COMED BASELINE RTEP REPORT

AND

GENERATOR DELIVERABILITY RESULTS

For the 2003 - 2007 Period

Issued May 20, 2004

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INTRODUCTION

The PJM Regional Transmission Expansion Planning (RTEP) Process requires that cost responsibility for facility enhancements be established. There are three types of facility enhancements for which cost assignment must be made:

- Attachment Facilities required solely to interconnect a new generation project,
- Network Facilities that are required to enhance the network solely or in part because of a proposed project, and
- Network Facilities required to support load growth.

In order to establish a starting point for development of Regional Transmission Expansion Plans and determine cost responsibility for expansion facilities, a 'baseline' analysis of system adequacy and security is necessary. The purpose of this analysis is threefold:

- to identify areas where the system, as planned, is not in compliance with the applicable reliability standards (for purposes of this report, "applicable reliability standards" will be defined as NERC, MAIN, ComEd, and PJM Reliability Planning Criteria). The baseline system will be analyzed using the same criteria and analysis methods that will be used for assessing the impact of proposed new generation projects. This will ensure that the need for system enhancement of the baseline system and enhancements due to generation projects are determined in a consistent and equitable manner.
- to bring those areas into compliance, develop and recommend facility expansion plans, including cost estimates and estimated in-service dates.
- to establish what will be included as baseline costs in the allocation of the costs of expansion for those generation projects proposing to connect to the PJM system.

The system as planned is tested for its compliance with applicable reliability standards and PJM design standards to accommodate the forecast demand, committed resources, and commitments for firm transmission services for a specified time frame. Areas not in compliance with the standards are identified and enhancement plans are developed to achieve compliance.

This 'baseline' analysis and the resulting expansion plans served as the base system for the generator deliverability studies that were conducted for all generation that had an executed Interconnection Agreement with ComEd as of May 1, 2004.

The focus of this first ComEd baseline analysis was on the PJM Generator Deliverability test. Generators that already had firm transmission rights on the ComEd system were assumed to be part of the base system. This assumption is based on the fact that ComEd had previously studied these generators for compliance with MAIN, NERC and ComEd criteria when these generators applied for interconnection and transmission service. A generator deliverability test had not previously been performed since firm rights to transfer the generator MWs within or out of the ComEd Control Area was provided through network or point to point transmission service respectively. In addition to the PJM Generator Deliverability test, preliminary Load Deliverability analysis was completed for the ComEd control area. This report documents the results of these analyses and the deliverability results for all generators that had executed an Interconnection Agreement with ComEd as of May 1, 2004.

The next RTEP Baseline report and analysis, targeted for a June completion date, will include a review of all applicable MAIN and ComEd planning criteria along with a re-evaluation of the PJM load and generator deliverability studies. The reference year for analysis will be 2008 and the ComEd results will be included within the PJM RTEP Baseline Report which will also include results for the existing PJM system. All generation projects in the present ComEd queue will be merged into the existing PJM queue and studied according to the PJM tariff requirements.

EXECUTIVE SUMMARY

PJM has responsibility for the development of a Regional Transmission Expansion Plan (RTEP) for the PJM system that will meet the needs of the region in a reliable and economic manner. PJM also is responsible for recommending the assignment of any transmission expansion costs to the appropriate parties. In order to carry out these responsibilities, it is necessary to establish a starting point or 'baseline' from which the need and responsibility for enhancements can be determined.

In order to establish the baseline, PJM has defined the five (5) year period from 2003 through 2007 as the initial ComEd "baseline" planning period. The existing system plus any planned modifications to the transmission system scheduled to be in service prior to the 2007 summer peak period was chosen as the base system. Generators in the ComEd Control Area were studied in three categories as explained below:

- ✓ Category 1 generators – generators in the ComEd Control Area that were in-service and have or had firm delivery rights anytime before December 31, 2003.
- ✓ Category 2 generators – generators in the ComEd Control Area that were in-service but never had firm delivery rights.
- ✓ Category 3 generators – generators in the ComEd Control Area that had executed an Interconnection Agreement with ComEd but were not in-service as of December 31, 2003.

Category 1 generators were modeled in the original basecase. This category of generation was considered to have firm delivery rights and the responsibility for any identified reliability impacts and the associated system upgrades would be assigned to ComEd. This basecase was tested for compliance with ComEd and MAIN Planning Criteria. Any system problems were documented, upgrades were identified to mitigate all problems and the system model was updated accordingly. This was the reference system by which the category 2 generation was studied.

The generator deliverability analysis was next completed for all Category 2 generators. Since these generators never had firm delivery rights within ComEd, any Category 2 generators that caused or contributed to an identified system problems was determined to be non-deliverable. All other Category 2 generators that did not cause or contribute to a system problem were found to be deliverable. This was the reference system by which the Category 3 generation was studied.

Category 3 generators were then studied with all Category 1 generators modeled, any required system upgrades to alleviate identified reliability problems, and all deliverable Category 2 generators. If any additional reliability problems were identified, any Category 3 generators that caused or contributed to the reliability problem were deemed non-deliverable. Any Category 3 generators that did not cause or contribute to a reliability problem were found to be deliverable.

Category 2 or 3 non-deliverable generators that want to be studied individually can submit a Feasibility Study request to PJM which will be handled through the existing interconnection processes as identified in the PJM tariff.

A list of all studied generation resources, the MW value studied, and the deliverability results are contained in Attachment 1.

KEY FINDINGS

The following areas of the system were found to be non-compliant with applicable reliability criteria without additional system upgrades beyond those currently identified through 2007. These areas are described below along with the identified reinforcements to achieve compliance.

1) In 2004, the Dresden 345/138 kV "Blue" transformer is overloaded for the outage of the Goodings Grove 345 kV – Lockport 345 kV "Red" circuit. The proposed solution is to perform a relay upgrade that results in a normal / emergency rating of 420 MVA / 480 MVA on the Dresden 345/138 kV transformer.

2) In summer of 2005, the Des Plaines – Howard 138 kV circuit is overloaded for outage of the parallel circuit. The capacity of this circuit will be increased by either re-tensioning or re-conductoring the transmission line prior to June of 2005.

3) In 2007, both Skokie TSS-85 – Skokie TSS-88 138kV circuits are overloaded for outage of the parallel circuit. Both of these circuits will be re-conductored with ACSS conductor. The circuit's new emergency rating will be 559 MVA.

4) In 2007, the Waukegan – Gurnee 138kV circuit is overloaded for the outage of the Round Lake – Wilson – Silver Lake 138kV circuit. This circuit will be reconductored to provide a new normal / emergency rating of 351 MVA / 445 MVA.

5) In 2007, the Joliet - Hillcrest 138kV circuit is overloaded for the loss of the Will County #4 generating unit. This circuit will be reconductored to provide a new normal / emergency rating of 351 MVA / 445 MVA.

In addition, the following Transmission Owner identified projects were included in the PJM RTEP 2007 system model.

- ✓ In 2004, install a new Wolfs Crossing substation and a new 345/138 kV transformer
- ✓ In 2004, install a second Burnham – Taylor 345 kV circuit
- ✓ In 2004, install two 345 kV bus tie circuit breakers at Des Plaines
- ✓ In 2004, install one 345 kV bus tie circuit breaker and upgrade one 138 kV line circuit breaker at Lombard
- ✓ In 2004, upgrade a 138 kV line circuit breaker at Northbrook
- ✓ In 2004, upgrade two 138 kV bus tie circuit breakers at Ridgeland
- ✓ In 2004, upgrade one 345 kV bus tie circuit breaker at Goodings Grove
- ✓ In 2004, upgrade one 138 kV line circuit breaker at Dresden

OBJECTIVE AND SCOPE

The objectives of this study were as follows:

- To identify areas where the system as planned for the period 2003 through 2007 would not be in compliance with applicable reliability criteria.
- To develop and recommend preliminary facility expansion plans, including cost estimates and estimated in service dates, to bring those areas into compliance.
- To establish what will be included as baseline expansion costs for the allocation of the costs of expansion for future ComEd generation projects.

The scope of this study included analysis for the period 2003 through 2007 to determine compliance with the PJM Deliverability requirements.

The system was not analyzed under non-peak load flow conditions on the basis that the system can and will be dispatched to remain within first contingency operating limits. Transmission constraints on market dispatch are economic constraints. Economic constraints are not considered violations of reliability criteria as long as the system can be adjusted to remain within reliability limits on a pre-contingency basis. Performance of the planned system under intermediate and light load conditions will be analyzed in the PJM Reliability Assessment to verify that the system as planned can indeed be operated in compliance with applicable reliability criteria. This will include a determination that the generation resources in ComEd are sufficient and are appropriately dispersed so that the generation dispatch can be adjusted to maintain the system within established thermal equipment ratings and voltage criteria limits under intermediate and light load conditions.

DELIVERABILITY ANALYSIS METHODOLOGY

Deliverability analysis was based on a representation of the 2007 forecast peak load with all firm transmission services committed for the 2007 period represented in the base case (see below).

COMED 2007 INTERCHANGE		
From	**To**	**MW**
CE	AEP	400
CE	ALTE	305
CE	ALTW	514
CE	AMRN	107
CE	IP	-295
CE	MEC	528
CE	NIPS	100
CE	WEC	775
Total		2434

This base system was used to evaluate thermal limits including the Generator Deliverability test where a multitude of dispatch patterns were analyzed. A complete description of the Generator Deliverability procedures is contained in Attachment E of PJM Manual M14B.

The 2007 base case was used to analyze network transfer capability. To maintain reliability in a competitive capacity market, resources must contribute to the deliverability of electricity in the Control Area in two ways: 1) energy must be deliverable from the aggregate of resources available to the Control Area to load in portions of the Control Area experiencing a localized capacity emergency, or deficiency, 2) capacity resources within a given electrical area must, in aggregate, be able to be exported to other areas of the Control Area within some bounds that separate the reliability requirements of the Control Area from the reasonable economic function of the market place. PJM has developed two methods for evaluating the adequacy of network transfer capability for each of these deliverability requirements. These methods are described in more detail in Attachment E of PJM Manual M14B.

The CETO/CETL method will be used to determine if the Capacity Emergency Transfer Limit (CETL) to each of the various electrical areas of PJM is sufficient to deliver each respective area's Capacity Emergency Transfer Objective (CETO).

The PJM Generation Deliverability procedure was used to determine if Network Transfer Capability was adequate to deliver all capacity resources out of defined areas to the network.

Category 1 and Category 2 Generator Deliverability Results

Name	ID	MW	Result
Aurora	1	152	Deliverable
Aurora	2	152	Deliverable
Aurora	3	152	Deliverable
Aurora	4	152	Deliverable
Aurora	10	45	Deliverable
Aurora	5	45	Deliverable
Aurora	6	45	Deliverable
Aurora	7	45	Deliverable
Aurora	8	45	Deliverable
Aurora	9	45	Deliverable
Bloom	34-1	13.7	Deliverable
Bloom	34-4	12.3	Deliverable
Bloom	33-3	12.7	Deliverable
Bloom	33-4	11.4	Deliverable
Braidwood	1	1223	Deliverable
Braidwood	2	1202	Deliverable
Byron	1	1221	Deliverable
Byron	2	1199	Deliverable
Calumet	31-1	14.7	Deliverable
Calumet	31-2	14.1	Deliverable
Calumet	31-3	12.3	Deliverable
Calumet	31-4	14.8	Deliverable
Calumet	33-1	15.1	Deliverable
Calumet	33-2	13	Deliverable
Calumet	33-3	13.6	Deliverable
Calumet	34-1	14	Deliverable
Calumet	34-2	13.6	Deliverable
Calumet	34-3	8.3	Deliverable
Calumet	34-4	15	Deliverable
Collins	1	554	Deliverable
Collins	2	554	Deliverable
Collins	3	530	Deliverable
Collins	4	530	Deliverable
Collins	5	530	Deliverable
Cordova Energy	CC1	500	Deliverable
Crawford	7H	106.5	Deliverable
Crawford	7L	106.5	Deliverable
Crawford	8H	175	Deliverable
Crawford	8L	144	Deliverable
Crawford	33-1	14.2	Deliverable
Crawford	33-2	13.8	Deliverable
Crawford	33-3	14.3	Deliverable
Crawford	33-4	13.7	Deliverable
Crawford	31-1	13.9	Deliverable
Crawford	31-2	13.7	Deliverable
Crawford	31-3	14.4	Deliverable
Crawford	31-4	13.9	Deliverable

Crawford	32-1	14.7	Deliverable
Crawford	32-2	14.7	Deliverable
Crawford	32-3	13.9	Deliverable
Crawford	32-4	14.2	Deliverable
Crete	1	75.2	Deliverable
Crete	2	75.2	Deliverable
Crete	3	75.2	Deliverable
Crete	4	75.2	Deliverable
Dresden	2	867	Deliverable
Dresden	3	867	Deliverable
Electric Junction	33-1	14.7	Deliverable
Electric Junction	33-2	15.1	Deliverable
Electric Junction	33-3	14.7	Deliverable
Electric Junction	33-4	14.7	Deliverable
Electric Junction	31-1	14.6	Deliverable
Electric Junction	31-2	15	Deliverable
Electric Junction	31-3	15.1	Deliverable
Electric Junction	31-4	14.7	Deliverable
Electric Junction	32-1	14.9	Deliverable
Electric Junction	32-2	14.6	Deliverable
Electric Junction	32-3	14.4	Deliverable
Electric Junction	32-4	15.3	Deliverable
Elgin	1	117	Deliverable
Elgin	2	117	Deliverable
Elgin	3	117	Deliverable
Elgin	4	117	Deliverable
Elwood	1	150	Deliverable
Elwood	2	150	Deliverable
Elwood	3	150	Deliverable
Elwood	4	150	Deliverable
Elwood	5	150	Deliverable
Elwood	6	150	Deliverable
Elwood	7	150	Deliverable
Elwood	8	150	Deliverable
Elwood	9	150	Deliverable
Equistar	CC1	174.6	Deliverable
Fisk	19H	181	Deliverable
Fisk	19L	145	Deliverable
Fisk	31-1	25.4	Deliverable
Fisk	31-2	23.7	Deliverable
Fisk	32-1	25.4	Deliverable
Fisk	32-2	25.4	Deliverable
Fisk	33-1	23.7	Deliverable
Fisk	33-2	25.4	Deliverable
Fisk	34-1	25.4	Deliverable
Fisk	34-2	22.8	Deliverable
Joliet	6H	157	Deliverable
Joliet	6L	157	Deliverable
Joliet	7H	264	Deliverable
Joliet	7L	254	Deliverable

Joliet	8H	264	Deliverable
Joliet	8L	254	Deliverable
Joliet	31-1	15.8	Deliverable
Joliet	31-2	14.5	Deliverable
Joliet	31-3	14.6	Deliverable
Joliet	31-4	14	Deliverable
Joliet	32-1	14.5	Deliverable
Joliet	32-2	14.3	Deliverable
Joliet	32-3	14.1	Deliverable
Joliet	32-4	13.9	Deliverable
Kendall	CC1	1160	Deliverable
Kincaid	1	579	Deliverable
Kincaid	2	579	Deliverable
LaSalle	1	1168	Deliverable
LaSalle	2	1171	Deliverable
Lee County	1	80	Deliverable
Lee County	2	80	Deliverable
Lee County	3	80	Deliverable
Lee County	4	80	Deliverable
Lee County	5	80	Deliverable
Lee County	6	80	Deliverable
Lee County	7	80	Deliverable
Lee County	8	80	Deliverable
Lincoln Center	1	72	Deliverable
Lincoln Center	2	72	Deliverable
Lincoln Center	3	72	Deliverable
Lincoln Center	4	72	Deliverable
Lincoln Center	5	72	Deliverable
Lincoln Center	6	72	Deliverable
Lincoln Center	7	72	Deliverable
Lincoln Center	8	72	Deliverable
Lombard	33-2	16.2	Deliverable
Lombard	331	16.2	Deliverable
Lombard	32-1	15.5	Deliverable
Lombard	32-2	16	Deliverable
Powerton	5	769	Deliverable
Powerton	6	769	Deliverable
Quad Cities	1	867	Deliverable
Quad Cities	2	867	Deliverable
River	1	150	Deliverable
River	2	150	Deliverable
Rockford I	1	150	Deliverable
Rockford I	2	150	Deliverable
Rockford II	3	147	Deliverable
Rocky Road	4	110	Deliverable
Rocky Road	1	110	Deliverable
Rocky Road	2	110	Deliverable
Rocky Road	3	30	Deliverable
Sabrooke	31-1	12.8	Deliverable
Sabrooke	31-2	12.4	Deliverable

Sabrooke	33-1	11	Deliverable
Sabrooke	33-2	12.8	Deliverable
Sabrooke	34-1	12.5	Deliverable
Sabrooke	32-1	11.4	Deliverable
Sabrooke	32-2	13.5	Deliverable
Southeast Chicago	10	38.5	Deliverable
Southeast Chicago	11	38.5	Deliverable
Southeast Chicago	12	38.5	Deliverable
Southeast Chicago	5	38.5	Deliverable
Southeast Chicago	6	38.5	Deliverable
Southeast Chicago	7	38.5	Deliverable
Southeast Chicago	8	38.5	Deliverable
Southeast Chicago	9	38.5	Deliverable
State Line	3H	121	Deliverable
State Line	3L	76	Deliverable
State Line	4H	178	Deliverable
State Line	4L	140	Deliverable
University Park	1	50	Deliverable
University Park	2	50	Deliverable
University Park	3	50	Deliverable
University Park	4	50	Deliverable
University Park	5	50	Deliverable
University Park	6	50	Deliverable
University Park North	1	37.5	Deliverable
University Park North	10	37.5	Deliverable
University Park North	11	37.5	Deliverable
University Park North	12	37.5	Deliverable
University Park North	2	37.5	Deliverable
University Park North	3	37.5	Deliverable
University Park North	4	37.5	Deliverable
University Park North	5	37.5	Deliverable
University Park North	6	37.5	Deliverable
University Park North	7	37.5	Deliverable
University Park North	8	37.5	Deliverable
University Park North	9	37.5	Deliverable
Waukegan	31-1	24.6	Deliverable
Waukegan	31-2	28.5	Deliverable
Waukegan	32-1	28.5	Deliverable
Waukegan	32-2	26.7	Deliverable
Waukegan	6	100	Deliverable
Waukegan	7H	164	Deliverable

Waukegan	7L	164	Deliverable
Waukegan	8H	196	Deliverable
Waukegan	8L	165	Deliverable
Will County	1H	91	Deliverable
Will County	1L	60	Deliverable
Will County	2H	89	Deliverable
Will County	2L	59	Deliverable
Will County	3H	130	Deliverable
Will County	3L	121	Deliverable
Will County	4H	265	Deliverable
Will County	4L	245	Deliverable
Zion	1	165	Deliverable
Zion	2	165	Deliverable
Zion	3	165	Deliverable

CATEGORY 3 GENERATOR DELIVERABILITY RESULTS

Name	ID	MW	Result
Arrowsmith	1	400	Not deliverable due to a contingency overload on Elwood - Goodings Grove 345 kV for the outage of Electric Junction - Dresden 345 kV.
Bloom G-11	1	153	Not deliverable due to a contingency overload on Garfield - Taylor 345 kV for the outage of the parallel cable.
Bloom G-12	2	153	Not deliverable due to a contingency overload on Garfield - Taylor 345 kV for the outage of the parallel cable.
Bloom G-21	3	208	Not deliverable due to a contingency overload on Garfield - Taylor 345 kV for the outage of the parallel cable.
Bourbonais I (138kV)G31	C1	147	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Bourbonais I (138kV)G32	C2	147	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Bourbonais I (138kV)G33	C3	147	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Bourbonais I (138kV)G34	C4	147	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Bourbonais I (345kV)G21	S1	182	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Bourbonais I (345kV)G22	S2	182	Not deliverable due to a pre-contingency overload on Goodings Grove - East Frankfort 345 kV.
Crescent Ridge I	W	51	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Grande Prarie CT-21	1	154	Deliverable
Grande Prarie CT-22	2	154	Deliverable
Grande Prarie ST-23	3	235	Deliverable
Jake Indeck	1	700	Not deliverable due to contingency overload on Dresden 345/138 kV transformer for outage of parallel transformer.
Kinnikinick	1	100	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson CT1	C1	170	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson CT2	C2	170	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson CT3	C3	170	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson CT4	C4	170	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.

Nelson ST1	S1	123	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson ST2	S2	123	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson ST3	S3	123	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Nelson ST4	S4	123	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Mendota Hills	W	50	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Plano U1	1	71.6	Deliverable
Plano U2	2	71.6	Deliverable
Plano U3	3	71.6	Deliverable
Plano U4	4	71.6	Deliverable
Pontiac U1	1	155	Deliverable
Pontiac U2	2	155	Deliverable
Steward/Tower Road	W	75	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.
Zion (15)	4	165	Deliverable
Zion (15)	5	165	Deliverable
Crescent Ridge II	W	51	Not deliverable due to a contingency overload on Electric Junction - Nelson 345 kV for the outage of Cherry Valley - Silver Lake 345 kV.