayne	Transformer	230/115	2
Durham	Method	230	1	Delco	Transformer	230/115	1
Erwin	Fayetteville East	230	1	Delco	Transformer	230/115	2
Erwin	Fayetteville	115	1	Whiteville	Transformer	230/115	1
Erwin	Milburnie	230	1	Barnard Creek W	Transformer	230/115	1

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Erwin	Selma	230	1	Barnard Creek E	Transformer	230/115	1
Falls	Franklinton	115	1	Marion	Transformer	230/115	1
Falls	Henderson	115	1	Marion	Transformer	230/115	2
Falls	Method	115	1	Florence	Transformer	230/115	1
Falls	Milburnie	230	1	Florence	Transformer	230/115	2
Fayetteville	Fay. Dup. Sw.Sta	115	1	Kingstree	Transformer	230/115	1
Fayetteville	Fayetteville East	230	1	Sumter	Transformer	230/115	1
Fayetteville	Ft. Bragg Wdrff St	230	1	Sumter	Transformer	230/115	2
Fayetteville	Raeform	230	1	Camden	Transformer	230/115	1
Fayetteville	Rockingham	230	1	Pisgah	Transformer	115/100	1
Fayetteville	Vander	115	North	Pisgah	Transformer	115/100	2
Fayetteville	Vander	115	South	Walters	Transformer	138/115	1
Fayetteville East	Ft. Bragg Wdrff St	230	1	Walters	Transformer	161/115	1
Florence	Kingstree	230	1	Enka	Transformer	230/115	1
Florence	Latta	230	1	Craggy	Transformer	230/115	1
Florence	Marion	115	1	Craggy	Transformer	230/115	2
Florence	SCPSA Darlington	230	1	Cane River	Transformer	230/115	1
Florence	Hemingway	115	1	Asheville	Transformer	230/115	1
Franklinton	Henderson	115	1	Asheville	Transformer	230/115	2
Franklinton	Spring Hope Sw.Sta	115	1	Asheville	Pisgah	230	1
Goldboro	Kinston Dup.	115	1	Asheville	Pisgah	230	2
Goldboro	Lee	115	1	Asheville	Horseshoee	115	1
Goldboro	Wommack	115	1	Cane River	Nagel	230	1
Greenville	Everetts	230	1	Walters	Douglas	138	1
Greenville	Wilson	230	1	Walters	Canton	115	1
Harris	Cary Regency Park	230	1	Walters	Canton	115	2
Harris	Erwin	230	1	Canton	Hazelwood	115	1
Harris	Ft. Bragg Wdrff St	230	1	Canton	Pisgah	115	1
Harris	Siler City	230	1	Canton	Craggy	115	1
Harris	Wake	230	1	Canton	Enka	115	1
Havelock	Jacksonville	230	1	Walters	Holston	161	1
Havelock	Morehead Wildwood	115	North	Craggy	Enka	115	1
Havelock	Morehead Wildwood	115	South	Asheville	Enka	115	1
Havelock	Morehead Wildwood	230	1	Enka	W. Asheville	115	1
Havelock	New Bern	115	1	Asheville	Enka	115	2
Havelock	New Bern	230	1	Asheville	Enka	230	1
Henderson	Person	230	1	Cane River	Craggy	115	1
Henderson	Roxboro	115	1	Craggy	Vanderbilt	115	1
Henderson	Kerr Dam	115	1	Marshall	Craggy	115	1
Jacksonville	Jacksonville City	115	East	Craggy	W. Asheville	115	1
Jacksonville	Jacksonville City	115	West	Marshall	Cane River	115	1
Jacksonville	New Bern	230	1	Cane River	Craggy	230	1
Jacksonville	Wallace	230	1	Vanderbilt	W. Asheville	115	1
Jacksonville	Wommack	115	1	Oteen	W. Asheville	115	1
Kingstree	Sumter	115	1	Asheville	Oteen	115	East
Kinston Dup	Wommack	230	1	Asheville	Oteen	115	West
Kinston Dup	New Bern	115	1	Robinson	SCPSA Darlington	230	1
Latta	Marion	230	1	Robinson	Sumter	230	1
Lauringburg	Richmond	230	1	Rockingham	West End	230	East
Lauringburg	Wagram	115	1	Rockingham	West End	230	West
Lee Plant	Black Creek	115	East	Rocky Mt	Spring Hope SS	115	1
Lee Plant	Black Creek	115	West	Rocky Mt	Battelboro	115	1
Lee Plant	Clinton	115	1	Rocky Mt	Edgecombe	230	1
Lee Plant	Goldsboro	115	North	Rocky Mt	Hornertown	230	1
Lee Plant	Goldsboro	115	South	Rocky Mt	Wilson	115	1
Lee Plant	Lee	115	North	Rocky Mt	Wilson	230	1
Lee Plant	Lee	115	South	Roxboro	Danville	230	North
Lee Plant	Selma	115	1	Roxboro	Danville	230	South
Lee	Milburnie	230	1	Roxboro	E. Durham	230	East
Lee	Selma	230	1	Roxboro	E. Durham	230	West
Lee	Wallace	230	1	Roxboro	Eno	230	Black
Lee	Wommack	230	North	Roxboro	Eno	230	White
Lee	Wommack	230	South	Roxboro	Falls	230	1
Lilesville	Oakboro	230	Black	Roxboro	Person	230	1
<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>

Lilesville	Oakboro	230	White	Roxboro	Person	230	2
Lilesville	Rockingham	230	1	Roxboro	Person	230	3
Marion	SCPSA Marion	230	North	Selma	Wake	230	1
Marion	SCPSA Marion	230	South	Spring Hope SS	Zebulon	115	1
Marion	Whiteville	230	1	Sumter	Canadys	230	1
Mayo	Person	500	1	Sumter	Eastover	115	1
Mayo	Durham	500	1	Sumter	Wateree	230	1
Durham	Wake	500	1	Sutton	Castle Hayne	230	1
Method	E. Durham	230	1	Sutton	Castle Hayne	115	North
Method	Milburnie	115	North	Sutton	Castle Hayne	115	South
Method	Milburnie	115	South	Sutton	Delco	230	1
Method	Milburnie	230	1	Sutton	Delco	115	1
Method	Raleigh	115	1	Sutton	Wallace	230	1
Milburnie	Mordecai	115	1	Tillery	Badin	115	Black
Milburnie	Person	230	1	Tillery	Badin	115	White
Milburnie	Selma	115	1	Tillery	Biscoe	115	1
Milburnie	Wake	230	1	Wake	Carson	500	1
Milburnie	Zebulon	115	1	Wake	Zebulon	230	1
Mordecai	Raleigh	115	1	Weatherspoon	Fay. Dup. Sw.Sta	115	1
Morehead WW	Atlantic Beach	115	1	Weatherspoon	Delco	115	1
New Bern	Wommack	230	North	Weatherspoon	Fayetteville	230	1
New Bern	Wommack	230	South	Weatherspoon	Latta	230	1
Person	Rocky Mt	230	1	Weatherspoon	Laurinburg	230	1
Person	Halifax	230	1	Weatherspoon	Lumberton	115	1
Raeford	Richmond	230	1	Weatherspoon	Marion	115	1
Raeford	Wagram	115	1	Weatherspoon	Raeford	115	1
Richmond	Newport	500	1	Wilson	Zebulon	230	1
Richmond	Rockingham	230	East	Asheboro	Pleasant Garden	230	1
Richmond	Rockingham	230	West	Harris	RTP	230	1
Robinson	Camden Junction	115	1	Bennettsville	SCPSA Benetsvill	230	1
Robinson	Florence	115	1	Durham	Falls	230	1
Robinson	Florence	230	1	Marion	Whiteville	230	1
Robinson	Rockingham	115	1	Clinton	Lee	230	1
Robinson	Rockingham	230	1	Greenville	Kinston Dup.	230	1

**TABLE D.2  
DUKE ENERGY CAROLINAS  
OUTAGED FACILITIES**

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Asheboro	Transformer	230/115	1	East Spartanburg	West Spartanburg	100	2
Hendersonville	Horseshoe	100	1	Tiger	West Spartanburg	100	1
Hendersonville	Horseshoe	100	2	Tiger	West Spartanburg	100	2
Lee	Perry Tap W	100	1	East Greenville	Cane Creek	100	1
Shady Grove	Greenbriar	100	1	Tiger	Cane Creek	100	1
Lawson Fork	West Spartanburg	100	1	Tiger	Cane Creek	100	2
Bridgewater	McDowell	100	1	East Greenville	Oakvale	100	1
Horseshoe	Pisgah	100	1	East Greenville	Oakvale	100	2
Campobello	Hendersonville	100	2	Oakvale	Shady Grove	100	1
Campobello	Tiger	100	1	Greenville	Shady Grove	100	1
Campobello	Tiger	100	2	Greenville	Shady Grove	100	2
North Greenville	Tiger	100	1	East Greenville	Greenville	100	1
North Greenville	Tiger	100	2	Cliffside	Inman	100	1
Greenville	North Greenville	100	1	Inman	Tiger	100	1
Greenville	North Greenville	100	2	Cliffside	Tiger	100	1
Greenville	North Greenville	100	4	Cliffside	Peach Valley	100	1
Easley	Greenlawn	100	1	Cliffside	Peach Valley	100	2
Easley	North Greenville	100	1	East Spartanburg	Peach Valley	100	1
Greenlawn	North Greenville	100	1	East Spartanburg	Peach Valley	100	2
Central	Greenlawn	100	1	Cliffside	Cliffside 2	100	1
Central	Greenlawn	100	2	Campobello	Cliffside	100	1
Lee	Toxaway	100	1	Campobello	Cliffside	100	2
Belton	Lee	100	1	Gaffney	Cliffside 2	100	1
Central	Lee	100	1	Gaffney	Cliffside 2	100	2
Lee	Piercetown	100	1	Cliffside	Fairview	100	1
Central	Piercetown	100	1	Cliffside	Fairview	100	2
Lee	Shady Grove	100	1	Cliffside	Fairview	100	3
Lee	Shady Grove	100	2	Cliffside	Fairview	100	4
Lee	Shady Grove	100	4	East Greenville	Tiger	100	1
Anderson	Toxaway	100	1	East Greenville	Tiger	100	2
Belton	Toxaway	100	1	Blacksburg	Shelby	100	1
Belton	Hodges	100	1	Chester	McDowell 2	100	1
Belton	Hodges	100	2	Lancaster	Monroe	100	2
Coronaca	Hodges	100	1	Allen	Peacock	100	1
Coronaca	Hodges	100	2	Allen	Peacock	100	2
Greenwood	Hodges	100	2	Breeden Sw Sta	Longview	100	1
Clark Hill	Greenwood	100	1	Breeden Sw Sta	Longview	100	2
Clark Hill	Greenwood	100	2	Newport	Peacock	100	1
Creto	Greenwood	100	1	Lookout	Stamey	100	1
Creto	WMGOTNNS	100	1	Lookout	Stamey	100	2
WMGOTNNS	Coronaca	100	1	Lincolnton	Riverbend	100	1
Buzzards Roost	Creto	100	1	Lincolnton	Riverbend	100	2
Bush River	Buzzards Roost	100	1	Bridgewater	Breeden Sw Sta	100	1
Bush River	Buzzards Roost	100	2	Bridgewater	Breeden Sw Sta	100	2
Bush River	Laurens	100	1	Chester	Great Falls	100	1
Laurens	Lee	100	1	Hilltop	Peacock	100	1
Laurens	Lee	100	2	Hilltop	Shelby	100	1
Bush River	Morris Sw Sta B	100	1	Hilltop	Shelby	100	2
Morris Sw Sta W	Pacolet	100	1	BROEWTWA	Great Falls 1	100	1
Gaffney	Pacolet	100	2	BROEWTWA	Great Falls 1	100	2
Cherokee	Pacolet	100	1	Great Falls 1	Lancaster	100	1
Cherokee	Gaffney	100	1	Fishing Creek	Great Falls 1	100	1
East Spartanburg	Pacolet	100	1	Fishing Creek	Lancaster	100	1
East Spartanburg	Pacolet	100	2	McAdenville	Peacock	100	1
Lawson Fork	Pacolet	100	1	McAdenville	Peacock	100	2
Lawson Fork	Peach Valley	100	1	Newport	Wylie Hydro	100	1

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
East Spartanburg	West Spartanburg	100	1	Newport	Wylie Hydro	100	2
Hickory	Lookout	100	1	Mocksville	Stamey	100	1
Hickory	Lookout	100	2	Mocksville	Stamey	100	2
BROEWTWA	Wylie Hydro	100	1	Buck S34	Buck Tie	100	1
BROEWTWA	Wylie Hydro	100	2	Concord	Harrisburg	100	1
BROEWTWA	PSAPTRS	100	1	Concord	Harrisburg	100	2
Great Falls 1	PSAPTRS	100	1	Abbotts Creek	Linden Street	100	1
Hickory	Longview	100	1	Abbotts Creek	Buck Tie	100	1
Hickory	Longview	100	2	Linden Street	Tomasville	100	1
Allen	McAdenville	100	1	Buck Tie	Tomasville	100	1
McAdenville	Riverbend	100	1	Mitchell River	North Wilkesboro	100	1
McAdenville	Riverbend	100	2	Mitchell River	North Wilkesboro	100	2
BROEWTWA	Newport	100	1	Beckerdite	Robbins Road Sw Sta	100	1
Hickory	Lincolnton	100	1	Oxford Hydro	Stamey	100	1
Hickory	Lincolnton	100	2	Bannertown	Mitchell River	100	1
Great Falls 1	Wateree	100	1	Bannertown	Mitchell River	100	2
Allen	Wylie Hydro	100	1	Rural Hall	Shattalon Sw Sta	100	1
Albemarle	Oakboro	100	1	Rural Hall	Shattalon Sw Sta	100	3
Albemarle	Badin	100	1	Rural Hall	Shattalon Sw Sta	100	4
Amity	Morning Star	100	1	Robbins Road Sw Sta	Winston	100	1
Amity	Morning Star	100	2	Robbins Road Sw Sta	Winston	100	2
Harrisburg	North Charlotte	100	1	North Winston W	Shattalon Sw Sta	100	1
Amity	Harrisburg	100	1	Madison	Walnut Cove	100	1
Amity	Woodlawn	100	1	Madison	Walnut Cove	100	2
Woodlawn	Wylie Hydro	100	1	North Greensboro	Robbins Road Sw Sta	100	1
Woodlawn	Wylie Hydro	100	2	North Greensboro	Robbins Road Sw Sta	100	2
Allen	Woodlawn	100	1	Dan River	North Greensboro	100	1
North Charlotte	Woodlawn	100	1	Dan River	North Greensboro	100	2
North Charlotte	Woodlawn	100	2	Dan River	Madison	100	1
Lakewood	North Charlotte	100	1	Dan River	Madison	100	2
Lakewood	North Charlotte	100	2	Glen Raven	North Greensboro	100	1
Lakewood	Riverbend	100	1	Glen Raven	North Greensboro	100	2
Lakewood	Riverbend	100	2	Greensboro	North Greensboro	100	1
Lakewood	Riverbend	100	3	Greensboro	North Greensboro	100	2
Lakewood	Riverbend	100	4	Greensboro	Linden Street	100	1
Concord	Wincoff	100	1	Mebane	Pleasant Garden	100	1
Concord	Wincoff	100	2	Eno	Mebane	100	1
China Grove	Wincoff	100	1	Eno	Mebane	100	2
China Grove	Wincoff	100	2	Durham	Eno	100	1
China Grove	Wincoff	100	3	Durham	Eno	100	2
Albemarle	Buck Tie	100	1	Crest Street	Durham	100	1
Albemarle	Buck Tie	100	2	Crest Street	Durham	100	2
Buck S34	Wincoff	100	1	Crest Street	Eno	100	1
Buck S34	Wincoff	100	2	Eno	Glen Raven	100	1
Buck S34	Salisbury	100	1	Durham	East Durham	100	1
China Grove	Westfork	100	1	Ashe Street	East Durham	100	1
China Grove	Westfork	100	2	Ashe Street	Durham	100	1
Stamey	Statesville	100	1	Linden Street	Pleasant Garden	100	1
Riverbend	Westfork	100	1	Linden Street	Pleasant Garden	100	2
Westfork	Wincoff	100	1	Glen Raven	Pleasant Garden	100	1
Westfork	Wincoff	100	2	Glen Raven	Pleasant Garden	100	2
Riverbend	Wincoff	100	1	Parkwood	Eno	100	1
Poplar Sw Sta	Statesville	100	1	Parkwood	Eubanks Tap B	100	1
Poplar Sw Sta	Statesville	100	2	Eno	Eubanks Tap B	100	1
Buck S34	Poplar Sw Sta	100	1	Ashe Street	TGTESMDE	100	1
Buck S34	Poplar Sw Sta	100	2	Ashe Street	Parkwood	100	1
China Grove	Salisbury	100	1	Rural Hall	Walnut Cove	100	1
China Grove	Salisbury	100	2	Beckerdite	Shattalon Sw Sta	100	1

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Beckerdite	Shattalon Sw Sta	100	2	McGuire Nuclear Sta	Woodleaf Sw Sta	500	1
Beckerdite	Buck S34	100	1	Pleasant Garden	Woodleaf Sw Sta	500	1
Beckerdite	Buck S34	100	2	Newport	Oconee Nuclear Sta	500	1
North Wilkesboro	Oxford Hydro	100	1	Jocassee Hydro	Oconee Nuclear Sta	500	1
North Wilkesboro	Oxford Hydro	100	2	Jackson Ferry	Transformer	765/500	1
Beckerdite	Greensboro	100	1	Newport	Richmond	500	1
Beckerdite	Winston	100	1	Parkwood	Pleasant Garden	500	1
Dan River	Sadler	100	1	Marshall	McGuire Nuclear Sta	230	1
Dan River	Sadler	100	3	McGuire Nuclear Sta	Riverbend	230	1
Bannertown	Rural Hall	100	1	Lincoln	Riverbend	230	1
Bannertown	Rural Hall	100	2	Harrisburg	McGuire Nuclear Sta	230	1
Robbins Road Sw Sta	Walnut Cove	100	1	Harrisburg	McGuire Nuclear Sta	230	3
Robbins Road Sw Sta	Walnut Cove	100	2	Allen	Catawba Nuclear Sta	230	1
Shattalon Sw Sta	Winston	100	1	Catawba Nuclear Sta	Newport	230	1
Glen Raven	Sadler	100	1	Catawba Nuclear Sta	Newport	230	3
Glen Raven	Sadler	100	2	Catawba Nuclear Sta	Pacolet	230	1
Glen Raven	Sadler	100	3	Catawba Nuclear Sta	Peacock	230	1
Glen Raven	Sadler	100	4	Catawba Nuclear Sta	Ripp Sw Sta	230	1
Mocksville	Winston	100	1	Jocassee Hydro	Oconee Nuclear Sta	230	1
Mocksville	Winston	100	2	Central	Oconee Nuclear Sta	230	1
Bush River	Buzzards Roost	44	1	North Greenville	Oconee Nuclear Sta	230	1
Buzzards Roost	Joanna Sw Sta	44	1	Jocassee Hydro	Tuckasegee	230	1
Clinton	Joanna Sw Sta	44	1	Jocassee Hydro	Shiloh Sw Sta	230	1
Blacksburg	Ninety-Nine Islands	44	1	Hartwell	Anderson	230	1
Blacksburg	Gaston Shoals	44	1	Beckerdite	Belews Creek	230	1
Gaffney	Gaston Shoals	44	1	Belews Creek	North Greensboro	230	1
Gaffney	Ninety-Nine Islands	44	1	Belews Creek	Rural Hall	230	1
Hendersonville	Tuxedo Hydro	44	1	Belews Creek	Ernest 1	230	1
Campobello	Tuxedo Hydro	44	2	Sadler	Ernest 2	230	1
Campobello	Inman	44	1	Beckerdite	Marshall	230	1
Campobello	Inman	44	2	Longview	Marshall	230	1
Campobello	Turner Shoals	44	1	Marshall	Stamey	230	1
Campobello	Turner Shoals	44	2	Marshall	Wincoff	230	1
Fairview	Turner Shoals	44	1	Cliffside	Pacolet	230	1
Walker Tie	Great Falls 2	44	1	Cliffside	Shelby	230	1
Walker Tie	Great Falls 2	44	2	Allen	Riverbend	230	1
Clover	Ninety-Nine Islands	44	1	Allen	Wincoff	230	1
Woodlawn	Wylie Hydro	44	1	Lakewood	Riverbend	230	1
Mountain Island	Riverbend	44	1	Ripp Sw Sta	Riverbend	230	1
Mountain Island	Riverbend	44	2	Lincoln	Longview	230	1
Rhodhiss	Longview	44	1	East Durham	Eno	230	1
Lakewood	Mountain Island	44	1	East Durham	Parkwood	230	1
Lakewood	Mountain Island	44	2	East Durham	E-REDMT	230	1
Gaffney	Transformer	100/44	1	East Durham	Bahama	230	1
Gaffney	Transformer	100/44	2	East Durham	Leesville	230	1
McGuire Nuclear Sta	Transformer	500/230	A1	East Durham	Durham	230	1
Oconee Nuclear Sta	Transformer	500/230	A1	Eno	Pleasant Garden	230	1
Antioch	Transformer	500/230	1	Eno	Roxboro	230	1
Antioch	Transformer	500/230	2	Anderson	Hodges	230	1
Newport	Transformer	500/230	A5	Morning Star	Oakboro	230	1
Parkwood	Transformer	500/230	5	Morning Star	Newport	230	1
Parkwood	Transformer	500/230	6	Harrisburg	Oakboro	230	1
Pleasant Garden	Transformer	500/230	5	Ansonville	Oakboro	230	1
Antioch	McGuire Nuclear Sta	500	1	Lillesville	Oakboro	230	1
McGuire Nuclear Sta	Newport	500	1	Pisgah	Shiloh Sw Sta	230	1
McGuire Nuclear Sta	Cliffside Tap	500	1	Pisgah	Asheville	230	1
Jocassee Hydro	Cliffside Tap	500	1	Anderson	Central	230	1

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Antioch	Mitchell River	230	1	Bush River R	Georgia Pacific	115	1
Beckerdite	Buck Tie	230	1	Bush River Y	White Rock	115	1
Beckerdite	Pleasant Garden	230	1	Newport	Parr	230	1
Buck Tie	Winecoff	230	1	Clark Hill	JS Thurmond	115	1
Mitchell River	Rural Hall	230	1	Bush River	Parr	230	1
Mitchell River	Stamey	230	1	Robbinsville	Santeetlah	161	1
North Greenville	Shiloh Sw Sta	230	1	Nantahala	Fontana HP	161	1
North Greenville	Tiger	230	1	Tuckasegee	Webster	161	1
Pacolet	Tiger	230	1	West Mill	Tuckasegee	161	1
Peach Valley	Riverview Sw Sta	230	1	Nantahala	Webster	161	1
Ripp Sw Sta	Riverview Sw Sta	230	1	Lake Emory	Webster	161	1
Peach Valley	Tiger	230	1	Lake Emory	West Mill	161	1
Ripp Sw Sta	Shelby	230	1	Nantahala	West Mill	161	1
Shiloh Sw Sta	Tiger	230	1	Nantahala	Marble	161	1
Dan River	Ridgeway	138	1	Nantahala	Robbinsville	161	1
Mills River	Asheville	115	1	Antioch	BREMC 6	230	1
Hodges	Greenwood County	230	1	Bush River	Transformer	230/100	1
Anderson	Rainey	230	1	Asheboro	Pleasant Garden	230	1
Oconee Nuclear Sta	South Hall	500	1				

**DUKE ENERGY CAROLINAS  
MULTIPLE BRANCH CONTINGENCIES**

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Bush River	Transformer	115/100	7	Peacock	Transformer	230/100	1
Bush River	Transformer	115/100	8	Catawba	Peacock	230	1
Pisgah	Transformer	100/115	1	Peacock	Transformer	230/100	2
Pisgah	Transformer	100/115	2	Catawba	Peacock	230	1
Hodges	Transformer	230/100	1	Shady Grove	Transformer	230/100	1
Hodges	Anderson	230	1	Shady Grove	Shady Grove Tap B	230	1
Hodges	Transformer	230/100	2	Shady Grove	Transformer	230/100	2
Hodges	Anderson	230	1	Shady Grove	Shady Grove Tap W	230	2
Lakewood	Transformer	230/100	2	Jocassee Hydro	Tuckasegee	230	1
Riverbend	Lakewood	230	1	Tuckasegee	Transformer	230/161	2
Lakewood	Transformer	230/100	3	Jocassee Hydro	Tuckasegee	230	1
Riverbend	Lakewood	230	2	Tuckasegee	Transformer	230/161	3
McDowell	Transformer	230/100	1	Allen	Woodlawn	230	1
Longview	McDowell	230	1	Woodlawn	Transformer	230/100	4
McDowell	Transformer	230/100	2	Allen	Woodlawn	230	1
Longview	McDowell	230	2	Woodlawn	Transformer	230/100	5
Morningstar	Transformer	230/100	3	Lee	Perry Tap B	100	1
Oakboro	Morningstar	230	1	Perry Tap B	Reedy River	100	1
Morningstar	Transformer	230/100	4	Marietta	North Greenville	100	1
Newport	Morningstar	230	1	North Greenville	Pisgah	100	1

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Pisgah	E.I. Dupont Tap	100	1	Oakboro	Monroe 3T	100	1
E.I. Dupont Tap	Marietta	100	1	Monroe 3T	Monroe	100	1
Marietta	North Greenville	100	1				
Pisgah	North Greenville	100	1	Albemarle	Albemarle 2	100	1
				Albemarle 2	Badin Retail	100	1
Bridgewater	Marion Main	100	1	Badin Retail	Badin	100	1
Marion Main	McDowell	100	1				
				Monroe	Stouts Tap	100	1
Lee	Piercetown	100	1	Stouts Tap	Morning Star	100	1
Central	Piercetown	100	1				
Central	Lee	100	1	Morning Star	Springfield B	100	1
				Springfield B	Wylie Hydro	100	1
Hodges	Greenwood C6	100	1				
Greenwood C6	Greenwood	100	1	Morning Star	Springfield W	100	1
				Springfield W	Wylie Hydro	100	1
Bush River	Clinton	100	1				
Clinton	Laurens	100	1	Harrisburg	Wilgrove	100	1
				Wilgrove	Morning Star	100	1
Bush River	Newberry	100	1				
Newberry	Whitmire Tap	100	1	Harrisburg	Wilgrove W	100	1
Whitmire Tap	Morris Sw Sta W	100	1	Wilgrove W	Morning Star	100	1
Morris Sw Sta B	Midway Tap	100	1	Harrisburg	Stetson Tap W	100	1
Midway Tap	Pacolet	100	1	Stetson Tap W	North Charlotte	100	1
Central	Seneca Tap B	100	1	Amity	Park Road	100	1
Seneca Tap B	Westminster	100	1	Park Road	Woodlawn	100	1
Central	Seneca T2	100	1	Allen	Westinghouse Tap W	100	1
Seneca T2	Seneca C2	100	1	Westinghouse Tap W	Wylie Hydro	100	1
Seneca T2	Seneca CT	100	1				
Seneca CT	Seneca Tap W	100	1	Allen	Westinghouse Tap B	100	1
Seneca Tap W	Westminster	100	1	Westinghouse Tap B	Wylie Hydro	100	1
Peacock	Sifford Tap W	100	1	Riverbend	Energy United 26	100	1
Sifford Tap W	Clover	100	1	Energy United 26	Westfork	100	1
Sifford Tap W	Newport	100	1				
				Riverbend	Conley Tap W	100	1
Hilltop	Gastonia Junction	100	1	Conley Tap W	Winecoff	100	1
Gastonia Junction	Peacock	100	1				
				Beckerdite	High Point City 4	100	1
Shelby	BP PPTG	100	1	High Point City 4	Linden Street	100	1
BP PPTG	Cliffside 2	100	1				
				Beckerdite	High Point City 4	100	2
Shelby	WP PPTG	100	1	High Point City 4	Linden Street	100	2
WP PPTG	Cliffside 2	100	1				
				Linden Street	Energy United 32 B	100	1
BROEWTWA	York EC 17	100	1	Energy United 32 B	High Rock Junction	100	1
York EC 17	Newport	100	1				
				Pleasant Garden	High Point City 3	100	1
McAdenville	Dixie	100	1	High Point City 3	Linden Street	100	1
Dixie	Hilltop	100	1				
				Glen Raven	Burlington Tap W	100	1
Hilltop	Acrerock B	100	1	Burlington Tap W	Mebane	100	1
McAdenville	Acrerock B	100	1				

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Greensboro	High Point City 5	100	1	Central	Shady Grove Tap B	230	1
High Point City 5	Triad Park	100	1	Shady Grove Tap B	North Greenville	230	1
Triad Park	Beckerdite	100	1	Shady Grove Tap B	Shady Grove	230	1
Beckerdite	BSPWAT	100	1	Jocassee Hydro	Tuckasegee	230	2
BSPWAT	Winston	100	1	Tuckaseegee	Transformer	230/161	3
Shattalon Sw Sta	Stratford Road Tap B	100	1	Allen	Woodlawn	230	2
Stratford Road Tap B	Winston	100	1	Woodlawn	Transformer	230/100	4
Belews Creek	Bob White Tap B	230	1				
Bob White Tap B	North Greensboro	230	1				
Bob White Tap B	Pleasant Garden	230	1				

**TABLE D.3**  
**SOUTH CAROLINA ELECTRIC AND GAS**  
**OUTAGED FACILITIES**

SCE&G tested single contingencies of all branches greater than and equal to 115 kV including tie lines

**TABLE D.4**  
**SOUTH CAROLINA PUBLIC SERVICE AUTHORITY**  
**OUTAGED FACILITIES**

SCPSA tested single contingencies of all branches greater than and equal to 115 kV including tie lines

**TABLE D.5  
DOMINION VIRGINIA POWER  
OUTAGED FACILITIES**

Dominion Virginia power tests single contingencies of all Tie Lines, 500 kV, and 230 kV branches, including the multiple facilities identified below.

Facilities Switched Together:

FROM BUS	TO BUS	kV	CKT
Lexington	Cloverdale	500	1
Lexington	Transformer	500/230	1
Cloverdale	Transformer	500/230	1&2
Ox	Clifton	500	1
Clifton	Transformer	500/230	1
Ladysmith	Chancellor	500	1
Ladysmith	Brister	500	1
Chancellor	Transformer	500/230	1
Mt. Storm	Valley	500	1
Valley	Transformer	500/230	1
Clover	Carson	500	1
Clover	Transformer	500/230	1
Elmont	Chickahominy	500	1
Chickahominy	Transformer	500/230	1
Greenbriar	Fudge Hollow	138	1
Ronceverte	Greenbriar	138	1
Hinton	Ronceverte	138	1
North Anna	Midlothian	500	1
Midlothian	Transformer	500/230	1

**TABLE D.6  
APGI - Yadkin  
OUTAGED FACILITIES**

<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>	<u>FROM BUS</u>	<u>TO BUS</u>	<u>KV</u>	<u>CKT</u>
Badin	Tuckertown	100	1	High Rock	Energy United 32	100	1
Badin	Badin1	100/115	1	High Rock	Linden Street	100	1
Badin	Badin2	100/115	1	Tuckertown	High Rock	100	1

**EXHIBIT E**  
**TRANSFER CAPABILITY DEFINITIONS**

## **TRANSFER CAPABILITY DEFINITIONS**

Transfer capabilities as used by the VACAR Power Flow Working Group are defined as follows in accordance with NERC definitions:

### 1. Normal Incremental Transfer Capability (NITC)

Installed Incremental Transfer Capability is the amount of power, incremental above normal base power transfers, that can be transferred over the transmission network without giving consideration to the effect of transmission facility outages. All facility loadings are within normal ratings and all voltages are within normal limits.

### 2. First Contingency Incremental Transfer Capability (FCITC)

First Contingency Incremental Transfer Capability is the amount of power, incremental above normal base power transfers, that can be transferred over the transmission network in a reliable manner, based on the following conditions.

- A. With all transmission facilities in service, all facility loadings are within normal ratings and all voltages are within normal limits.
- B. The bulk power system is capable of absorbing the dynamic power swings and remaining stable following a disturbance resulting in the loss of any single generating unit, transmission circuit or transformer.
- C. After the dynamic power swings following a disturbance resulting in loss of any single generating unit, transmission circuit or transformer, but before operator-directed system adjustments are made, all transmission facility loadings are within emergency ratings and all voltages are within emergency limits.