Methodology for Calculating Operating Limits for Generators

I. Generator Operating Limit Definition

The Generator Operating Limit (GOL) for a generator establishes a path-specific, directional, local area transmission capability value that, in conjunction with ATC, can be used to reserve and schedule Short-Term Firm Point-to-Point Transmission Service from a generating facility located within the Transmission Provider's Control Area, without performing a system impact study and without violating reliability criteria on facilities local to the generator. GOL's are calculated on a rolling 30-day basis for the next 30 days and on a rolling 13-month time period for the next 13 months. Except where system reliability may be jeopardized, a generator will be permitted to reserve service in excess of its GOL on a non-firm basis up to the limits of the available posted path ATC.

II. Calculation Methodology for GOLs.

GOL Power Flow Studies. Transmission Provider shall calculate monthly and daily GOL values for specific generating facilities by using reasonably updated daily or monthly power flow models to simulate power transfers to each of the Control Area interfaces that are directly interconnected to the Transmission System and for which Transmission Provider calculates export ATC. The monthly or daily GOL values associated with each Control Area interface will be subject to the transfer limit identified in the generator-specific power flow study. A transfer limit will be established if a single contingency thermal overload exceeds the emergency rating on any transmission facility located within the Ten-Bus Radius (described below) of the generating facility being evaluated.

GOL Power Flow Study Parameters. GOL power flow studies will be performed consistent with the parameters described below.

1. **Generator Output Level.** In order to simulate the transfers in the direction of the Control Area interfaces, generating facilities for which the GOL is being calculated will be set at an output level of zero, with the exception of units that are designated as network resources. If a study generator is designated as a network resource, it will be set to an expected dispatch level based upon the network load requirements of the powerflow base case associated with the peak hour for the period. To simulate a transfer, the study generator will be incrementally ramped up, or decremented down, while generating

facilities in the "receiving" Control Area will be ramped down or up in a converse manner. For purposes of conducting the study, all generating facilities, other than the studied generator, will be set to appropriate MW output levels to accommodate their existing firm commitments. Network resources will be set to an expected dispatch level based upon the network load requirements of the powerflow base case associated with the peak hour for the period. The initial dispatch level set by the Transmission Provider for a study generator that is designated as a network resource will not guarantee that the GOL in the direction of any of the 14 interfaces will be equal to or greater than the initial dispatch level. The final GOL value could end up being higher *or lower* than the starting assumed dispatch level depending upon system conditions.

Energy's GOL process is a method of reserving Short-Term Firm Point-To-Point transmission service, it is not a basis for curtailing transmission service. Previously approved Firm point-to-point transmission reservations will be honored even if the relevant directional GOL is below the approved level of the Long-Term reservation.

2. **Outage Transfer Distribution Factor.** A transfer limit will be considered valid only if the Outage Transfer Distribution Factor (OTDF) for the specific transfer is greater than or equal to 3%.

3. **Ten-Bus Radius.** The Ten-Bus Radius applicable to a GOL power flow study will be determined by traversing along any combination (various kV levels) of a maximum of ten (10) buses starting from the point of interconnection. The ten (10) bus combination will be such that no more than 10 facilities are on the transmission system 161 kV and below, 5 facilities are on the 230 kV transmission system and 1 facility is on the 345 kV or 500 kV transmission system.

4. **Outages.** Planned outages of transmission and generating facilities will be included in the monthly and daily power flow models consistent with Good Utility Practice. For monthly GOL calculations, in the event that multiple, non-simultaneous transmission outages are planned for a given month, Transmission Provider will determine which outage to include in the power flow model, typically the outage with the greatest overall expected impact.

5. **Updating Power Flow Models.** Power flow models used to calculate monthly GOL values will be maintained and updated on a monthly basis. Power flow models used to calculate daily GOL values will be prepared at least 30 days in advance and updated as necessary to accommodate changing system conditions. Updates to these models can include, but are not limited to, modifications to

transmission/generation outage status, load forecasts and interchange assumptions

Frequency of GOL Calculations. GOL values will be provided on a daily and monthly basis. Monthly GOL values will be calculated on a rolling, thirteen-month basis. Daily GOL values will be calculated on a rolling, thirty-day basis. When a new generating facility becomes operational, Transmission Provider will provide monthly GOL values, as requested by the owner of the generating facility, no more than three months in advance of the expected in-service date and daily GOL values thirty days in advance of the expected in-service date.

Recalculation of GOL Values. To the extent that substantial changes in Transmission System topography may have a significant impact on system reliability or will significantly increase or decrease the level of previously calculated GOL values, the Transmission Provider may recalculate GOL values at shorter intervals on a non-discriminatory basis. Changes in Transmission System topography that may allow for the recalculation of GOL values include, but are not limited to, transmission and generation outages unforeseen at the time the GOL values were originally calculated and modifications to load forecasts. To the extent that the Transmission Provider concludes a recalculation of GOL values for a particular period is appropriate, the Transmission Provider shall recalculate all GOL values for that period for all generating facilities within the Transmission Provider's Control Area on a non-discriminatory basis. Transmission service requests accepted prior to a recalculation of GOL values will not be impacted by the recalculation.

III. Local Area Generator Operating Limit Calculation

Definition of a Local Area Limit. Two or more generators that are within close electrical proximity will be evaluated against the following criteria to determine if they significantly impact common transmission elements and need to be included in a Local Area Limit for Generator Operating Limit purposes.

Priority of service for Local Area Limits. Transmission service is granted on a first come first serve basis. Transmission customers have the option of requesting a system impact study to evaluate whether monthly service can be granted above a predetermined GOL value. System impact studies will not be offered for daily/weekly transmission service requests where GOL values are available and can be used to determine if service can be granted. Unless system reliability is jeopardized, generators participating in the Local Area may reserve and schedule non-firm transmission service above the GOL within the limits of the available posted path ATC.

Criteria for Determining Local Areas. To the extent that two or more generating facilities satisfy the criteria set forth below, they will be included within a Local Area. Individual monthly GOL values will be calculated for each generator on Entergy's system, requiring a total of 182 transfer simulations (13 months x 14 interface paths). Two or more generating facilities will be assigned to a Local Area if a common limiting element is one of the top three limits to transfers in over 30% of the transfer simulations conducted for the generators being studied. New generating facilities locating on the Transmission Provider's Transmission System will be evaluated against this criteria to determine if they should be required to participate in a Local Area and share a Local Area GOL with other generating facilities. All generating facilities will be reevaluated annually to determine if the status of the Local Area has changed, or, at shorter intervals, when substantial and material changes to the topography of the Transmission System suggest that additional studies may result in the creation of a new local area, the inclusion of an additional generator in an existing Local Area, the dissolution of an existing Local Area, or the exclusion of one or more generators from an existing Local Area.

Local Area GOL Power Flow Studies. Transmission Provider shall calculate monthly and daily Local Area GOL values for the Local Area by using reasonably updated monthly and daily power flow models to simulate power transfers to each of the Control Areas interfaces that are directly interconnected to the Transmission System and for which Transmission Provider calculates export ATC. The monthly or daily Local Area GOL values associated with each Control Area interface will be the transfer limit identified in the power flow study. A transfer limit will be established if a single contingency thermal overload exceeds the emergency rating on any transmission facility located within the Ten-Bus Radius of each generating facility within the Local Area.

Local Area GOL Power Flow Study Parameters. Power flow studies conducted to assess local area limits will be performed consistent with the parameters described for power flow studies conducted to determine the GOL of an individual generator, as explained in Section II. of this Methodology, subject to the following exception regarding the appropriate Generator Output Levels to use in Local Area studies.

- **Generator Output Level.** In order to simulate a transfer to the various Control Area interfaces, generating facilities within the Local Area will be set to a starting MW output level consistent with approved network service from that unit. To calculate Local Area GOL values, the transfer will be simulated by assuming a starting MW output level based on existing firm commitments or expected dispatch levels and then all units within the Local Area will be incrementally ramped up, or decremented down, while generating facilities in the Control Area of the directional Local Area GOL being calculated will be ramped down.

Frequency of Local Area GOL Calculations. Local Area GOL values will be calculated with the same frequency as the GOL values for individual generating facilities, described in Section II. of this Methodology.

Recalculation of GOL Values. Local Area GOL values will be recalculated on the same basis as GOL values for individual generating facilities, as described in Section II. of this Methodology.

IV. Jointly Owned Units

GOL values for Jointly Owned Units. GOL values will be calculated and updated on Joint Owned Units on the same basis as the GOL values for other generating facilities, as described in Section II. of this Methodology.

Priority of Service using the GOL. For generating facilities with two or more owners, the applicable GOL and/or applicable Local Area GOL (if any) shall be allocated to each of the joint owners on a *pro rata* basis to be determined by the Transmission Provider and the joint owners.