FERC Order No. 904 Compliance

Elimination of Compensation for Reactive Power Capability Within the Standard Power Factor Range

Kory Haag

PRINCIPAL OPERATIONS ANALYST

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Proposed Effective Date: June 1, 2025

- On October 17, 2024, the Federal Energy Regulatory Commission (FERC) issued Order No. 904 on Compensation for Reactive Power within the Standard Power Factor Range
- ISO's comments on the preceding Notice of Inquiry (NOI) and Notice of Proposed Rulemaking (NOPR) supported maintaining its existing design based on economic principles, system benefits, rate transparency, and administrative simplicity
  - FERC denied ISO's arguments in its Final Rule
- In accordance with the Order, ISO's compliance filing will eliminate compensation for reactive power within the standard power factor range established in the interconnection agreement
- Compliance filings are due by March 27, 2025, and FERC allowed for an effective date up-to 90 days thereafter (by June 26, 2025)
- See *Appendix 1* for additional background from the December TC meeting

Reactive Capability & the Minimum IA Power Factor Range

- As part of interconnecting to the system, Market Participants are required to provide the reactive capability of the resource in their interconnection agreement
- The reactive capability varies by resource as it represents the unique as-built capability of the device
  - OATT Schedules 22, 23, and 25 define the **minimum allowable** power factor range that resources must provide in order to interconnect (0.95 leading to 0.95 lagging)
  - The reactive capability of the resource may exceed the minimum power factor range requirement
  - If the reactive capability of the resource exceeds the minimum power factor range requirement, that excess is frequently utilized in order for that resource to avoid network upgrades and meet other interconnection requirements
  - Because of the complexities of the studies, this excess use is not documented, and it would be nearly impossible to determine
- In operations, the ISO and LCCs can utilize the full reactive capability of the resource subject to any known or temporary operational limits
  - ISO and the LCCs provide each resource a voltage schedule
    - It is the resource's responsibility to maintain that voltage schedule while respecting the resource's reactive capability limits
  - The ISO and LCCs do not dispatch resources outside of their provided limits
  - See *Appendix 2* for governing document references
- Proposed modifications to reactive capability are reviewed through the Material Modification Determination process

Introduced at December TC Meeting

Overview of Compliance Proposal

- Order No. 904 permits compensation of reactive power produced "outside the standard power factor range set forth in [an] interconnection agreement"
  - The ISO and LCCs do not dispatch resources outside of the stated reactive capability of the resource
- The compliance proposal will eliminate VAR Capacity Cost (CC) credits to Qualified Reactive Resource (QRRs)
  - On the compliance effective date, ISO will terminate all QRR designations with no Participant action required
    - If a QRR would like to exit the Capacity Cost Compensation Program (CCCP) prior to the compliance effective date, the Participant must follow the current Prolonged Termination process as described in the Schedule 2 Business Procedure
- No changes to Energy make-whole credits (Cost of Energy Produced (CEP), Lost Opportunity Cost (LOC), and Cost of Energy Consumer (CEC))
  - These credits will continue to ensure resources are no-worse-off financially for following ISO dispatch instructions to operate outside economic merit for real power when required for voltage support
  - FERC's decision on reactive capability compensation does not require modification to these credits

Introduced at December TC Meeting

Overview of Compliance Proposal, cont'd

- Revisions are needed in Section I.2.2 of the Tariff, OATT Schedule 2, and the Schedule 2 VAR Business Procedure to eliminate CCCP and CC payments
  - Review has found no required changes in the interconnection procedures
  - Related conforming changes to Market Rule 1 and Section I.2.2 of the Tariff are being discussed at the Markets Committee
- Proposed compliance effective date is June 1, 2025
  - Within 90-day effective date required by the Order
  - Aligns with monthly periods of VAR CC settlements
  - Final VAR CC settlement month would be for May 2025

Follow-Up from December TC

- **Question:** Will the ISO compensate resources for the supply of reactive power outside of 0.95 leading to 0.95 lagging power factor range?
- **ISO Response:**
  - Order No. 904 specifies that compensation for reactive power within the standard power factor range set forth in the facility's interconnection agreement is no longer permitted, but compensation is allowed when the transmission provider orders or directs a facility to operate outside of that standard power factor range
    - See *Appendix 3* for relevant references from Order No. 904
  - The minimum standard power factor range for interconnection is 0.95 leading to 0.95 lagging
    - Often, the generation facility's reactive capability as described in its interconnection agreement exceeds the minimum power factor range requirement
  - In operations, the ISO and LCCs expect a Participant to utilize the full reactive capability of the resource, subject to any known operational limitations, to maintain the required voltage schedule

Follow-Up from December TC, cont'd

- **ISO Response, cont'd:**
  - Attachment A to Appendix 1 of Schedules 22/23/25 provides the technical data for how the interconnecting facility is designed and built
    - Any modification to that data requires a Material Modification Determination (MMD)
  - Given these statements, the delineation for required reactive power provision is **not** 0.95 leading to 0.95 lagging power factor range
    - Rather, it is the capability of the resource as described in Attachment A to Appendix 1 (or similar document such as a two-party interconnection agreement) of its Interconnection Agreement (IA)
    - The ISO is not proposing to provide specific compensation for reactive power outside of the reactive capability as described in a resource's IA

OVERVIEW OF TARIFF REDLINES

Summary of Proposed Tariff Changes in Section I.2.2 Definitions

Section	Tariff Change	Reason for Change
I.2.2. Definitions:	~~**Qualified Generator Reactive Resource(s)** is any generator source of dynamic reactive power that meets the criteria specified in Schedule 2 of the OATT.~~ ~~**Qualified Non-Generator Reactive Resource(s)** is any non-generator source of dynamic reactive power that meets the criteria specified in Schedule 2 of the OATT.~~ ~~**Qualified Reactive Resource(s)** is any Qualified Generator Reactive Resource and/or Qualified Non-Generator Reactive Resource that meets the criteria specified in Schedule 2 of the OATT.~~	VAR CC Compensation Program is being removed. "Qualified" refers to reactive resources voluntarily participating in the CCCP, so the terms are being removed
I.2.2. Definitions:	~~**Capacity Cost (CC)** is one of four forms of compensation that may be paid to resources providing VAR Service under Schedule 2 of the OATT.~~ **Cost of Energy Consumed (CEC)** is one of ~~four~~ three forms of compensation that may be paid to resources providing VAR Service under Schedule 2 of the OATT. **Cost of Energy Produced (CEP)** is one of ~~four~~ three forms of compensation that may be paid to resources providing VAR Service under Schedule 2 of the OATT. **Lost Opportunity Cost (LOC)** is one of ~~four~~ three forms of compensation that may be paid to resources providing VAR Service under Schedule 2 of the OATT.	Capacity Cost is being removed so there are only three forms of compensation

Summary of Proposed Tariff Changes in Section I.2.2 Definitions, cont'd

Section	Tariff Change	Reason for Change
I.2.2. Definitions:	~~**VAR CC Rate** is the CC rate paid to Qualified Reactive Resources for VAR Service capability under Section IV.A of Schedule 2 of the OATT.~~	VAR CC Rate no longer applicable because CCCP is removed
I.2.2. Definitions:	**VAR Payment** is the payment made to ~~Qualified~~ Reactive Resources for VAR Service ~~capability~~ under ~~Section IV.A of~~ Schedule 2 of the OATT. **VAR Service** is the provision of reactive power voltage support to the New England Transmission System by a ~~Qualified~~ Reactive Resource~~s or by other generators~~ that are dispatched by the ISO to provide dynamic reactive power as described in Schedule 2 of the OATT.	Qualified Reactive Resource concept is being removed from Schedule 2

Overview of Tariff Redlines

- Updated terms (*e.g.*, generating unit, generator, etc.) throughout Schedule 2 to refer to defined term “Reactive Resource”
- Removed existing Section II.A., *Qualified Generator Reactive Resources*, and Section II.B, *Non-Generator Reactive Resources*
  - Removed references to defined terms “Qualified Reactive Resource,” “Qualified Generator Reactive Resource,” and “Qualified Non-Generator Reactive Resource” throughout Schedule 2
- Specified that Schedule 2 compensation shall not include compensation for the supply of reactive power as required under ISO Operating Documents and Interconnection Agreements
- Specified that resources dispatched solely for reactive support may recover costs through LOC, CEC, or CEP, as appropriate

Overview of Tariff Redlines, cont'd

- Updated existing Section III, *Determination and Allocation of VAR Service Charges*, to remove reference to Capacity Cost Revenue Requirement
- Updated existing Section IV, *Determining a Qualified Reactive Resource's Payment Under This Schedule*, to remove Capacity Cost component
- Removed *Schedule 2 VAR Payment Implementation Rule* within existing Section V, consistent with removal of the Capacity Cost Compensation Program

- For complete details on the proposed changes, please see the proposed redlines included with today's meeting materials

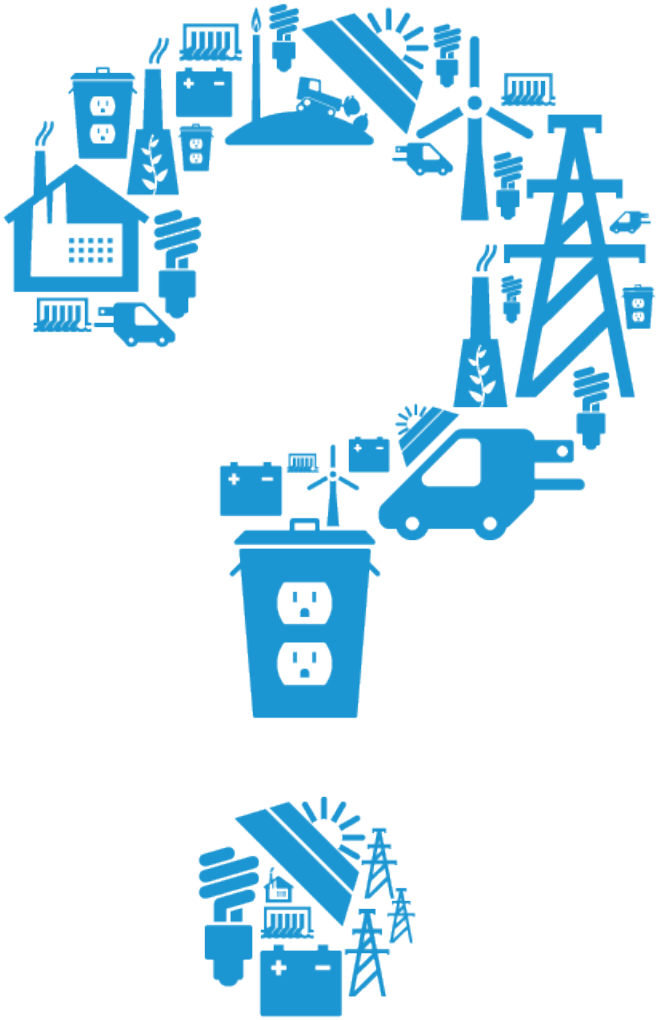
Conclusion

- ISO is proposing to remove the Schedule 2 CCCP and maintain the current Schedule 2 “make-whole” payments (LOC, CEC, CEP)
  - In accordance with FERC Order 904, the ISO will not compensate resources for the supply of reactive power within the resource’s stated reactive capability as required under ISO Operating Documents and Interconnection Agreements
- Compliance filings are due March 27, 2025, and FERC allowed for an effective date up-to 90 days thereafter (by June 26, 2025)
  - Proposed effective date is June 1, 2025 to align with Monthly Settlement CCCP Process

Stakeholder Schedule

Stakeholder Committee and Date	Scheduled Project Milestone
Transmission Committee December 19, 2024	Summary of compliance requirements and high-level compliance plan
Transmission Committee January 29, 2025	Additional detail on compliance plan and initial review of proposed Tariff language
Transmission Committee February 27, 2025	Additional review of proposed Tariff language and vote
Participants Committee March 6, 2025	Vote

Questions



APPENDIX 1

Background Provided at December TC

Current VAR Service Payments

- VAR Capacity Cost Compensation Program (CCCP)
  - Participating in the VAR CCCP as a Qualified Reactive Resource (QRR) is a voluntary election
  - Monthly credits to QRRs at VAR Capacity Cost (CC) rate for demonstrated lagging and leading capability at the Point of Interconnection (POI)
- Make-Whole Payments for Energy (Real Power)
  - As-needed credits to Reactive Resources dispatched by ISO to operate outside economic merit when required for voltage support
  - Three forms of make-whole credit:
    - Cost of Energy Produced (CEP) for energy production costs not recovered through energy revenue of resources committed for voltage support
    - Lost Opportunity Cost (LOC) for energy opportunity costs of resources dispatched out-of-merit relative to energy LMP for voltage support
    - Cost of Energy Consumed (CEC) for energy consumed by a reactive device when operated at zero real power output for voltage support

Reactive Resources Provide Reactive Capability And System Voltage Support

- Regardless of QRR Status, Reactive Resources have obligations to:
  - Provide reactive capability to the full extent available
  - Maintain their voltage schedules designated by the ISO
  - When required by ISO, audit regularly to demonstrate reactive capability
  - Submit changes to reactive capability to ISO for study
- See *Appendix 2* for governing document references

APPENDIX 2

Governing Document References

Requirements for Provision and Auditing of Reactive Power

- NERC Standards:
  - MOD-025-2
  - MOD-032-1
  - VAR-002-4.1
- ISO Tariff
  - III.1.5.3 Reactive Capability Audits
  - OATT Schedules 22, 23, 25
- Planning Procedure
  - PP5-1 Section 2.1
- Operating Procedures
  - OP-12 Section IV.A.2 (and various others)
  - OP-23 Resource Auditing Section IV

APPENDIX 3

Order No. 904 References

Order No. 904 References on Power Factor Range

- Paragraph 1 of Order No. 904 states: "As a result of this final rule, transmission providers will be required to pay an interconnection customer for reactive power only when the transmission provider requests or directs the interconnection customer to operate its facility outside the standard power factor range **set forth in its interconnection agreement**"
- Footnote 2 of Order No. 904 states: "Operating 'inside the standard power factor range' refers to a generating facility providing reactive power within the power factor range **set forth in the generating facility's interconnection agreement** when the unit is online and synchronized to the transmission system"
- Footnote 18 of Order No. 904 states: "Providing reactive power within design limitations is not providing an ancillary service; it is simply ensuring that a generator lives up to its obligations"