Available Transfer Capability Implementation Document (ATCID)

Revision History

Revision	Date	Revised By	Comments
0	03/31/2011	Scott Parker Wade Richards James Sharpe	Original document
1	07/8/2011	Scott Parker	Reorganized section I; clarified language in section I.A; further explained Horizon nomenclature in section I.D; removed erroneous reference to IPPs as sinks in section II; enhanced model mapping language in section II; revised block dispatch language in section II; clarified counterflow modeling process in section III; other administrative edits
2	11/20/2012	Scott Parker	Added language to capture capacity associated with losses in ETC values, section I-D; further documented process used to update TFC values upon rating changes.
3	06/01/2016	Scott Parker	Reviewed entire document; made administrative edits; updated reference to MOD-001-1a; removed General Manager-Transmission Operations and Planning references; removed MISO from list of parties we exchange data with; updated references to Duke Energy Progress

Document Review Requirements

The currency of this document is the responsibility of the Manager, Operations Planning. This document will be reviewed and revised as needed to reflect current practices.

Distribution

Manager, Operations Planning
Manager, System Control
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Approvals:

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Date: 6/21/16

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Introduction

On December 23, 2010, SCE&G filed with the Federal Energy Regulatory Commission (FERC) an updated Attachment C to comply with Order 890, Order 729, and Order 676-E. SCE&G's Attachment C became effective April 1, 2011 per FERC approval and provides, among other things, the following information: a detailed description of the specific mathematical algorithm used to calculate firm and non-firm Available Transfer Capability/Available Flowgate Capability (ATC/AFC) for the transmission provider's Scheduling Horizon, Operating Horizon, and Planning Horizon; a process flow diagram that illustrates the various steps through which Available Transfer Capability/ Available Flowgate Capability is calculated; and a detailed explanation of how each of the Available Transfer Capability components (including existing transmission commitments, capacity benefit margin, and transmission reserve margin) is calculated for both the Firm and Non-Firm AFC. SCE&G selected the Flowgate Methodology, consistent with MOD-030.

SCE&G uses the following detailed algorithms to calculate AFC**.**

Firm

$$AFC_F = TFC - ETC_{Fi} - CBM_i - TRM_i + Postbacks_{Fi} + counterflows_{Fi}$$

Non-Firm

$$AFC_{NF} = TFC - ETC_{Fi} - ETC_{NFi} - CBM_{Si} - TRM_{Ui} + Postbacks_{NFi} + counterflows$$

SCE&G's ATC algorithms are also publicly available at the link below.
http://www.oatioasis.com/SCEG/SCEGdocs/SCEG_ATC_Algorithms.pdf

In addition to its updated Attachment C, SCE&G has created this document, which will serve as SCE&G's Available Transfer Capability Implementation Document (ATCID). SCE&G has created this document in compliance with the requirements in MOD-001 and MOD-030 to describe how it implements its available Flowgate capacity calculation methodology. SCE&G's ATCID is available on SCE&G's public website at the link below in its entirety.
http://www.oatioasis.com/sceg/index.html

I. Description of Flowgate Methodology:

MOD-001, R3.1: Information describing how the selected methodology (or methodologies) has been implemented, in such detail that, given the same information used by the Transmission Service Provider, the results of the ATC or AFC calculations can be validated.

SCE&G employed a multi-step process to implement its Flowgate Methodology. Generally speaking, this process began with the identification of Flowgates, then the development of models, and concluded with the calculation of AFC values which are ultimately converted to ATC. The following describes SCE&G's process in such detail that its AFC/ATC calculations can be validated.

A. Flowgate Identification Criteria

MOD-030, R1.1: The criteria used by the Transmission Operator to identify sets of Transmission Facilities as Flowgates that are to be considered in Available Flowgate Capability (AFC) calculations.

Potential Flowgates are identified for study through the following ways: via the VACAR South RC agent, by request from other TSPs, and SCE&G's internal three phase approach. SCE&G also adds or eliminates Flowgates as required by active coordination agreements.

The VACAR South RC agent provides a list of any limiting Element/Contingency combination within VACAR South that has been subjected to an Interconnection-wide congestion management procedure within the last 12 months. From this list, each limiting Element/Contingency combination is included as a Flowgate unless the limiting Element/Contingency combination is accounted for using another ATC methodology or was created to address temporary operating conditions.

Requests from other TSPs to incorporate an external Flowgate in our AFC process must be included in the requesting TSP's methodology, and the specified Flowgate must pass the screening test as described in phase three below.

SCE&G's three-phase approach for Flowgate Identification is consistent with the current NERC Modeling, Data, and Analysis (MOD) Standards, in particular, MOD-030 R2.

Phase one requires an initial set of contingencies which will be applied to the base case and utilized in phase two. SCE&G has created script files which it calls the "worst dispatch study." These script files are used in PowerGEM TARA software to determine the set of contingent

cases to be built, i.e. the resultant contingencies. SCE&G uses the worst dispatch study to monitor internal SCE&G branches and ties 100kV and above which are at least 80% loaded under base case or contingent conditions. The monitoring of internal SCE&G branches and ties includes examining the impact of contingencies within the VACAR South RC and the SOCO RC footprint. The resultant contingencies, having been determined, are used to create discrete single contingency cases from the original base case.

Phase two of the Flowgate screening process uses a worst dispatch study for the same set of monitored and contingent elements against the base case and previously derived contingent cases. The monitored elements of this study are considered candidate Flowgates if loaded to 100% or higher. SCE&G removes from consideration series and duplicate Flowgates as well as those managed or mitigated with operating guides or generation re-dispatch.

In phase three, distribution factors for how the candidate Flowgates respond to generation-to-load and Balancing Authority-to-Balancing Authority transfers are determined for the Study Areas. The Study Area is composed of CPLE, CPLW, DUK, SCEG, SCPSA, SETH, and SOCO.

The candidate internal Flowgates which have distribution factors for Balancing Authority-to-Balancing Authority transfers into or out of SCE&G as well as generation-to-load transfers of at least 5% or greater are included in the final Flowgate list. The candidate external Flowgates which have distribution factors for Balancing Authority-to-Balancing Authority transfers into or out of SCE&G as well as generation-to-load transfers of at least 5% or greater are included in the final Flowgate list.

At a minimum, the list of Flowgates used in the ATC/AFC calculation process is reviewed annually.

B. Overview of Software tools and inputs

The following provides an overview of software tools and inputs used in the AFC Model Building Process and the AFC and ATC Calculation Process, both discussed in more detail immediately below. A process flow overview outlining the model builder and AFC engine functions, which is also located in SCE&G's Attachment C, is provided via the following link:
http://www.oatioasis.com/SCEG/SCEGdocs/Attachment_C.pdf

An Additional process flow overview providing detail on how SCE&G runs internal ATC processing engines is provided via the following link:
http://www.oatioasis.com/SCEG/SCEGdocs/PowerGEM.pdf

1. Software tools:
   a. Transmission Adequacy & Reliability Assessment (TARA) software for AFC calculation available from PowerGEM
      - http://www.power-gem.com
   b. OATI AFC Engine – WebTrans Product
      - http://www.vacar.oatiwebtms.com

2. Inputs:
   a. Base cases – (CEII protected) derived from SERC Long Term Study Group (LTSG) as modified by the SERC NTSG OASIS. The SERC NTSG OASIS studies are performed quarterly for the next five seasons. The base cases used in each time horizon correlates to the appropriate SERC NTSG OASIS Study case for that season.
   b. Script files required to run the AFC calculation software.
   c. Input files
      - POR/POD and path definitions files
      - Flowgate files
      - Flowgate definitions parameters file
      - Subsystem files
      - Block Dispatch files
      - "TSR type" (TSR is short for Transmission Service Reservation) files used to back out reservations from the base case in the Hourly Operating Horizon
        - TSRs that are posted on OASIS are backed out to achieve zero net interchange for SCE&G and all of SCE&G's immediate neighbors.
      - NERC Tag Dump- includes reservations that have NERC E-Tags and are scheduled to flow. https://www.nerc.net/tags
      - TSR related files- includes SCE&G and external reservations
      - SDX files for VACAR South and Southern Company
      - "SDX type" files used to:
        - Outage the SCE&G slow start units in reserve shutdown for the current day and next day
        - Apply a tentative schedule to certain SCE&G generation and/or pumped storage units for the current day and next day
      - "Tag type" files used to back out and/or insert reservations in the base case in the Hourly Operating Horizon
        - Reservations that are expected to have OATI WebTrans Tags are backed out to achieve zero net interchange for SCE&G and all of SCE&G's immediate neighbors.
        - Reservations that are not expected to have OATI WebTrans Tags (i.e. grandfathered) are inserted or backed out to achieve the correct interchange.

C. AFC Model Building Process

SCE&G utilizes TARA software available from PowerGEM (http://www.power-gem.com) for its model building process. SCE&G provides several inputs to TARA, and TARA then runs powerflow simulations. Specifically, SCE&G provides the following inputs to TARA:

- **Base case:** The powerflow model used as the starting point for the model building process software originates from the previous year's Eastern Interconnection Reliability Assessment Multi-Regional Modeling Working Group (ERAG MMWG) model, which is updated by the SERC Long-Term Study Group (LTSG) and further developed in the SERC Near-Term Study Group (NTSG). The SERC NTSG performs quarterly OASIS support studies for the next five seasons and produce powerflow models representative of each season. The base case used in each time horizon correlates to the appropriate SERC NTSG OASIS support study for that season. The model is modified by SCE&G to account for grandfathered base transfers and long-term firm commitments.

- **Load Forecast / Customer Demand Forecast Data:** The NERC SDX load forecast data is used for modeling SCE&G loads and its immediate neighbors. Loads in the base cases are used for the other areas. SCE&G uses load forecast and customer demand forecast data at least daily for hourly and daily AFC calculations, and at least monthly for monthly AFC calculations.

- **Outages and System Topology:** NERC SDX generation and transmission outage data for SCE&G and its immediate neighbors are used to model topology information. In its Attachment C, SCE&G committed to modeling the outages for its neighbors where transmission outages are 230 kV and greater and generation outages are 50 MW and more. As a result of continued coordination with its neighbors, SCE&G will also model transmission and generation outages entered into NERC SDX even if they are less than 230 kV and 50 MW, respectively. SCE&G builds models using outages and system topology information at least daily for both hourly and daily AFC calculations, and at least monthly for monthly AFC calculations.

- **Generation Unit Dispatch:** Generation in the powerflow snapshot model is dispatched to meet the forecasted load and net interchange requirements. Priority or block dispatch files and/or direct dispatch files for SCE&G and its neighbors are used to dispatch generation to meet area load and scheduled interchange requirements. SCE&G will reflect changes to the dispatch files as appropriate.

- **Reservations:** Reservations are included either in the AFC Model Building Process or the AFC Calculation Process. Real-time reservations will be accounted for in the AFC and ATC Calculation Process, as described in Section B below. Future reservations which are longer-term in nature and are reasonably certain to be scheduled against will be accounted for in the Operating and Planning Horizons (firm and non-firm) when modeling the baseflows that are built into each AFC Model. Non-tagged firm reservations for the Scheduling Horizon are effectively released as non-firm ATC.

- **Schedules:** Schedules are incorporated into the baseflow values in the Hourly Operating Horizon. These schedules are retrieved hourly from the NERC Tag Dump website and incorporated into the base case models accordingly.

- **Additions and retirements:** SCE&G includes additions and retirements within the scope of the industry models received from to the SERC NTSG and subsequent Interchange Distribution Calculator (IDC) model builds. The NTSG determines when facility additions and retirements should be included in the coordinated model from which SCE&G derives its base case used in AFC calculation.

After SCE&G provides these inputs to the TARA application, TARA uses powerflow simulations to calculate Flowgate baseflows (net of positive and negative flows) and Generation Shift Factors (GSFs) relative to a reference bus. These baseflows and GSFs are determined for all appropriate time horizons and for each POR/POD combination. TFC values are established for each Flowgate as required in MOD-030 (R2.2 and R2.5).

D. AFC and ATC Calculation Process

The Flowgate baseflows and GSFs determined in the AFC Model Building process described above are then passed to the Open Access Technology International, Inc. (OATi) WebTrans application. The OATi WebTrans application converts these GSFs to Transfer Distribution Factors (TDF). OATi WebTrans then combines these TDFs with other inputs discussed below to calculate AFC. Specifically, the OATi WebTrans application applies each component of the AFC algorithm as follows:

- **TFC:** This is the maximum capability of each Flowgate, which is established pursuant to NERC guidelines regarding operating limits. The TFC value for each Flowgate is determined based on the most limiting factor with respect to SOLs and IROLs. This information is supplied by SCE&G to the ERAG MMWG to be used in building the ERAG MMWG cases (modeling process). For the AFC and ATC Calculation Process, TFC values for each Flowgate are inputted into the OATi WebTrans application. When facility ratings changes occur, the appropriate SCE&G personnel are automatically notified of the changes through email. The models used in the AFC process are updated accordingly. However, not all facility ratings changes result in a change to a TFC value. If notified of a change in a facility rating by the Transmission Owner that would affect the TFC of a Flowgate used in the AFC process, the TFC will be updated (reestablished) within seven calendar days of the notification.

- **ETC:** To determine ETC, the OATi WebTrans application accounts for Flowgate baseflows and GSFs (both of which are determined in the AFC Model Building process described in part A). Any reservation not already accounted for in the AFC Model Building Process will be evaluated in this process and included in ETC once it has reached a status of CONFIRMED. The reserved MW value is adjusted by a loss factor in accordance with SCE&G's tariff so that the ETC value appropriately reflects transmission used to supply power losses. ETC is further impacted by counterflows and Postbacks, which are described more fully below.

- **CBM:** SCE&G provides CBM values, by Flowgate, to the OATi WebTrans application. SCE&G determines CBM values based on the procedure described in SCE&G's CBMID.

- **TRM:** SCE&G provides TRM values, by Flowgate, to the OATi WebTrans application. SCE&G determines TRM values based on the procedure described in SCE&G's TRMID.

- **Postbacks:** The OATi WebTrans application calculates Postback values, by Flowgate, based on information that SCE&G has already provided regarding POR/POD and GSFs. For a more complete discussion, see the "Current Postback Methodology" posted on SCE&G's OASIS.

- **Counterflows:** Counterflow values are calculated, by Flowgate, as explained more fully in Part II below.

- **Determining Transmission Service Reservation Impacts:** In order to determine Transmission Service reservation impacts, the OATi WebTrans application calculates transaction TDF values from the GSF values by subtracting the load GSF from the source GSF.

- **Calculating AFC:** To calculate AFC, the OATi WebTrans application uses the algorithms for AFC Firm and AFC Non-Firm which are stated in the Introduction section of this document.

- **AFC Overrides:** AFC values for external Flowgates are calculated and provided by appropriate TSP or Flowgate owner. The AFC Calculator will utilize the "override" value when made available by the other TSP.

When converting AFC to ATC, the OATi WebTrans application uses the following equations from MOD-030 R11:

$$ATC_{AFC} = min(P)$$

$$P = \{PATC_1, PATC_2, \ldots PATC_n\}$$

$$PATC_n = \frac{AFC_n}{DF_{np}}$$

Where:

ATC_{AFC} = the ATC derived from the AFC process

P = is the set of partial ATCs for all impacted Flowgates honored by SCE&G

$PATC_n$ = the partial ATC for a path relative to a Flowgate *n*

AFC_n = the AFC for Flowgate *n*

DF_{np} = the distribution factor for Flowgate *n* relative to path *p*

Using these ATC values, the OATi WebTrans application evaluates new Transmission Service requests, applies business rules, and posts ATCs on OASIS.

Contract Path Limit

The interface between SCE&G's transmission system and each adjacent Transmission Operator is considered to be an import/export path pair. Each import and export path is associated with a Contract Path limit. This Contract Path limit is the sum of the ratings of the tie lines between SCE&G and each adjacent Transmission Operator. SCE&G's ATC calculation takes into consideration Contract Path limitations. This is accomplished by calculating Remaining Contract Path Capability (RCPC) for import and export paths in parallel with the AFC process. RCPC on import and export paths is calculated according to the following formula:

$$RCPC_p = Contract\ Path\ Limit_p - \sum Reservations\ or\ Schedules_p$$

Where:

$RCPC_p$ = The Remaining Contract Path Capability on import or export path *p*

Contract Path $Limit_p$ = The Contract Path Limit on import or export path *p*

Reservations or $Schedules_p$ = Reservations or Schedules (depending on the horizon) reserved or scheduled on import or export path *p*

RCPC for an import or export path is decremented based on the POR/POD of the reservation or schedule, and these reservations/schedules, whether firm or non-firm, are not netted. In other words, a reservation or schedule on the export path "SCE&G-to-Neighbor A" does not impact the RCPC for the import path "Neighbor A-to-SCE&G", and vice versa.

Pass-through reservations/schedules decrement two separate import/export paths – the import path from the POR and the export path to the POD. The RCPC used in the evaluation of a pass-through Transmission Service request is the lesser of the RCPC on the corresponding import and export path.

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 (E-Tags) referencing 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.

Counterflows do not impact the RCPC process in the Hourly Operating, Hourly Planning, Daily Planning, Daily Study, and Monthly Study horizons.

ATC on Posted Paths

When determining $ATC_{posted\ path}$, the following equation is used:

$$ATC_{posted\ path} = min\left[ATC_{AFC}, RCPC_p\right]$$

Where:

$ATC_{posted\ path}$ = the Available Transfer Capability for that path that is posted on OASIS

ATC_{AFC} = the ATC for that posted path derived from the AFC process

$RCPC_p$ = Remaining Contract Path Capability for the applicable import/export path *p*

SCE&G calculates AFC for the following time horizons:

- Hourly Operating – Prior to 12 noon (or other preset time), current hour through midnight of current day; After 12 noon, current hour through midnight of the next day; Only horizon which incorporates E-Tags from NERC Tag Dump
- Hourly Planning – From end of Hourly Operating horizon through midnight 6 days beyond current day
- Daily Planning – From end of the Hourly Planning horizon through midnight 31 days beyond the current day
- Daily Study – From the end of the Daily Planning horizon to last day of the month in which the end of the Daily Planning horizon exists
- Monthly Study – From end of the Daily Study Horizon through the end of the month 13 calendar months from the current month

Note: In SCE&G's Attachment C, three calculation horizons were defined: Scheduling, Operating, and Planning. In this document, the same horizons apply time-wise, but the names of those Horizons are different due mainly to the nomenclature used by SCE&G's AFC calculator software vendor. The following list correlates the name of the Horizon used in the Attachment C with those used in this document:

Attachment C		ATCID
Scheduling Horizon	**←→**	**Hourly Operating Horizon**
Operating Horizon	**←→**	**All other Horizons in this document**
Planning Horizon	**←→**	**Not applicable in this document**

The AFC values for the Hourly, Daily, and Monthly Horizons are calculated and posted, at a minimum, as follows:

Horizon Type	AFC Value	Time Period	Calculation Frequency
Hourly Operating	Intra-Day & Next Day (Hourly)	Prior to 12:00 EPT, current hour - midnight of the current day. After 12:00 EPT, current hour - midnight of the next day	Once per hour
Hourly Planning	Extended Hourly	End of Hourly Operating horizon – midnight of the day 6 days beyond the current day	Once per day
Daily Planning	Daily	End of Hourly Planning horizon – midnight of the day 31 days beyond the current day	Once per day
Daily Study	Daily	End of Daily Planning horizon – last day of the month in which the end of the Daily Planning horizon exists	Once per day
Monthly Study	Monthly	Months 2 through 13	Once per week

All studies can be calculated "on-demand" as needed through an automated resync operation which correlates to a new model build

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II. Accounting for Source and Sink:

MOD-030, R1.2: The following information on how source and sink for transmission service is accounted for in AFC calculations including:

- **Define if the source used for AFC calculations is obtained from the source field or the Point of Receipt (POR) field of the transmission reservation. (R1.2.1)**

SCE&G uses the Point of Receipt (POR) field of the transmission reservation in the calculation of AFC for the source. Additionally, for Independent Power Producers (IPPs) internal to the SCE&G Balancing Authority, as identified by SCE&G, the source used in the calculation of AFC is obtained from the Source field of the E-Tag.

- **Define if the sink used for AFC calculations is obtained from the sink field or the Point of Delivery (POD) field of the transmission reservation. (R1.2.2)**

SCE&G uses the Point of Delivery (POD) field of the transmission reservation in the calculation of AFC for the sink.

- **The source/sink or POR/POD identification and mapping to the model. (R1.2.3)**

The POR/POD definitions in OATi are mapped to their corresponding TARA POR/POD values through a mapping table. This mapping creates a one to one relationship between the POR and POD in the model to that of the OATi AFC engine.

For Independent Power Producers (IPPs) internal to the SCE&G Balancing Authority, as identified by SCE&G, SCE&G maps the Source field in the E-Tag to a file containing the specific generators associated with that Source on the E-Tag. These generators are then dispatched specifically for E-Tags associated with that Source.

- **If the Transmission Service Provider's AFC calculation process involves a grouping of generators, the ATCID must identify how these generators participate in the group. (R1.2.4)**

POR/POD values work in conjunction with block dispatch order. SCE&G's economic block dispatch, which shows the grouping of its generators (includes designated network resources and legally obligated to run resources to the extent applicable), is used as an input to the model building process.

SCE&G currently allocates its generating units into 5 distinct blocks. Block 1 includes those units considered to be "must-run", i.e. those units that are expected to run at full available output all the time. Block 2 consists of those units next most likely to run and will run at full available output most of the time. Block 1 and Block 2 units are the most economical units, and are considered base load units. Block 3 units are "swing units", which fall between base load units and peaking units. These units run at different output levels and at different times depending on

demand requirements. Blocks 4 and 5 consist of the peaking units, Block 4 consists of the more economical units, and Block 5 includes the least economical peaking units.

III. Accounting for Counterflow:

MOD-001, R3.2: A description of the manner in which the Transmission Service Provider will account for counterflows including:

- **How confirmed Transmission reservations, expected Interchange and internal counterflow are addressed in firm and non-firm ATC or AFC calculations and the rationale for each. (R3.2.1 and R3.2.2)**

For those Transmission reservations included in the Transmission Operator models, SCE&G recognizes 100% of the counterflow impacts in its Firm and Non-Firm AFC calculations. Thus, for a given reservation having a negative or positive impact, 100% of the flow is accounted for in the model for every impacted Flowgate. The modeled reservation impacts are captured in the GSFs and baseflow values sent to the AFC Calculation Process. (Note: For the Hourly Operating Horizon, only scheduled interchange is considered. Reservations are not modeled in this Horizon).

When the TSP applies transmission reservation impacts in the opposite direction of flow on a Flowgate in the AFC calculations, Counterflow assumptions are used. Counterflow impact percentages are defined for each Flowgate and address:

- Firm reservation Counterflow impact on firm AFC calculations
- Firm reservation Counterflow impact on non-firm AFC calculations
- Non-firm reservation Counterflow impact on non-firm AFC calculations

The specific values for each Flowgate can be found in the Flowgate definition file located here: http://www.oatioasis.com/SCEG/SCEGdocs/fgate_Definitions.csv

Counterflow impact percentages have been established depending on the type of AFC calculation (Firm or Non-firm). Firm AFC calculations include 0% counterflow impacts. For Non-firm AFC calculations, in all but the Hourly Operating Horizon, counterflow impact percentages are defined for each Flowgate and utilize a percentage of the counterflow impact based on engineering judgment.

The organization of the above file as well as the default values used for Flowgates will be explained in the Flowgate Definitions Specification file located at:

http://www.oatioasis.com/SCEG/SCEGdocs/Flowgate_def_file_specification.xls

Expected Interchange (i.e. Interchange Schedules) impacts are considered only in the Transmission Operator Models and for only the Hourly Operating Horizon. Here, 100% of the counterflow impact due to scheduled interchange is accounted for by using the E-Tags from the NERC TagDump site.

Internal counterflow, or counterflow impacts not otherwise accounted for through reservations and schedules, (e.g. Gen-to-Load) are captured in the AFC Model Building process and thus have 100% counterflow accounting.

- **A rationale for that accounting specified in R3.2 (R3.2.2)**

Counterflow assumptions are based on engineering judgment and coordination with neighboring TOPs and TSPs that use the Flowgate methodology. At times, a Flowgate may experience higher or lower flows than normal Counterflows. If real-time or expected operating conditions change to the extent that higher or lower flows than normal Counterflows are expected, the Counterflow assumptions for the Flowgate can be changed to reflect the new conditions. Counterflow assumptions are reflected in the AFC process as a Flowgate attribute. As stated above, SCE&G uses the lesser of the Flowgate-based effective ATC and the contract path ATC. When utilizing the contract path ATC, counterflows are not applied.

SCE&G applies 100% of the counterflow impact for confirmed reservations, expected interchange, and internal counterflows that are captured in the Transmission Operator models for Firm and Non-firm calculations. The impact of Counterflows on the system is more certain when analyzed during Transmission Operator modeling process.

IV. Identity of Parties from which SCE&G Receives Data:

MOD-001, R3.3: The identity of the Transmission Operators and Transmission Service Providers from which the Transmission Service Provider receives data for use in calculating ATC or AFC.

SCE&G receives data for use in calculating ATC or AFC from the following entities: South Carolina Public Service Authority (Santee Cooper), Duke Energy Carolinas, Duke Energy Progress, Southern Company, SouthEastern Power Administration (SEPA), and Alcoa-Yadkin.

SCE&G also receives base case modeling data from various groups associated with development of transmission loadflow models. These models may be used as the actual base case model or used to derive the base case model used in SCE&G's AFC calculation. The impact of generation to load for all other TSP areas are calculated from the seasonal peak load forecast included in the SERC Near-Term Study Group (NTSG) models and IDC models.

V. Identity of Parties to which SCE&G Provides Data:

MOD-001, R3.4: The identity of the Transmission Service Providers and Transmission Operators to which it provides data for use in calculating transfer or Flowgate capability.

SCE&G provides data for use in calculating transfer or Flowgate capability to the following entities: South Carolina Public Service Authority (Santee Cooper), Duke Energy Carolinas, Duke Energy Progress, Southern Company, SouthEastern Power Administration (SEPA), and Alcoa-Yadkin.

SCE&G also submits base case modeling data associated with development of transmission loadflow models directly to the SERC LTSG and it is then transferred to the ERAG MMWG.

SDX, OASIS, and E-Tag provide many Transmission Service Providers and Transmission Operators with access to SCE&G data. Thus, certain Transmission Service Providers and Transmission Operators may use SCE&G data to calculate transfer or Flowgate capability without SCE&G's knowledge.

VI. Description of the Allocation Process:

MOD-001, R3.5: A description of the allocation processes listed below that are applicable to the Transmission Service Provider:

- **Processes used to allocate transfer or Flowgate capability among multiple lines or sub-paths within a larger ATC Path or Flowgate.**

SCE&G does not allocate transfer or Flowgate capability among multiple lines or among sub-paths within a larger ATC Path or Flowgate.

- **Processes used to allocate transfer or Flowgate capabilities among multiple owners or users of an ATC Path or Flowgate.**

SCE&G does not allocate transfer or Flowgate capability among multiple owners or users of an ATC Path of Flowgate.

- **Processes used to allocate transfer or Flowgate capabilities between Transmission Service Providers to address issues such as forward looking congestion management and seams coordination.**

SCE&G has not executed any forward looking congestion management and seams agreements.

VII. Description of How Outages are Considered:

MOD-001, R3.6: A description of how generation and transmission outages are considered in transfer or Flowgate capability calculations, including:

SCE&G considers and includes all internal and external generation and transmission outages that are available in System Data eXchange (SDX) for the SOCO RC footprint and the VACAR South RC footprint. Entities in the SOCO RC footprint and VACAR South RC footprint send generator and transmission outages to SDX and receive data for generator and transmission outages from SDX. These outages are incorporated into the model builds as described in the Model Building process above.

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 SCE&G's transmission system and that of adjacent Transmission Provider's system (tie lines) and are at least an hour in duration. The start and stop times of these outages may be modified to begin and/or end on the hour. Impacts of these outages are reflected in the RCPC as a change in the Contract Path Limit as defined in the Attachment C of SCE&G's OATT.

- **Criteria used to determine when an outage that is in effect part of a day impacts a daily calculation. (R 3.6.1)**

Outages are applied to the daily AFC calculation when the duration of the outage is greater than or equal to 50% of the time period 12:00-16:00 EPT. The AFC Calculation Cutoff is set to ignore constraints if contingency flow does not change by more than 5 MW or 2.0 Percent.

- **Criteria used to determine when an outage that is in effect part of a month impacts a monthly calculation. (R 3.6.2)**

Outages are applied to the Monthly AFC calculation when the duration of the outage is greater than or equal to 50% of the time period from 12:00-16:00 EPT on the third Wednesday of each month. The AFC Calculation Cutoff is set to ignore constraints if contingency flow does not change by more than 5 MW or 2.0 Percent.

- **Outages from other Transmission Service Providers that cannot be mapped to the Transmission model used to calculate transfer or Flowgate capability are addressed. (R 3.6.3)**

Outages from other TSPs that cannot be mapped to the model will not be used to calculate AFC until those outages can be appropriately modeled in the base case and the applicable model update has been completed.