Feasibility Study on Load Flow and Short Circuit

(Project #022007-02 547 MW Peakers and Repower)

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I. Introduction

This Feasibility Study is the first step of the interconnection process and is based on the customer's request for interconnection on Cleco's transmission system (see Appendix II for the definition of Interconnection Study). The requested interconnection will be evaluated as a Cleco Power Network Resource. The proposed interconnection will be as follows:

- Installation of three new 100 MW 7EA Simple Cycle Combustion Turbines (Peakers) as well as repowering an existing steam turbine in a 2 on 1 combined cycle configuration for a total incremental generating capacity of 547 MW.

The objective of this feasibility study is to assess the reliability impact of the new facility on the Cleco transmission system as well as determine if first tier neighboring transmission systems are affected. Though this study is not intended to examine pre-existing problems unrelated to the proposed plant, it is intended to determine whether the transmission system meets Cleco's performance criteria when the plant is in-service. If not, transmission improvements will be identified and evaluated.

The customer intends to install three new 7EA Simple Cycle Combustion Turbines (Peakers) rated 114 MVA with a power factor of 0.85, which yields a net maximum output of 100 MW for each generator. Also as part of this project the customer intends to install two new 7FA Combustion Turbines rated at 222 MVA with a power factor of 0.85 in a 2 on 1 configuration repowering an existing Steam Turbine, which yields an additional 247 MW to the existing plants generation This configuration with 3 Peakers and Repowering an existing steam turbine would yield a maximum incremental output of 547 MW at the perposed site. The Customer anticipates injecting approximately 547 MW incremental into the Cleco transmission system.

The proposed in-service date for this facility is 2012.

The installation of this generation required a load flow analysis to determine if the existing transmission facilities are adequate to handle this amount of generation, and a short circuit analysis to determine if the generation would cause the available fault current to surpass the fault duty of previously installed equipment on the Cleco system as well as neighboring systems.

This Feasibility Study was based on information provided by the customer and assumptions made by Cleco's Transmission System Planning department. If the actual equipment installed is different from the supplied information or the assumptions made, the results outlined in this report are subject to change.

It should be noted that carrying out the mandatory upgrades identified in this report does not guarantee transmission service for the customer. Transmission Service should be requested through OASIS and the request will be granted on a first-come, first served basis.

Any assumptions or scenarios the Interconnection Customer deems appropriate for completeness of the Interconnection System Impact Study process must be submitted in writing with or before the receipt of the signed request for the Interconnection System Impact Study.

II. MODEL & CRITERIA

A. Model Information

The load flow analysis was performed based on the projected 2012 summer peak SPP load flow model. All firm power transactions between Cleco Power and its neighboring control areas were modeled. Existing Cleco Power designated network resource generation was modified to accommodate the proposed plant generation. In addition, as stated in the Large Generator Interconnection Proposal (LGIP) all proposed generation with a prior position in Cleco's interconnection queue was modeled in an attempt to reflect worst case conditions. Mandatory transmission upgrades were also included to build a revised case for the load flow analysis. Therefore, for this request the dispatch scenario considered the transfer of 547 MW of incremental generation at the customer's purposed site to displace existing network resources and contracts.

The generator step-up transformers, generators, and interconnecting lines were modeled according to the information provided by the customer.

Modifications to Model

All interconnection requests that are in a prior (higher) position in the queue are required to be modeled when studying the current interconnection request.

The following upgrades are required to be performed due to the proposed interconnection on Entergy's system near New Roads, LA.

- Expand Richard substation to include a 230/500 kV Auto transformer. Build 70 miles of 230 kV line with double bundled 1272 conductor from Big Cajun to Richard.

B. Software & Criteria

i) AC Load Flow Analysis:

The purpose of the load flow analysis is to stress the transmission system with the new generation addition by simulating outages on facilities in Cleco, Entergy, AEP, LEPA, and Lafayette Utility System while monitoring these same facilities to determine the impact of affected systems. The objective is to identify potential criteria violations of current and voltage as identified in the Performance Criteria section of this report. This analysis was performed using PTI's Power System Simulator for Engineering (PSS/E) and MUST software to determine the reliability impact on the transmission system under single contingencies. Line loading levels were monitored for each contingency. If any additional facilities were found to be overloaded as a result of the upgrades, those facilities were upgraded as well and put back in the revised load flow case. The analysis was considered to be complete once no facilities were found to be overloaded.

ii) Short Circuit Analysis:

The objective of the short circuit analysis is to determine the impact if any that the new generation will have on system fault current. The new fault current levels will be evaluated to determine if existing fault interrupting devices exceed their rating under simulated fault conditions as a result of the new generation addition. The software used in this fault analysis is ASPEN short circuit program.

iii) Performance Criteria

The criteria for overload and voltage violations are as follows:

A) With All Lines in Service

- All bus voltages must remain within a 0.95 to 1.05 p.u. voltage range.
- The MVA flow in any branch should not exceed Rate A (normal rating).

B) Under Contingencies

- All bus voltages must remain within a 0.92 to 1.05 p.u. range.
- Voltage deviation of no more than 0.03 p.u. between pre-contingency and post contingency cases.

- The MVA flow through any facility should not exceed the emergency Rate B.
- If the flow on a facility in the exceeds 100% of its emergency rating with the plant in service for a particular contingency, the loading shall be compared with the corresponding loading on the line under a similar situation without the plant. If the plant causes a flow difference higher than 3.0%, the facility is expected to require improvement.
- Elements on affected systems are allowed to be overloaded by as much as 3.0%.
- If more than one scenario is used for dispatching power from the new plant, overloaded facilities that appear in all dispatch scenarios are expected to be improved regardless of their proximity to the new plant.

C) Short Circuit

- Fault interrupting devices which exceed 90 % of rating will be designated as mandatory upgrade and replaced.

iv) Power Factor Consideration / Criteria

Cleco requires the customer to be capable of supplying at least 0.33 MVAR (*i.e.*, 0.95 lagging power factor) and absorbing at least 0.25 MVAR (*i.e.*, 0.97 leading power factor) for every MW of power injected into the grid. In the event that, under normal operating conditions, the customer facility does not meet the prescribed power factor requirements at the point of interconnection, the customer shall take necessary steps, such as the installation of reactive power compensating devices, to achieve the desired power factor.

III. NETWORK RESOURCE INTERCONNECTION

A. Network Resource Interconnection Study Guidelines

Transmission Provider must conduct the necessary studies and construct the Network Upgrades needed to integrate the Large Generating Facility (1) in a manner comparable to that in which Transmission Provider

integrates its Generating Facilities to serve native load customers; or (2) in an ISO or RTO with market based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service Allows Interconnection Customer 's Large Generating Facility to be designated as a Network Resource, up to the Large Generating Facility's full output, on the same basis as all other existing Network Resources interconnected to Transmission Provider's Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur.

The Interconnection Study for Network Resource Interconnection Service shall assure that the Interconnection Customer's Large Generating Facility meets the requirements for Network Resource Interconnection Service and as a general matter, that such Large Generating Facility's interconnection is also studied with Transmission Provider's Transmission System at peak load, under a variety of severely stressed conditions, to determine whether, with the Large Generating Facility at full output, the aggregate of generation in the local area can be delivered to the aggregate of load on Transmission Provider's Transmission System, consistent with Transmission Provider's reliability criteria and procedures. This approach assumes that some portion of existing Network Resources are displaced by the output of Interconnection Customer's Large Generating Facility. Network Resource Interconnection Service in and of itself does not convey any right to deliver electricity to any specific customer or Point of Delivery.

B. Power Flow Results

i) After performing the AC Contingency analysis, it was determined that the elements shown in Attachment I are the limiting elements.

ATTACHMENT I

TABLE I.a.
547 MW INCREMENTAL PLANT ADDITION
(All Lines in service)

Total Site Generation	Limiting Facility	Rating (MVA)	Base Loading (MW)
676.5	Duboin to Bayou Warehouse 138 kV line	112	33.3
807.1	Moril to Duboin 138 kV line	112	56.3
829.0	Ivanhoe to Bayou Warehouse 138 kV line	145	62.9

TABLE I.b.
547 MW INCREMENTAL PLANT ADDITION

Total Site Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
288.1 MW	Duboin to Bayou Warehouse 138 kV line	Hopkins to Moril 138 kV line	112	5.5
402.1 MW	Moril to Duboin 138 kV line	Hopkins to Moril 138 kV line	112	3.5
408.2 MW	Ivanhoe to Bayou Warehouse 138 kV line	Hopkins to Moril 138 kV line	145	5.8
436.1 MW	Duboin to Bayou Warehouse 138 kV line	Patoutville to Teche 138 kV line	112	5.5
473.0 MW	Moril 138/69 kV Autotransformer	Moril to Delcamb 138 kV line	100	-N/A-
528.4 MW	Moril to Duboin 138 kV line	Patoutville to Teche 138 kV line	112	3.5
538.8 MW	Ivanhoe to Bayou Warehouse 138 kV line	Patoutville to Teche 138 kV line	145	5.8
571.9 MW	Hopkins to Moril 138 kV line	Julien to Teche 138 kV line	288	2.5
642.8 MW	Patoutville to Teche 138 kV line	Morbihan to Teche 138 kV line	289	12.6

TABLE I.c.
547 MW INCREMENTAL PLANT ADDITION

UPGRADES:	*Planning Estimate*
Add a Phase Angle Regulating Transformer to the Teche-Ivanhoe 138 kV line	$4,800,000
Total:	**$4,800,000**

Total Site Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
482.1 MW	Moril 138/69 kV Autotransformer	Moril to Delcamb 138 kV line	100	-N/A-
584.3 MW	Teche to Patoutville 138 kV line	Morbihan to Teche 138 kV line	296	12.4
603.3 MW	Hopkins to Patoutville 138 kV line	Morbihan to Teche 138 kV line	296	10.6
620.9 MW	Moril to Hopkins 138 kV line	Bayou Sale to Teche 138 kV line	289	2.5
655.8 MW	Teche to Patoutville 138 kV line	Hopkins to Morbihan 138 kV line	296	12.4
655.9 MW	Morbihan to Teche 138 kV line	Patoutville to Teche 138 kV line	296	22.1
677.7 MW	Teche to Patoutville 138 kV line	Bayou Sale to Teche 138 kV line	296	12.4
866.8 MW	Moril to Cecelia 138 kV line	Moril to Delcamb 138 kV line	151	30
872.7 MW	Moril to Delcamb 138 kV line	Bayou Sale to Teche 138 kV line	251	5
898.8 MW	Hopkins to Morbihan 138 kV line	Bayou Sale to Teche 138 kV line	246	7.5

TABLE I.d.
547 MW INCREMENTAL PLANT ADDITION

UPGRADES:	*Planning Estimate*
Add a Phase Angle Regulating Transformer to the Teche-Ivanhoe 138 kV line	$4,800,000
Add a Second Moril 138/69 kV Autotransformer (100MVA)	$1,000,000
Total:	**$5,800,000**

Total Site Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
584.3 MW	Teche to Patoutville 138 kV line	Morbihan to Teche 138 kV line	296	12.4
603.3 MW	Hopkins to Patoutville 138 kV line	Morbihan to Teche 138 kV line	296	10.6
620.9 MW	Moril to Hopkins 138 kV line	Bayou Sale to Teche 138 kV line	289	2.5
655.8 MW	Teche to Patoutville 138 kV line	Hopkins to Morbihan 138 kV line	296	12.4
655.9 MW	Morbihan to Teche 138 kV line	Patoutville to Teche 138 kV line	296	22.1
677.7 MW	Teche to Patoutville 138 kV line	Bayou Sale to Teche 138 kV line	296	12.4
866.8 MW	Moril to Cecelia 138 kV line	Moril to Delcamb 138 kV line	151	30
872.7 MW	Moril to Delcamb 138 kV line	Bayou Sale to Teche 138 kV line	251	5
898.8 MW	Hopkins to Morbihan 138 kV line	Bayou Sale to Teche 138 kV line	246	7.5

TABLE I.e.
547 MW INCREMENTAL PLANT ADDITION

UPGRADES:	*Planning Estimate*

Add a Phase Angle Regulating Transformer to the Teche-Ivanhoe 138 kV line	$4,800,000
Add a Second Moril 138/69 kV Autotransformer (100MVA)	$1,000,000
Convert the existing line from Hopkins to Patoutville to Teche to a Double circuit 138 kV line from Moril to Teche and Moril to Patoutville to Teche (2-795)	$48,770,000
Total:	**$54,570,000**

Total Site Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
798.3 MW	Moril to Cecelia 138 kV line	Moril to Delcamb 138 kV line	151	30
844.6 MW	Moril to Delcamb 138 kV line	Bayou Sale to Teche 138 kV line	251	5
889.1 MW	Moril to Cecelia 138 kV line	Bayou Sale to Teche 138 kV line	151	30

TABLE I.f.
547 MW INCREMENTAL PLANT ADDITION

UPGRADES:	*Planning Estimate*
Add a Phase Angle Regulating Transformer to the Teche-Ivanhoe 138 kV line	$4,800,000
Add a Second Moril 138/69 kV Autotransformer (100MVA)	$1,000,000
Convert the existing line from Hopkins to Patoutville to Teche to a Double circuit 138 kV line from Moril to Teche and Moril to Patoutville to Teche (2-795)	$48,770,000
Reconfigure the existing line from Flanders to Hopkins to a Double circuit 138 kV line Milton to Moril (2-795)	$18,900,000
Total:	**$73,470,000**

Total Site Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
860.8 MW	Moril to Cecelia 138 kV line	Moril to Delcamb 138 kV line	151	30
887.8 MW	Moril to Cecelia 138 kV line	Leblanc to Delcamb 138 kV line	151	30
891.4 MW	Moril to Delcamb 138 kV line	Bayou Sale to Teche 138 kV line	251	5

TABLE I.g.
547 MW INCREMENTAL PLANT ADDITION

UPGRADES:	*Planning Estimate*
Add a Phase Angle Regulating Transformer to the Teche-Ivanhoe 138 kV line	$4,800,000
Add a Second Moril 138/69 kV Autotransformer (100MVA)	$1,000,000
Convert the existing line from Hopkins to Patoutville to Teche to a Double circuit 138 kV line from Moril to Teche and Moril to Patoutville to Teche (2-795)	$48,770,000
Reconfigure the existing line from Flanders to Hopkins to a Double circuit 138 kV line Milton to Moril (2-795)	$18,900,000
Build a new 138 kV substation (Turner) where the Judice to Meaux and Habetz to Milton 138 kV lines cross	$5,800,000
Total:	**$79,270,000**

Total Teche Generation	Overloaded Facility (Requires Upgrade)	First Contingency Responsible for Overload	Rating (MVA)	Total Length (Miles)
967 MW	*No additional improvement required*			

C. Short Circuit Results

The results of the short circuit analysis indicate that the addition of 547 MW of generation addition at Teche Power station does cause an increase in short circuit fault levels such that the short circuit currents exceed the interrupting capability of the existing 138 kV Breakers 8304, 8302 at Teche and 138 kV Breaker 8057 at Hopkins. The fault current interrupting ratings of breakers 8304, 8302 and 8057 is 15000, 21000 and 14700 amps respectfully, however under fault conditions with the new generation addition the fault current for single line to ground faults exceeded the short circuit planning criteria and therefore, breakers 8304, 8302, and 8057 must be replaced at an estimated cost of $345,000.

Bus	Device	Rating	Fault Duty	Cost
TECHE	BKR 3804	15000	127%	$115,000
TECHE	BKR 8302	21000	141%	$115,000
HOPKINS	BKR 8057	14700	91%	$115,000

D. Problem Resolution

Table I.g. identifies upgrades that relieve the overload conditions caused by the generation addition of 547 MW at the customer's purposed site. The six new upgrades that would be required are listed below:

- Add a Phase Angle Regulating Transformer to the Teche to Ivanhoe 138 kV transmission line at a cost of $4,800,000 rated for 296 MVA.
- Add a new 138/69 Autotransformer at Moril $1,000,000 rated at 100 MVA

- Convert the existing 138 kV line from Hopkins to Patoutville to Teche to a Double Circuit 138 kV line from Moril to Teche and Moril to Patoutville to rated for 497 MVA at a cost of $48,770,000.
- Convert the existing 138 kV line from Flanders to Hopkins to a Double Circuit 230 kV line from Milton to Moril rated for 829 MVA at a cost of $18,900,000.
- Build a new 138 kV substation (Turner) where the Judice to Meaux and Habetz to Milton 138 kV lines cross at a cost of $5,800,000.
- Replacement of breakers 8304, 8302 at Teche 138 kV substation and breaker 8057 at Hopkins substation at a cost of $345,000.

V.Conclusion/Recommendation

Based on the results of this feasibility study, to designate new generation at the customer's purposed site as a Cleco Power Network resource will require mandatory network upgrades and Entergy has been declared an affected system. Any generation addition at the customer's purposed site, will require adding a Phase Angle Regulating Transformer to the Teche to Ivanhoe 138 kV transmission line at a cost of approximately $4,800,000. The customer's total site generation at 482 MW will require a second 138/69 kV Autotransformer to be installed at the Moril Substation at a cost of approximately $1,000,000. The customer's total site generation above 584 MW will require converting the existing 138 kV line from Hopkins to Patoutville to Teche to a double circuit 138 kV line from Moril to Teche and Moril to Patoutville to Teche at a cost of approximately $48,770,000. The customer's total site generation above 798 MW will require converting the existing 138 kV line from Flanders to Hopkins to a double circuit 138 kV

line from Milton to Moril at a cost of approximately $18,900,000. The customer's total site generation above 860 MW will require building a new 138 kV substation (Turner) where the Judice to Meaux and Habetz to Milton 138 kV lines cross at a cost of approximately $5,800,000. The results from the short circuit analysis revealed that of breakers 8304, 8302 at Teche 138 kV substation and breaker 8057 at Hopkins substation must be replaced at a cost of $345,000.

ATTACHMENT II
(from Attachment K of the standard LGIP)

Definitions

Energy Resource Interconnection Service shall mean an Interconnection Service that allows the Interconnection Customer to connect its Generating Facility to the Transmission Provider's Transmission System to be eligible to deliver the Generating Facility's electric output using the existing firm or nonfirm capacity of the Transmission Provider's Transmission System on an as available basis. Energy Resource Interconnection Service in and of itself does not convey transmission service.

Network Resource shall mean any designated generating resource owned, purchased, or leased by a Network Customer under the Network Integration Transmission Service Tariff. Network Resources do not include any resource, or any portion thereof, that is committed for sale to third parties or otherwise cannot be called upon to meet the Network Customer's Network Load on a non-interruptible basis.

Network Resource Interconnection Service shall mean an Interconnection Service that allows the Interconnection Customer to integrate its Large Generating Facility with the Transmission Provider's Transmission System (1) in a manner comparable to that in which the Transmission Provider integrates its generating facilities to serve native load customers; or (2) in an RTO or ISO with market based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service in and of itself does not convey transmission.

Identification of Types of Interconnection Services.
At the time the Interconnection Request is submitted, Interconnection Customer must request either Energy Resource Interconnection Service or Network Resource Interconnection Service, as described; provided, however, any Interconnection Customer requesting Network Resource Interconnection Service may also request that it be concurrently studied for Energy Resource Interconnection Service, up to the point when an Interconnection Facility Study Agreement is executed. Interconnection Customer may then elect to proceed with Network Resource Interconnection Service or to proceed under a lower level of interconnection service to the extent that only certain upgrades will be completed.

Energy Resource Interconnection Service.

The Product. Energy Resource Interconnection Service allows Interconnection Customer to connect the Large Generating Facility to the Transmission System and be eligible to deliver the Large Generating Facility's output using the existing firm or non-firm capacity of the Transmission System on an "as available" basis. Energy Resource Interconnection Service does not in and of itself convey any right to deliver electricity to any specific customer or Point of Delivery.

The Study. The study consists of short circuit/fault duty, steady state (thermal and voltage) and stability analyses. The short circuit/fault duty analysis would identify direct Interconnection Facilities required and the Network Upgrades necessary to address short circuit issues associated with the Interconnection Facilities. The stability and steady state studies would identify necessary upgrades to allow full output of the proposed Large Generating Facility and would also identify the maximum allowed output, at the time the study is performed, of the interconnecting Large Generating Facility without requiring additional Network Upgrades.

Network Resource Interconnection Service.

The Product. Transmission Provider must conduct the necessary studies and construct the Network Upgrades needed to integrate the Large Generating Facility (1) in a manner comparable to that in which Transmission Provider integrates its Generating Facilities to serve native load customers; or (2) in an ISO or RTO with market based congestion management, in the same manner as all other Network Resources. Network Resource Interconnection Service Allows Interconnection Customer 's Large Generating Facility to be designated as a Network Resource, up to the Large Generating Facility's full output, on the same basis as all other existing Network Resources interconnected to Transmission Provider's Transmission System, and to be studied as a Network Resource on the assumption that such a designation will occur.

The Study. The Interconnection Study for Network Resource Interconnection Service shall assure that the Interconnection Customer's Large Generating Facility meets the requirements for Network Resource Interconnection Service and as a general matter, that such Large Generating Facility's interconnection is also studied with Transmission Provider's Transmission System at peak load, under a variety of severely stressed conditions, to determine whether, with the Large Generating Facility at full output, the aggregate of generation in the local area can be delivered to the aggregate of load on Transmission Provider's Transmission System, consistent with Transmission Provider's reliability criteria and procedures. This approach assumes that some portion of existing Network Resources are displaced by the output of Interconnection Customer's Large Generating Facility. Network Resource Interconnection Service in and of itself does not convey any right to deliver electricity to any specific customer or Point of Delivery.

Section 6. Interconnection Feasibility Study.

6.1 Interconnection Feasibility Study Agreement.

Simultaneously with the acknowledgement of a valid Interconnection Request Transmission Provider shall provide to Interconnection Customer an Interconnection Feasibility Study Agreement in the form of Appendix 2. The Interconnection Feasibility Study Agreement shall specify that Interconnection Customer is responsible for the actual cost of the Interconnection Feasibility Study. Within five (5) Business Days following the Scoping Meeting Interconnection Customer shall specify for inclusion in the attachment to the Interconnection Feasibility Study Agreement the Point(s) of Interconnection and any reasonable alternative Point(s) of Interconnection. Within five (5) Business Days following Transmission Provider's receipt of such designation, Transmission Provider shall tender to Interconnection Customer the Interconnection

Feasibility Study Agreement signed by Transmission Provider, which includes a good faith estimate of the cost for completing the Interconnection Feasibility Study. Interconnection Customer shall execute and deliver to Transmission Provider the Interconnection Feasibility Study Agreement along with a $10,000 deposit no later than thirty (30) Calendar Days after its receipt.

On or before the return of the executed Interconnection Feasibility Study Agreement to Transmission Provider, Interconnection Customer shall provide the technical data called for in Appendix 1, Attachment A.

If the Interconnection Feasibility Study uncovers any unexpected result(s) not contemplated during the Scoping Meeting, a substitute Point of Interconnection identified by either Interconnection Customer or Transmission Provider, and acceptable to the other, such acceptance not to be unreasonably withheld, will be substituted for the designated Point of Interconnection specified above without loss of Queue Position, and Re-studies shall be completed pursuant to Section 6.4 as applicable. For the purpose of this Section 6.1, if Transmission Provider and Interconnection Customer cannot agree on the substituted Point of Interconnection, then Interconnection Customer may direct that one of the alternatives as specified in the Interconnection Feasibility Study Agreement, as specified pursuant to Section 3.3.4, shall be the substitute.

If Interconnection Customer and Transmission Provider agree to forgo the Interconnection Feasibility Study, Transmission Provider will initiate an Interconnection System Impact Study under Section 7 of this LGIP and apply the $10,000 deposit towards the Interconnection System Impact Study.

6.2 Scope of Interconnection Feasibility Study.

The Interconnection Feasibility Study shall preliminarily evaluate the feasibility of the proposed interconnection to the Transmission System.

The Interconnection Feasibility Study will consider the Base Case as well as all Generating Facilities (and with respect to (iii), any identified Network Upgrades) that, on the date the Interconnection Feasibility Study is commenced: (i) are directly interconnected to the Transmission System; (ii) are interconnected to Affected Systems and may have an impact on the Interconnection Request; (iii) have a pending higher queued Interconnection Request to interconnect to the Transmission System; and (iv) have no Queue Position but have executed an LGIA or requested that an unexecuted LGIA be filed with FERC. The Interconnection Feasibility Study will consist of a power flow and short circuit analysis. The Interconnection Feasibility Study will provide a list of facilities and a non-binding good faith estimate of cost responsibility and a non-binding good faith estimated time to construct.

6.3 Interconnection Feasibility Study Procedures.

Transmission Provider shall utilize existing studies to the extent practicable when it performs the study. Transmission Provider shall use Reasonable Efforts to complete the Interconnection Feasibility Study no later than forty-five (45) Calendar Days after

Transmission Provider receives the fully executed Interconnection Feasibility Study Agreement. At the request of Interconnection Customer or at any time the Transmission Provider determines that it will not meet the required time frame for completing the Interconnection Feasibility Study, Transmission Provider shall notify Interconnection Customer as to the schedule status of the Interconnection Feasibility Study. If Transmission Provider is unable to complete the Interconnection Feasibility Study within that time period, it shall notify Interconnection Customer and provide an estimated completion date with an explanation of the reasons why additional time is required. Upon request, Transmission Provider shall provide Interconnection Customer supporting documentation, workpapers and relevant power flow, short circuit and stability databases for the Interconnection Feasibility Study, subject to confidentiality arrangements consistent with Section 13.1.

6.3.1 Meeting with Transmission Provider.

Within ten (10) Business Days of providing an Interconnection Feasibility Study report to Interconnection Customer, Transmission Provider and Interconnection Customer shall meet to discuss the results of the Interconnection Feasibility Study.

6.4 Re-Study.

If Re-Study of the Interconnection Feasibility Study is required due to a higher queued project dropping out of the queue, or a modification of a higher queued project subject to Section 4.4, or re-designation of the Point of Interconnection pursuant to Section 6.1 Transmission Provider shall notify Interconnection Customer in writing. Such Re-Study shall take not longer than forty-five (45) Calendar Days from the date of the notice. Any cost of Re-Study shall be borne by the Interconnection Customer being re-studied.