Duke Energy Carolinas and Duke Energy Progress
Available Transfer Capability Implementation Document (ATCID)

The Duke Energy Carolinas (DEC) and Duke Energy Progress (DEP) Available Transfer Capability Implementation Document (ATCID) is available on the Duke Energy Carolinas' OASIS homepage, http://www.oasis.oati.com/duk/index.html and the Duke Energy Progress OASIS homepage http://www.oasis.oati.com/cpl/index.html, and is reviewed as necessary. Hereafter, DEC and/or DEP will be referred to as the Transmission Service Provider (TSP).

Any revisions to this ATCID will be subject to notice prior to implementation, pursuant to the North American Electric Reliability Corporation's (NERC) MOD-001 R4 standard, to the following entities:

- Each Planning Coordinator (PA) associated with the TSP
- Each Reliability Coordinator (RC) associated with the TSP
- Each Transmission Operator (TOP) associated with the TSP
- Each adjacent Planning Coordinator (PA)
- Each adjacent Reliability Coordinator (RC)
- Each adjacent Transmission Service Provider (TSP)

The Transmission Service Provider will make the current ATCID available to the entities described above, as well as any other interested parties through the posted link on the DEC and DEP OASIS homepages, http://www.oasis.oati.com/duk/index.html and http://www.oasis.oati.com/cpl/index.html, or upon request subject to any confidentiality and security requirements.

1. Executive Summary:

The purpose of this ATCID is to describe the methodology used by Duke Energy Carolinas, LLC and Duke Energy Progress, LLC to calculate Available Flowgate Capability (AFC), Remaining Contract Path Capability (RCPC), Available Transfer Capability (ATC), and the coordination of ATC information between Duke Energy Carolinas, Duke Energy Progress, and other entities.

The information presented in this document is intended to facilitate the NERC MOD-001 and MOD-030 standards as approved by the Federal Energy Regulatory Commission (FERC).

2. Selection of Available Transfer Capability Calculation Methodology:

The TSP utilizes the Flowgate Methodology, as described in NERC MOD-030, for the calculation of AFC for ATC Paths, during the specified time periods identified in NERC MOD-001 R2, for those facilities within its transmission operating area.

3. High-Level Overview of ATC Calculation Process:

The process of calculating ATC for the TSP may be summarized as two main sub processes; the "Model Builder" and the "AFC Calculator".

The "Model Builder" creates powerflow model snapshots and calculates initial flow impacts and shift factors for each flowgate. As detailed in this ATCID, the "Model Builder" utilizes a "Seed Case" and applies load forecasts, outages, transactions (if applicable), and generation dispatch files to create a

powerflow model representative of the timeframe being calculated. Generation is then dispatched to meet the forecasted load and net interchange requirements. The initial flow impacts and shift factors for each flowgate are then calculated and exported though a secure ftp site to the "AFC Calculator".

The "AFC Calculator" calculates AFC values for each flowgate, RCPC values for each Posted Path, and ATC values for each Posted Path. As detailed in this ATCID, the "AFC Calculator" utilizes the data imported from the "Model Builder" and applies Transmission Service Reservations (TSRs), TSRs from external TSPs, and AFC values from external TSPs to calculate AFC values for each flowgate. The "AFC Calculator" also utilizes TSRs and firm tags, as described in this ATCID, to calculate the RCPC for each Posted Path. The ATC is then calculated by the "AFC Calculator" for each Posted Path by comparing the derived ATC from the AFC calculation process and the RCPC and utilizing the minimum value.

4. Software Selection:

The PowerGEM TARA AMB software has been selected to perform the role of the "Model Builder" and the OATi webTrans software has been selected to perform the role of "AFC Calculator"; each of which is commercially available through PowerGEM (http://power-gem.com/) or Open Access Technology International, Inc. (http://www.oati.com/) respectively.

5. Detailed Description of ATC Calculation Process:

This section is intended to supplement Attachment C-1 of the Joint OATT as well as provide a more detailed description of the ATC process than stated in Section 3: High-Level Overview of ATC Calculation Process.

5.1. Postback Methodology:

The DEC Postback Methodology can be viewed from the DEC OASIS homepage at http://www.oasis.oati.com/duk/index.html, as required by the NAESB WEQ-001-18 Business Practice Standard.

The DEP Postback Methodology can be viewed from the DEP OASIS homepage at http://www.oasis.oati.com/cpl/index.html, as required by the NAESB WEQ-001-18 Business Practice Standard.

5.2. ATC Time Horizons & Frequency:

The "AFC Calculator" utilizes several horizons for the calculation of AFC, RCPC and ATC (collectively ATC in this section). These time horizons are defined below in Table # 1. At a minimum, the ATC will be calculated with the frequency noted in Table1 and may be calculated more frequently.

Table 1: ATC Time Horizons & Frequency[1]

ATC Horizon	ATC Increment	ATC Horizon Range	Calculation Frequency[1]
Hourly Operating (Non-Firm)	Hourly	Prior to 08:00 EPT, current hour - midnight of the current day. After 08:00 EPT, current hour - midnight of the next day	Hourly
Hourly Operating (Firm)	Hourly	Prior to 08:00 EPT, current hour - midnight of the current day. After 08:00 EPT, current hour - midnight of the next day	Hourly
Hourly Planning (Non-Firm)	Hourly	End of Hourly Operating time period – midnight of the day 6 days beyond the current day	Daily
Hourly Planning (Firm)	Hourly	End of Hourly Operating time period – midnight of the day 6 days beyond the current day	Daily
Daily Planning (Firm & Non-Firm)	Daily	End of Hourly Planning time period – midnight of the day 31 days beyond the current day	Daily
Daily Study (Firm & Non-Firm)	Daily	End of Daily Planning time period – last day of the month in which the end of the Daily Planning time period exists	Daily
Monthly Study (Firm & Non-Firm)	Monthly	End of Daily Study time period – last day of the month and a minimum of 12 calendar months from current month	Daily

[1] *ATC is calculated either upon trigger of new reservations/schedules, new data from the "Model Builder", or based off of the calculation frequency as described in Table 1, whichever occurs first. ATC may be calculated more frequently than noted in Table 1.*

The "AFC Calculator" utilizes the most granular ATC values from the time horizons defined above to determine the ATC values that are posted on OASIS (e.g. during the Hourly Operating and Hourly Planning horizons, hourly ATC values calculated from the above horizons are used to derive the daily posted OASIS ATC values).

5.2.1. Release of Unscheduled Firm Transmission Capacity to the Non-Firm ATC

The TSP releases the unscheduled firm TSR capacity to the non-firm ATC calculation in the Hourly Operating horizon. Refer to Table 1 for the timing of the Hourly Operating horizon. For details on how the release of unscheduled firm capacity to the non-firm ATC calculation works, please refer to the Postback Methodology posted on OASIS at http://www.oasis.oati.com/DUK/DUKdocs/Current_Postback_Methodology.pdf for DEC and at http://www.oatioasis.com/CPL/CPLdocs/Postback_Methodology.pdf for DEP.

5.3. Description of the Transfer or Flowgate Allocation Process:

The allocation of transfer or flowgate capability is not applicable to the TSP. The TSP does not allocate transfer or flowgate capability among multiple owners or users of an ATC Path or flowgate nor has executed any forward looking congestion management and seams agreements.

The TSP also does not allocate transfer or flowgate capability among multiple lines or sub-paths within a larger ATC Path or flowgate.

5.4. "Seed Case":

The powerflow model used as the starting point ("seed case") for the "Model Builder" software is provided by the SERC Reliability Corporation (SERC) Near-Term Study Group (NTSG) OASIS Study that is modified by Duke Energy Carolinas to account for mapping concerns (alignment with the IDC, SDX, etc) and handling of base case transfers. These modifications are performed to ensure that outages, load forecasts, etc can be mapped correctly and to avoid double counting of TSR or tag impacts in the calculation of AFCs.

In the "Seed Case", Transmission Providers in the ERCOT and WECC regions have been mapped to an aggregate area called ERCOT or WECC respectively.

5.5. Flowgate Identification Criteria:

Flowgate identification is performed at least annually. The powerflow case used for flowgate identification is derived from the "Seed Case". The "seed case" includes generation outages, load forecast, and generation capacity expected to be scheduled for the peak snapshot of each season for the TSP and participating SERC Balancing Authorities and Transmission Operators at the time of case development.

Candidate flowgates are determined by a two-phase process using the basecase and single contingency cases. A candidate flowgate is any flowgate which could be loaded to a certain threshold using the 'worst dispatch' methodology, see below. These candidate flowgates are then screened to determine their sensitivity to interchange schedules and TSP Gen-Load flow. Those candidate flowgates which experience a sensitivity above the defined threshold are included in the TSP's AFC/ATC process.

A Power Gem Transmission Adequacy and Reliability Assessment (TARA) Software 'worst dispatch' study is used to determine the list of candidate flowgates. The TARA worst dispatch generates a list of flowgates which load to the designated threshold by increasing the output of 'Harmer' units and decreasing the output on 'Helper' units. Harmer units are generators which increase loading on a flowgate, while Helper units are generators which decrease the loading on a flowgate.

The first phase worst dispatch monitors internal branches and ties 100 kV and above which are at least 80% loaded under basecase or single contingency conditions in the TSP's area. The contingencies studied are VACAR South Reliability Coordinator internal branches and ties 100 kV and above and portions of the Tier 1 RC area's branches and ties of at least 200kV and above. A Tier 1 RC is any RC which is adjacent to the VACAR South RC area: Tennessee Valley Authority (TVA), Southeastern RC, PJM Interconnection. Those resultant worst dispatch contingencies are used to create discrete contingency cases from the original basecase for use in the second phase worst dispatch study..

The second phase worst dispatch study utilizes the same set of monitored and contingent elements against the basecase and previously derived contingent cases. The monitored elements which are loaded to 100% as a result of this study minus series and duplicate flowgates as well as those managed and mitigated with operating guides or generation redispatch are considered Candidate Flowgates.

Distribution factors for how the Candidate Flowgates respond to Generation to Load and Balancing Authority to Balancing Authority transfers are determined for the Study Area.

The Study Area is composed of:

- VACAR South RC area: CPLE, CPLW, DUKE, SCPSA, SCEG, YAD
- Portions of the Southeastern RC area: SOCO, SEPA
- Portions of the TVA RC area: TVA, TAP, BSMH
- Portions of the PJM RC area: PJM, AEP, AP, VAP

The Candidate Flowgates which respond to Balancing Authority (BA) transfers into or out of the TSP Area(s) as well as generation to load transfers at three percent or greater are included in the final flowgate list.

5.6. Load Forecasts:

The TSP utilizes either the load forecasts from the System Data Exchange (SDX) and/or load forecasts provided by external entities when available in each powerflow snapshot model. The default load built into the "Seed Case" is used for the remaining areas as well as when the provided file is corrupted or otherwise cannot be used.

5.7. Generation & Transmission Outages:

The TSP utilizes generation and transmission outages from the System Data Exchange (SDX) and considers outages from the TSP's area, adjacent BAs/TSPs/TOPs and any other BA, TSP, or TOP where coordination agreements have been executed. Individual usage of these outages is based on the criteria described in this ATCID and if the outage can be mapped to the "Seed Case".

5.7.1. Criteria Used in RCPC Calculations (all horizons):

Generation outages are not considered in the RCPC calculation. The only transmission outages that are included in the RCPC calculation are facilities that interface between the TSP's transmission system and that of adjacent Transmission Provider's system (tie lines) that decrease the Contract Path and are at least an hour in duration. In utilizing these outages, the start and stop times of these outages may be modified to begin and/or end at the top of the hour. Impacts of these outages are reflected in the RCPC as a change in the Contract Path as defined in the Attachment C-1 of the Joint OATT.

5.7.2. Criteria Used in Hourly AFC Calculations:

Generator outages of facilities 20 MWs and larger and transmission outages of facilities 100 kV and above, active during the hour being calculated, that map to the current "Seed Case" are included in the powerflow snapshot model. Generator units identified as Short-Standby (SS) that are 20 MWs or larger are considered outaged and are also included in the powerflow snapshot model.

5.7.3. Criteria Used in Daily AFC Calculations:

Generator outages of facilities 20 MWs and larger and transmission outages of facilities 100 kV and above, that have an outage duration of at least two hours in the "Daily Peak Period" of the day being calculated, that map to the current "Seed Case", are included in the powerflow snapshot model.

The "Daily Peak Period" is defined based on the time horizon being studied. Since the TSP has two distinct peaks, a summer peak and a winter peak, the "Daily Peak Period" is defined as 0400-1200 in the winter periods and 1200-2000 during the summer periods. Based on system conditions, these "Daily Peak Periods" could change to get the best representative "Daily Peak Period".

5.7.4. Criteria Used in Monthly AFC Calculations:

Generator outages of facilities 20 MWs and larger and transmission outages of facilities 100 kV and above, that have an outage duration of at least two hours in the "Daily Peak Period" of the "Representative Day" in the month being calculated, that map to the current "Seed Case" are included in the powerflow snapshot model.

The "Representative Day" is defined as the third Wednesday of the month. Based on system conditions, the "Representative Day" can be modified to get the best "Representative Day" for the given conditions.

5.7.5. Criteria Used when Outages Cannot be Mapped:

Generation and transmission outages that cannot be mapped to the "Seed Case" are not included in the powerflow snapshot model. Reasons for generation and transmission outages that cannot be mapped to the "Seed Case" include but are not limited to:

- Differences in the facility names used between the MMWG, ERAG, IDC, SERC LTSG, SERC NTSG OASIS, or VACAR South models and the facility name provided through the SDX.
- "Seed Case" may not contain the proper topology or may include system equivalencies.

5.8. Unit Commitment & Dispatch Order:

Generation in the powerflow snapshot model is dispatched to meet the forecasted load and net interchange requirements.

In powerflow snapshot models, created utilizing schedules (tags), generation is dispatched first by schedules (tags) then if more generation is needed to meet the forecasted load and net area interchange requirements, Block Economic Dispatch files and/or Direct Dispatch files are utilized to dispatch the remaining generation. Direct Dispatch files are utilized for generators that dispatched on a scheduled basis and specifies their expected output level on an hourly basis. When utilizing schedules (tags), the "Model Builder" software applies the capacity in the energy profile of the schedule (tag).

In powerflow snapshot models created in which schedules (tags) are not utilized, generation is dispatched utilizing the Block Economic Dispatch files and/or Direct Dispatch files to meet the forecasted load and net area interchange requirements.

The TSP may utilize Block Economic Dispatch and/or Direct Dispatch files from external entities, when available. If no Block Economic Dispatch and/or Direct Dispatch files are provided by external entities or if the provided file does not map to the "Seed Case", is corrupted or otherwise cannot be used, the "Model Builder" will dispatch available generation based on its programmed design.

The representation of external Designated Network Resources (POR = anything but DUK/CPLE/CPLW and POD = DUK/CPLE/CPLW) in the TSP's AFC process is facilitated through the use of schedules (tags) in the Hourly Operating horizon and TSRs in the Hourly Planning, Daily Planning, Daily Study, and Monthly Study horizons.

5.8.1. Generator Grouping:

The "Model Builder" may use generator grouping through the use of generation block dispatch files and the calculation of shift factors. The generation block dispatch file will group generators into blocks and dispatches the block until all units have reached their maximum generation capability at the same time. Generator grouping may also be utilized in the calculation of shift factors as the "Model Builder" typically dispatches generation in each area by scaling all generation.

5.9. Grandfathered Transmission Service:

The TSP currently does not have any grandfathered transmission services.

5.10. Transmission Service Expected to be Scheduled:

NERC MOD-030 utilizes the language "transmission service expected to be scheduled" throughout its requirements. The following information describes what TSP considers "transmission service expected to be scheduled" for the Duke Energy Carolinas AFC calculation process:

5.10.1. Hourly Operating Horizon – Firm Calculation:

Transmission service expected to be scheduled will be considered to be firm Point-to-Point (PtP) Transmission Service Requests (TSRs) and Network Integration Transmission Service (NITS) that have not otherwise already been included as impacts. Impacts of TSRs and NITS reserved under the Joint OATT, including rollover rights, may be excluded to reduce or eliminate duplicate impacts of transmission service in the AFC calculation process.

5.10.2. Hourly Operating Horizon – Non-Firm Calculation:

Transmission service expected to be scheduled will be considered to be the firm and non-firm tags and pending NITS and PtP TSRs. Once confirmed NITS and PtP TSRs are scheduled, they will be captured through the use of their associated tags. Tag data is imported from the Tag Dump, when available, and is subject to data translation and mapping.

Impacts of TSRs and NITS reserved under the Joint OATT, including rollover rights, may be excluded to reduce or eliminate duplicate impacts of transmission service in the AFC calculation process.

Real-time flows from the TSP's EMS may be used, where available, to calculate a bias to be applied to future hourly AFC values. This bias is applied at 100% for the next 3 hours, reducing to 0% from hours 4-7. This bias is primarily the result of unaccounted parallel flow impacts and improves the accuracy of the AFC calculation for that window.

5.10.3. All Other Horizons – Firm & Non-Firm Calculation:

Transmission service expected to be scheduled will be considered to be pending and confirmed NITS and PtP TSRs. Impacts of TSRs and NITS sold under the Joint OATT, including rollover rights, may be excluded to reduce or eliminate duplicate impacts of transmission service in the AFC calculation process.

5.11. Transmission Service Mapping & Source/Sink Accounting:

The following information describes how the source and sink for transmission service expected to be scheduled is accounted for and mapped to the TSP AFC and RCPC calculation process:

5.11.1. AFC ("Model Builder"):

Transmission services modeled in the "Model Builder" utilizes the Point of Receipt (POR) as the source and the Point of Delivery (POD) as the sink. These transmission services are modeled by adjusting the net area interchange between the TSP area and the adjacent TSP area correlating to the POR/POD.

5.11.2. AFC ("AFC Calculator"):

Transmission services modeled in the "AFC Calculator" utilizes the Point of Receipt (POR) as the source and the Point of Delivery (POD) as the sink. These transmission services are mapped to the shift factors produced by the "Model Builder" via the "POR/POD Ultimate" file. This file maps the POR/PODs of transmission services to the corresponding subsystems in the model used to calculate shift factors by the "Model Builder".

5.11.3. RCPC ("AFC Calculator"):

Transmission services modeled in the RCPC calculation utilizes the Point of Receipt (POR) as the source and the Point of Delivery (POD) as the sink.

5.12. Schedule (Tag) Mapping & Source/Sink Accounting:

The following information describes how the source and sink for schedules (tags) is accounted for and mapped to the TSP's AFC and RCPC calculation process:

5.12.1. AFC ("Model Builder"):

Schedules (tags) sourcing from an Independent Power Producer (IPP) internal to the TSP's Balancing Authority Area, as identified by the TSP, may utilize the Source field of the E-Tag as the source and the Load Control Area (LCA) field of the E-Tag as the sink.

All other schedules (tags) utilize the Generator Control Area (GCA) field of the E-Tag as the source and the LCA field of the E-Tag as the sink.

The TSP maps schedules (tags) to the powerflow snapshot model based on the criteria stated above and according to the "Model Builder" subsystem files.

5.12.2. AFC ("AFC Calculator"):

Schedules (tags) are not used in the "AFC Calculator" to reduce or eliminate duplicate impacts in the AFC calculation process.

5.12.3. RCPC ("AFC Calculator"):

Only schedules (tags) that include the TSP as an approval entity are used in the RCPC calculations (i.e. entire Tag Dump is not used). Schedules (tags) used in the RCPC calculations utilize the POR field of the transmission profile of the E-Tag as the source and the POD field of the transmission profile of the E-Tag as the sink.

5.13. TSR Coordination:

Confirmed TSRs from adjacent TSPs and any other TSPs with which coordination agreements have been executed (External TSRs) are imported by the "AFC Calculator", when available, to be utilized in the AFC calculation process. These External TSRs are filtered to reduce or eliminate duplicate impacts of transmission service from multiple Transmission Service Providers and are subject to data translation and mapping. A manual override of the filtering criteria may be used to further eliminate duplicate impacts of transmission service from multiple Transmission Service Providers if needed.

External TSRs are not included in the impacts of the RCPC calculation process.

If no TSR coordination file is provided by the external TSPs or if the provided file does not map, is corrupted, or otherwise cannot be used, any previously provided External TSRs will be utilized.

The filtering criteria is to utilize each sequential external TSP's TSRs into the calculation, but excluding TSRs which have been included from a previous TSP's list of TSRs. For example, TSP A's coordinated TSRs are included, then TSP B's are included (minus TSP A reservations), then TSP C (minus TSP A & B reservations), then TSP D (minus TSP A, B & C reservations).

5.14. AFC Coordination:

Flowgates included in the TSP's ATC process that are not owned by the TSP, (External TSP Flowgates) will use the AFC value calculated and provided by the owning TSP. These AFC values are imported by the "AFC Calculator" from the owning TSP, when available, and will override the AFC value calculated by the TSP for that flowgate.

If the AFC Override provided by the owning TSP does not map to the flowgate, is corrupted, or otherwise cannot be used, the previously provided AFC Overrides will be utilized to the extent that they were previously successfully incorporated into the TSP's ATC process. If no AFC Overrides have been provided or cannot otherwise be used, the AFC value calculated by the TSP's AFC process will be used.

5.15. On-Path/Off-Path Inter Regional Validation:

The "AFC Calculator" utilizes on-path/off-path validations when evaluating TSRs. This validation is a method to reduce or eliminate the double-counting of impacts of a TSR on external flowgates (e.g. flowgates owned by another Transmission Service Provider) when utilizing AFC Overrides. The on/off path rule set performs the evaluation of AFC against all significantly impacted flowgates except for the external source/sink region flowgates and the flowgates owned by the adjacent Transmission Service Provider (TSP). The source/sink region will be determined based on the database in the "AFC Calculator" containing the unique list of source/sink names and the associated TSP owner of the source/sink. The source and sink values used in this process are the values set after any mapping or translation of source/sink data has been performed.

5.16. Counterflows:

The "Model Builder" process includes 100% counterflow (100% netting) in the base case when calculating the initial base flows and shift factors.

The "AFC Calculator" process calculates counterflows as specified in the Flowgate Definition file. The Flowgate Definition file contains the specific percentages of counterflows assigned for each flowgate.

5.16.1. Rationale Statement:

Non-firm AFC calculation utilizes counterflows to allow for the predicted effect of counterflow reservations on a flowgate and to allow the interface to give equitable access. This non-firm energy can be reduced by an Interconnection Transmission Loading Relief (TLR) procedure if real-time overloads are encountered.

Firm AFC calculations do not, at this time, utilize counterflows due to the fact that firm energy is to be bought and used with the expectation that it is available for use.

5.17. RCPC Calculation:

The "AFC Calculator" calculates the Remaining Contract Path Capability (RCPC) for each import/export path. Contract Path Limits are imported to the "AFC Calculator" and are derived as defined in Attachment C-1 of the Joint OATT. For wheel-through paths, Contract Path Limit and RCPC is the minimum of the import/export paths that comprise the wheel-through path (e.g. for CPLE-CPLW the RCPC is the minimum of the CPLE-DUK and DUK-CPLW RCPC).

In the Hourly Planning, Daily Planning, Daily Study, and Monthly Study horizon the equation for RCPC is as follows:

Firm RCPC = Contract Path Limit-TRM-CBM-Confirmed Firm TSRs
Non-Firm RCPC = Contract Path Limit – TRM – CBM – Confirmed Firm TSRs – Confirmed Non-Firm TSRs

In the Hourly Operating horizon the equation for RCPC is as follows:

Firm RCPC = Contract Path Limit-TRM-CBM-Confirmed Firm TSRs
Non-Firm RCPC = Contract Path Limit – TRM – CBM – Scheduled Firm – Confirmed Non-Firm TSRs

When calculating the Scheduled Firm component of the Hourly Operating horizon Non-Firm RCPC equation, the "AFC Calculator" utilizes the capacity in the transmission profile of the schedules (tags) referencing the firm TSRs. The source used in the calculation of the Scheduled Firm component of RCPC is obtained from the POR field of the transmission profile of the E-Tag. The sink used in the calculation of the Scheduled Firm component of RCPC is obtained from the POD field of the transmission profile of the E-Tag.

Impacts of counterflows are not included in the RCPC process for the horizons specified in this document.

In each horizon, Generation outages are not considered in the RCPC calculation. The only transmission outages that are included in the RCPC calculation are facilities that interface between the TSP's transmission system and that of adjacent Transmission Provider's system (tie lines) that decrease the Contract Path and are at least an hour in duration. In utilizing these outages, the start and stop times of these outages may be modified to begin and/or end at the top of the hour. Impacts of these outages are reflected in the RCPC as a change in the Contract Path as defined in the Attachment C-1 of the Joint OATT.

5.18. ATC Calculation:

When the "AFC Calculator" calculates the ATC for Posted Paths, it uses the minimum of the RCPC or the ATC derived from the AFC calculation process as specified in the Attachment C-1 of the Joint OATT.

6. Identity of Parties Providing Data to the TSP:

The TSP receives data to be used in the calculation of ATC from the following Transmission Service Providers (TSPs) and Transmission Operators (TOPs):

Entity Name	Entity Type
Cube Hydro. - Yadkin Division	Transmission Service Provider Transmission Operator
Cube Hydro. - Tapoco Division	Transmission Service Provider Transmission Operator
PJM Interconnection, LLC	Transmission Service Provider Transmission Operator
Duke Energy Progress	Transmission Service Provider Transmission Operator
Duke Energy Carolinas	Transmission Service Provider Transmission Operator
Smoky Mountain Transmission	Transmission Service Provider Transmission Operator
South Carolina Electric & Gas Company	Transmission Service Provider Transmission Operator
South Carolina Public Service Authority	Transmission Service Provider Transmission Operator
Southern Company Services, Inc. - Trans	Transmission Service Provider Transmission Operator
Tennessee Valley Authority	Transmission Service Provider Transmission Operator

Table 2: Identity of TSPs or TOPs Providing Data to the TSP

The TSP also receives and utilizes data from the System Data Exchange (SDX), Tag Dump, and various groups that develop transmission powerflow models that may be used to derive the base case power flow models in the calculation of AFC or ATC. These groups may include, but are not limited to, the Eastern Interconnection Reliability Assessment Group (ERAG), ERAG Multiregional Modeling Working Group (MMWG), Interchange Distribution Calculator Working Group (IDCWG), SERC Long-Term Study Group (LTSG), SERC Near-Term Study Group (NTSG), or the VACAR South (VACS) Reliability Coordinator (RC).

To the extent that coordination agreements have been executed with other Transmission Service Providers (TSPs) or Transmission Operators (TOPs), Duke Energy Carolinas will receive and utilize data in the calculation of ATC pursuant to each coordination agreement.

Pursuant to NERC MOD 001-1 R9, Duke Energy Carolinas may also request data to be used in the calculation of ATC from any other Transmission Service Providers (TSPs) and Transmission Operators (TOPs) not already listed in this ATCID.

7. Identity of Parties the TSP Provides Data To:

The TSP provides data to be used in the calculation of ATC to the following Transmission Service Providers (TSPs) and Transmission Operators (TOPs):

Entity Name	Entity Type
Cube Hydro. - Yadkin Division	Transmission Service Provider Transmission Operator
Cube Hydro. - Tapoco Division	Transmission Service Provider Transmission Operator
PJM Interconnection, LLC	Transmission Service Provider Transmission Operator
Duke Energy Progress	Transmission Service Provider Transmission Operator
Duke Energy Carolinas	Transmission Service Provider Transmission Operator
Smoky Mountain Transmission	Transmission Service Provider Transmission Operator
South Carolina Electric & Gas Company	Transmission Service Provider Transmission Operator
South Carolina Public Service Authority	Transmission Service Provider Transmission Operator
Southern Company Services, Inc. - Trans	Transmission Service Provider Transmission Operator
Tennessee Valley Authority	Transmission Service Provider Transmission Operator

Table 3: TSPs and TOPs that the TSP Provides Data To

The TSP also provides data to the SDX, IDC, the TSP's OASIS, and various groups that develop transmission powerflow models that may be used for the calculation of ATC or AFC. These groups may include but are not limited to the ERAG, ERAG MMWG, IDC, SERC LTSG, SERC NTSG, or the VACAR South (VACS) Reliability Coordinator (RC).

To the extent that coordination agreements have been executed with other Transmission Service Providers (TSPs) or Transmission Operators (TOPs), the TSP will provide data to those TSPs and TOPs pursuant to each coordination agreement.

Pursuant to NERC MOD 001 R9 and within 30 days, the TSP also provides data to be used in the calculation of AFC or ATC to any other Transmission Service Providers (TSPs), Planning Coordinator (PA), Reliability Coordinator (RC), or Transmission Operators (TOPs) not already listed in this ATCID who requests it. This data is only available in the format maintained by the TSP, for up to 13 months into the future (subject to confidentiality and security requirements). The data will be made available on the schedule specified by the requestor but not more frequently than once per hour, unless mutually agreed to by the requestor and the TSP. If the requested data is not used and maintained by the TSP, then the requested data will not be available.

DOCUMENT REVISION HISTORY

Date	Version	Change By	Pages or Sections Revised and Description
03/31/2011	0	Tony Hunziker Mike Lowman	Initial version of ATC Implementation Document
10/04/2011	1	Tony Hunziker	Revised ATCID to change the Hourly Operating horizon timing (release of unscheduled firm). Updated section 5.4, Flowgate Identification Criteria. Updated section 5.7, Generation & Transmission Outages. Reorganized document. Effective 10/05/2011
12/31/2012	2	Tony Hunziker Mike Lowman Chris Peterson	Performed review of ATCID. Updated OASIS and Post back Methodology Links. Update section 7, Identity of Parties Duke Provides Data To. Updated the Horizon section of Table 1. Updated section 5.10.2, Hourly Operating Horizon – Non-Firm Calculation.
12/17/2013	3	Linwood Ross	- Removed annual review requirement. - Removed references to NERC's former ownership of SDX, IDC and Tag Dump. - Updated Duke Energy logo. - Updated References to OATT. - Updated Section 5.1, Postback Methodology. - Updated Section 5.2, ATC Time Horizons & Frequency. - Updated Section 5.10.1 Hourly Operating Horizon – Firm Calculation. - Updated Section 5.10.2 Hourly Operating Horizon – Non-Firm Calculation. - Updated Section 5.10.3 All Other Horizons – Firm & Non-Firm Calculation. - Added Smokey Mountain Transmission as an entity that Duke Energy Carolinas provides data to and receives data from
08/31/2017	4	Jack Armstrong Linwood Ross	- Consolidated Duke Energy Carolinas and Duke Energy Progress ATC ID's into single document