Improvements to PJM Manual 14 Series

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

Presented by Lisa Krizenoskas
Senior Engineer, Interconnection Projects
Presented to PJM Planning Committee
June 7, 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 Request 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 under 20 MW
  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 Request 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

Section 1.2 • Interconnections with Municipalities, Co-operatives, or Non-PJM Transmission Owner Member Companies

Section 1.3 • Interconnection Procedures for FERC Jurisdictional Facilities and Non-FERC Jurisdictional Facilities

Sections 1.4 • Merchant Transmission Interconnection Facilities

Section 1.5 • Initiating the Generation and Transmission Interconnection Planning Process

Section 1.6 • Project Management and Client Management

Modified Manual 14A "New Services Request Process"

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

- **Section 1.7**
  - Electing Capacity Resource Status versus Energy Resource Status
    - Section 4.3

- **Section 1.8**
  - PJM Membership
    - Section 3.2 & modified

- **Section 1.9**
  - Membership in NERC Regional Councils
    - Section 3.3

- **Section 1.10**
  - The Interconnection Request Studies
    - Section 4.1 & modified

- **Section 1.11**
  - Changes to Existing or Proposed Generation
    - Section 4.5
Section 1: Interconnection Process Overview

Section 1.12 • Consent to Assignments • Section 5.8.2

Section 1.13 • Small Generation Interconnection Considerations (20 MW or less) • Section 5.1

Section 1.14 • Distributed Generation • Section 5.1.1

Section 1.15 • Demand Response Resource • Section 1.7

Section 1.16 • Behind the Meter Generation • Section 1.6

Section 1.17 • Coordination of Studies between PJM and MISO • Section 4.6

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"

Existing Manual 14A "New Services Request Process"
Section 1: Interconnection Process Overview

Section 1.18
• Studies for Long Term Firm Transmission Service
  • Section 4.8

Section 1.19
• Interim Deliverability Studies
  • Section 4.7

Section 1.19.1
• Interim Deliverability Studies associated with projects using reinforcements outside of PJM for PJM Constraints
  • Section 4.7.1

Section 1.19.2
• Affected System Studies
  • Section 4.6.4

Section 1.20
• Non-Queue Interconnection Service Agreements
  • Section 5.4.5

Section 1.21
• Serving Load as a Generator
  • Section 4.8
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 5.1.1

- **Section 2.1.2**: Interconnection Requests and PJM Queue Position
  - Section 2.2 & modified

- **Section 2.1.2.1**: Site Control

- **Section 2.1.2.2**: Multiple Generation Interconnection Requests behind the same POI
  - Section 4.6

- **Section 2.1.2.2**: Fuel Change
  - Section 4.5.2

- **Section 2.1.2.1**: Requests Requiring Attachment N
  - Section 2.1

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request Process"

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

- **Requests Requiring Attachment Y**
- **Requests Requiring Attachment BB**
- **Merchant Transmission Facilities Requests**
- **Upgrade Requests**
- **Transmission Interconnection Customers**
- **Upgrade Customers**

**Existing Manual 14A “New Services Request Process”**

- Section 2.1.2.2
- Section 2.1.2.3
- Section 2.1.2.3.1
- Section 2.1.2.3.2
- Section 2.1.2.3.3

**Modified Manual 14A “New Services Request Process”**

- Section 2.2
- Section 2.2.3.1
- Section 2.2.3.2
- Section 2.2.3
- Section 2.2.4

**New Manual 14G “Generation Interconnection Requests”**

- Section 2.3
- Section 2.2
- Section 2.3.1
- Section 2.3.2
- Section 2.3.3
Section 2: Generation and Transmission Interconnection Planning Process

- **Section 2.1.3**
  - Generation and Transmission Interconnection Feasibility Study Cost Responsibility
  - Section 5.1.2

- **Section 2.1.4**
  - New Service Request deficiency reviews
  - Section 2.3.1

- **Section 2.1.5**
  - Changes to Existing Generators and Transmission Facilities
  - Section 4.5

- **Section 2.1.6**
  - Generation and Transmission Interconnection Feasibility Study Analysis and Results
  - Section 4.2
Section 2: Generation and Transmission Interconnection Planning Process

Section 2.2
- Generation or Transmission Interconnection System Impact Study Agreement Execution Analysis
- Impact Study Agreement and Cost
- System Impact Study Analysis and Schedule
- System Impact Study Results

Section 2.2.1
- Section 5.2.1 & modified

Section 2.2.2
- Section 4.3.1

Section 2.2.3
- Section 4.3.2

Section 2.3
- Generation or Transmission Interconnection Facilities Study Agreement Execution and Analysis
- Queue Priority and final agreement issuance and determination of security requirements for moving out of sequence
- Section 4.4 and 5.3

Section 2.3.1
- Section 5.3.1

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request 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 5.3.2

- **Section 2.3.3**: Generation or Transmission Interconnection Facilities Study Cost
  - Section 5.3.3

- **Section 2.3.4**: Generation or Transmission Interconnection Facilities Study Results
  - Section 4.4.1

- **Section 2.4**: Types of Network and Local Upgrades
  - Section 4.5

- **Section 2.5**: Transfer of Capacity Interconnection Rights
  - Section 4.4

- **Section 2.6**: Work papers
  - Section 4.9

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"
Transfer of Content from Current M14A:

Section 3: Small Resource Interconnection Process
<table>
<thead>
<tr>
<th>Section 3.1</th>
<th>Small Resources (20 MW or less)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 3.1.1</td>
<td>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</td>
</tr>
<tr>
<td>Section 3.1.2</td>
<td>Small Generation Interconnection Queue Submittal</td>
</tr>
<tr>
<td>Section 3.1.3</td>
<td>Study Requirements and Cost</td>
</tr>
<tr>
<td>Section 3.1.4</td>
<td>Expedited and/or Combined Study Analysis</td>
</tr>
<tr>
<td>Section 3.2</td>
<td>Specific Provisions for Resources of 10 MW or Less</td>
</tr>
<tr>
<td>Section 3.3</td>
<td>Specific Provisions for Resources Greater than 10 MW up to 20 MW</td>
</tr>
<tr>
<td>Section 5</td>
<td>New Manual 14G &quot;Generation Interconnection Requests&quot;</td>
</tr>
</tbody>
</table>
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

- **Section 4.1**
  - Interconnection Service Agreement
    - Section 54

- **Section 4.1.1**
  - Interim Interconnection Service Agreements
    - Section 5.4.1

- **Section 4.1.2**
  - Interim ISA vs. ISA with Interim Rights
    - Section 5.4.2

- **Section 4.1.3**
  - Security Requirements
    - Section 5.4.3

- **Section 4.1.4**
  - Agreement Milestones
    - Section 5.4.4

- **Section 4.2**
  - Interconnection Construction Service Agreement
    - Section 5.5

- **Section 4.2.1**
  - Option to Build
    - Section 5.5.1

- **Section 4.2.2**
  - General Timeline
    - Section 5.5.1.1
Section 4: Interconnection Service Agreement and Construction Service Agreement Execution and Other Agreements

- Summary of General Conditions
- Specific Process Flow and Timeline
- PJM Manuals
- PJM Tariff - Part VI
- PJM Operating Agreement
- Wholesale Market Participation Agreement (WMPA)
- Other Agreements
- Station Power

- Section 5.5.1.2
- Section 5.5.2
- Section 5.5.3
- Section 5.5.4
- Section 5.5.5
- Section 5.7
- Section 5.8

- Section 4.9
Transfer of Content from Current M14A:

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

- Section 5.1
  - Behind the Meter Generation Projects

- Section 5.1.1
  - BtMG Interconnection Requests

- Section 5.1.2
  - BtMG Metering

- Section 5.1.3
  - BtMG Effects on Market Operations

- Section 5.1.4
  - Non-Retail BtMG

- Section 1.6
  - New Services Request Process

- Section 1.6.1
  - BtMG Interconnection Requests

- Section 1.6.2
  - BtMG Metering

- Section 1.6.3
  - BtMG Effects on Market Operations

- Section 1.6.4
  - Non-Retail BtMG
Section 5: Additional Generator Requirements

- **Section 5.2**
  - Generator Power Factor Requirements
  - Application of Power Factor Requirements to Increases of Existing Generation

- **Section 5.3**
  - Wind or Non-Synchronous Generation Projects
  - Wind or Non-Synchronous Generation Capacity Credit Rules

- **Section 5.3.1**
  - Wind or Non-Synchronous Generation - Specific Technical Requirements

- **Section 5.2.1**
  - Section 4.2
  - Section 4.2.1

- **Section 5.3.2**
  - Section 4.7
  - Section 4.7.1
  - Section 4.7.2

Existing Manual 14A "New Services Request Process"

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

Attachments & Annex
Attachments & Annex

**Attachment A**
  - Attachment A

**Attachment B**
- PJM Request Cost Allocation Procedures
  - Attachment B

**Attachment C**
- PJM Generation and Transmission Interconnection Planning Team Role Clarity Diagram
  - Attachment C

**Attachment D**
- General Description of Facilities Study Procedure
  - Attachment D

**Attachment E**
- Small Generator (10 MW or Less) Technical Requirements and Standards
  - Attachment C

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"
Small Generator (greater than 10 MW up to 20 MW) Technical Requirements and Standards

- Attachment D

Generation Interconnection Feasibility Study Data

- Attachment A

Feasibility Study Data Form

- Attachment A-1

System Impact Study Data

- Attachment B
Attachments & Annex

- Dynamic Model Study Request Form
  - Attachment B-1

- System Impact Data Form
  - Attachment B-2

- Generator Reactive Deficiency Mitigation Process
  - Attachment E

- SCADA Requirements by Transmission Owner Region
  - Attachment F

Existing Manual 14A "New Services Request Process"

Modified Manual 14A "New Services Request Process"

New Manual 14G "Generation Interconnection Requests"
Manual 14A and 14G Language Updates
Old M14A, Table 2-2-1 (Revised M14A, Table 5.2.1-1): “System Impact Study costs”

Correction to the System Impact Study Cost table (consistent with Tariff):

Table 5.2.1-1: System Impact Study costs

<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>
Old M14A, Section 2.1.2 (Revised M14A, Section 2.2.1)
“Interconnection (New Services) 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.
Old M14A, Section 3.1.4 (New M14G, Section 5.4.1):
“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.
Roadmap to Approval

Planning Committee
1st Read
6/7/2018

Markets & Reliability Committee
1st Read
6/21/2018

Planning Committee
2nd Read and Endorsement
7/12/2018

Markets & Reliability Committee
2nd Read and Endorsement
7/26/2018
• V1 – 5/31/2018 – Original Slides Posted