Improvements to PJM Manual 14 Series

Revised 14A: “New Services Requests Study Process”
New 14G: “Generation Interconnection Requests”

Presented by Lisa Krizenoskas
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Presented to PJM Planning Committee
January 11, 2018

M14A: New Services Request Process
M14B: PJM Region Transmission Planning Process
M14C: Generation and Transmission Interconnection Facility Construction
M14D: Generator Operational Requirements
M14E: Upgrade and Transmission Interconnection Projects
M14F: Competitive Planning Process
• Current Manual 14A mixes the process for application as a new service customer for any customer type with specific ‘generator’ customer interconnection requirements.


• No separate PJM Manual exists for the ‘generator’ customers specifically.
Revise 14A: “New Services Requests Study Process”
General application, study, and agreement process for interconnecting any customer type.

Create New M14G: “Generation Interconnection Requests”
Interconnection requirements, study/agreement process, and rights for generator customers including:
   a. Small Generation: 20 MW and under
   b. Large Generation: over 20 MW
   c. Different types of generation
All material will remain between the revised and new manuals:

- Remain in revised M14A: “New Services Requests Study Process”
  or
- Moved to New M14G: “Generation Interconnection Requests”
Transfer of Content from Current M14A:

Section 1: Interconnection Process Overview
Section 1: Interconnection Process Overview

Section 1.1
- Requirements for Generating Units
- Interconnections with Municipalities, Co-operatives, or Non-PJM Transmission Owner Member Companies

Section 1.2
- Interconnection Procedures for FERC Jurisdictional Facilities and Non-FERC Jurisdictional Facilities

Section 1.3
- Merchant Transmission Interconnection Facilities

Sections 1.4
- Initiating the Generation and Transmission Interconnection Planning Process

Section 1.5
- Project Management and Client Management

Section 1.6

Modified Manual 14A "New Services Requests Study Process"
- Section 3A

New Manual 14G "Generation Interconnection Requests"
- Section 3A
Section 1: Interconnection Process Overview

- **Section 1.7**
  - Electing Capacity Resource Status versus Energy Resource Status
  - Section 4A

- **Section 1.8**
  - PJM Membership
  - Section 3B

- **Section 1.9**
  - Membership in NERC Regional Councils
  - Section 3C

- **Section 1.10**
  - The Interconnection Request Studies
  - Section 4A

- **Section 1.11**
  - Changes to Existing or Proposed Generation
  - Section 4C

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Requests Study Process"

New Manual 14G "Generation Interconnection Requests"
Section 1: Interconnection Process Overview

- **Section 1.12**: Consent to Assignments
- **Section 1.13**: Small Generation Interconnection Considerations (20 MW or less)
- **Section 1.14**: Distributed Generation
- **Section 1.15**: Demand Response Resource
- **Section 1.16**: Behind the Meter Generation
- **Section 1.17**: Coordination of Studies between PJM and Affected TOs.

- **Section 5E.b**: New Services Requests Study Process
- **Section 5A**: New Manual 14G "Generation Interconnection Requests"
- **Section 2D**: Modified Manual 14A "New Services Requests Study Process"
- **Section 2C**: New Manual 14G "Generation Interconnection Requests"

**Existing Manual 14A "New Services Request Process"**

**Modified Manual 14A "New Services Requests Study Process"**

**New Manual 14G "Generation Interconnection Requests"**
Section 1: Interconnection Process Overview

**Section 1.18**
- Studies for Long Term Firm Transmission Service
  - Section 4H

**Section 1.19**
- Interim Deliverability Studies
  - Section 4G

**Section 1.19.2**
- Affected System Studies
  - Section 4F

**Section 1.20**
- Non-Queue Interconnection Service Agreements
  - Section 5A,b

**Section 1.21**
- Serving Load as a Generator
  - Section 4F
Transfer of Content from Current M14A:

Section 2: Generation and Transmission Interconnection Planning Process
Section 2: Generation and Transmission Interconnection Planning Process

Section 2.1.1: Purpose of the Generation or Transmission Interconnection Feasibility Study Agreement
- Section 5A

Section 2.1.2: Interconnection Requests and PJM Queue Position
- Section 2B

Section 2.1.3: Generation and Transmission Interconnection Feasibility Study Cost Responsibility
- Section 5A

Section 2.1.4: New Service Request deficiency reviews
- Section 2C

Section 2.1.5: Changes to Existing Generators and Transmission Facilities
- Section 4C

Section 2.1.6: Generation and Transmission Interconnection Feasibility Study Analysis and Results
- Section 4B

Modified Manual 14A "New Services Requests Study Process"

New Manual 14G "Generation Interconnection Requests"
Section 2: Generation and Transmission Interconnection Planning Process

Section 2.2
- Generation or Transmission Interconnection System Impact Study Agreement Execution Analysis
  - Sections 4C and 5B

Section 2.2.1
- Impact Study Agreement and Cost
  - Section 5B

Section 2.2.2
- System Impact Study Analysis and Schedule
  - Section 4C

Section 2.2.3
- System Impact Study Results
  - Section 4C

Section 2.3
- Generation or Transmission Interconnection Facilities Study Agreement Execution and Analysis
  - Section 4D and 5C

Section 2.3.1
- Queue Priority and final agreement issuance and determination of security requirements for moving out of sequence
  - Section 5C

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Requests Study Process"

New Manual 14G "Generation Interconnection Requests"
Section 2: Generation and Transmission Interconnection Planning Process

- **Section 2.3.2**: Generation or Transmission Interconnection Facilities Study Agreement
  - Section 5C
- **Section 2.3.3**: Generation or Transmission Interconnection Facilities Study Cost
  - Section 5C
- **Section 2.3.4**: Generation or Transmission Interconnection Facilities Study Results
  - Section 4D
- **Section 2.4**: Types of Network and Local Upgrades
  - Section 5J
- **Section 2.5**: Transfer of Capacity Interconnection Rights
  - Section 4C
- **Section 2.5.1**: Transfer of Capacity Interconnection Rights
  - Section 4C
- **Section 2.6**: Work papers
  - Section 4I

*Existing Manual 14A "New Services Request Process"
*Modified Manual 14A "New Services Requests Study Process"
*New Manual 14G "Generation Interconnection Requests"

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Transfer of Content from Current M14A:

Section 3: Small Resource Interconnection Process
Section 3: Small Resource Interconnection Process

### Section 3.1
- Small Resources (20 MW or less)

### Section 3.1.1
- Pre-application Process for New Generation Resource Additions of 20 MW or Less or Additions to Existing Generation Resources no to Exceed 20 MW in Aggregated Maximum Facility Output

### Section 3.1.2
- Small Generation Interconnection Queue Submittal

### Section 3.1.3
- Study Requirements and Cost

### Section 3.1.4
- Expedited and/or Combined Study Analysis

### Section 3.2
- Specific Provisions for Resources of 10 MW or Less

### Section 3.3
- Specific Provisions for Resources Greater than 10 MW up to 20 MW

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Modified Manual 14A “New Services Requests Study Process”

New Manual 14G “Generation Interconnection Requests”

Existing Manual 14A "New Services Request Process"
Transfer of Content from Current M14A:

Section 4: Interconnection Service Agreement and Construction Service Agreement Execution and Other Agreements
Section 4: Interconnection Service Agreement and Construction Service Agreement Execution and Other Agreements

- Interconnection Service Agreement
  - Section 5D
- Interim Interconnection Service Agreements
  - Section 5D,a
- Interim ISA vs. ISA with Interim Rights
  - Section 5A,a
- Security Requirements
  - Section 5I
- Agreement Milestones
  - Section 5K
- Interconnection Construction Service Agreement
  - Section 5E
- Option to Build
  - Section 5E,a
- General Timeline
  - Section 5E,a
Transfer of Content from Current M14A:

Section 5: Additional Generator Requirements
Section 5: Additional Generator Requirements

- Behind the Meter Generation Projects
- BtMG Interconnection Requests
- BtMG Metering
- BtMG Effects on Market Operations
- Non-Retail BtMG

• Section 2C

Modified Manual 14A "New Services Requests Study Process"

New Manual 14G "Generation Interconnection Requests"

Existing Manual 14A "New Services Request Process"
Section 5: Additional Generator Requirements

- **Section 5.2**: Generator Power Factor Requirements
  - Section 3B

- **Section 5.2.1**: Application of Power Factor Requirements to Increases of Existing Generation
  - Section 3B

- **Section 5.3**: Wind or Non-Synchronous Generation Projects
  - Section 4E

- **Section 5.3.1**: Wind or Non-Synchronous Generation Capacity Credit Rules
  - Section 4E

- **Section 5.3.2**: Wind or Non-Synchronous Generation - Specific Technical Requirements
  - Section 4E
Transfer of Content from Current M14A:

Attachments & Annex
• Small Generator (greater than 10 MW up to 20 MW) Technical Requirements and Standards
  • Section 8B

• Generation Interconnection Feasibility Study Data
  • Section 8C

• Feasibility Study Data Form
  • Section 8D

• System Impact Study Data
  • Section 8E
Attachments & Annex

- **Attachment G-1**
  - Dynamic Model Study Request Form
  - Section 8F

- **Attachment G-2**
  - System Impact Data Form
  - Section 8G

- **Attachment H**
  - Generator Reactive Deficiency Mitigation Process
  - Section 8H

- **Annex 1**
  - SCADA Requirements by Transmission Owner Region
  - Section 8I

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"
Manual 14A and 14G Language Updates
Table 2-2-1: “System Impact Study costs”
Correction to the System Impact Study Cost table (consistent with Tariff):

<table>
<thead>
<tr>
<th>Project size</th>
<th>Required deposit</th>
<th>Portion of deposit that is non-refundable</th>
<th>Maximum deposit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 20MW</td>
<td>None</td>
<td>10%</td>
<td>$300,000</td>
</tr>
<tr>
<td>&gt; 2MW and ≤ 20MW</td>
<td>$10,000</td>
<td>10%</td>
<td>$10,000</td>
</tr>
<tr>
<td>≤ 2MW</td>
<td>$5000</td>
<td>10%</td>
<td>$5,000</td>
</tr>
</tbody>
</table>
Section 2.1.2 “Interconnection Requests and PJM Queue Position”

Queue window periods have been updated considering the “transitional queue” (which occurred between November 1, 2016 and March 31, 2017) is completed.

- The first queue window closes March 31st of the calendar year.

- The second queue window closes on September 30th of the same calendar year.

- Reference to “transitional queue” from November 1, 2016 to March 31, 2017 will be removed.
Sections 2.1.2.1 and 2.1.2.2:
“Site Control” and “Multiple requests behind the same Point of Interconnection”

Though a developer may subdivide into separate projects behind the Point of Interconnection (POI), PJM will ultimately have one Interconnection Service Agreement or Wholesale Market Participation Agreement with one designated controlling entity for the POI:

- Controlling entity assures all participants on its side of the POI operate properly, subdivide proceeds/costs, maintain facilities, and have policies to address issues on the divided system behind the POI.

- PJM is obligated to ensure that the total power injected at the POI does not adversely impact the transmission system and that the request is treated fairly according to the Tariff.
One Controlling Entity per POI

Entities agree to move POI.

Two Separate ISAs

One ISA
(Entities must form an LLC to execute ISA)
Section 3.1.4: “Expedited and/or Combined Study Analysis”

Updated language more specifically defines the conditions under which an accelerated analysis is not possible:

- If a secondary POI is requested to be considered, then a combined study is not possible.

- If the project is identified as needing stability analyses, light load analysis or causes or contributes to a system overload or is expected to contribute to winter analysis violations, then it cannot be accelerated.
Planning Committee
1st Read
3/8/2018

Markets & Reliability Committee
1st Read
3/22/2018

Planning Committee
2nd Read and Endorsement
4/5/2018

Markets & Reliability Committee
2nd Read and Endorsement
4/19/2018
• V1 – 1/5/2018 – Original Slides Posted
• V2 – 1/9/2018 – Updated Slide 5 to indicate that Small Generation is “20 MW and under” for clarification. Also updated slide 10, Section 1.17 title to read “Coordination of Studies between PJM and Affected TOs”.