

# EMA, FERC Orders 2003-A & 827 and NERC PRC-024-2

Where does the VDH/GSMI  
relate to FERC Orders  
2003-A, 827  
and NERC Std. PRC-024-2?

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**KEY**  
**QUESTIONS:**

**Did the**

***Transmission***

***Provider via***

***PRC-024***  
***establish a***

***different***

***requirement***

***that applies to***

***all generators***

***in the Control***

***Area on***  
***a comparable***

***basis?***

***If so how does***

***this affect the***

***Plant relative to***

***FERC***  
***Order 2003-A?***

The good news is whether your facility is old or new, Meeting PRC-024-2 is going to be challenging and EMA can help meet those challenges. EMA manufactures the VDH/GSMI grounding breaker that can help meet some of the most difficult parts of such requirements and assist Relay Engineers by providing fast reliable signals they can depend on.

The Federal Energy Regulatory Commission (FERC) and National Electric Reliability Corporation (NERC) standards in certain limited cases established that plants were exempt from meeting certain Reactive Power Requirements.

However, the exemption no longer applies, and it is arguable that such an exemption never applied when it came to the safety and reliability of the Bulk Electric System. As such, these older plants may not be designed or configured to meet the more recent requirements. So, we need to ask, "how do the more recent NERC reliability standards affect the older plants in view of FERC Orders 2003-A, 827 and NERC Standard PRC-024-2?"

To begin with, FERC Order 2003-A was in effect years before FERC Order 827. FERC order 2003-A and article 9.6.1 in the Large Generator Interconnection Agreement (LGIA), in part, exempted wind generators from the power factor design criteria requirement. FERC Order 827 removed that exemption in 2016. However, Order 2003-A, Article 9.6.1 is also found to read that "***unless Transmission Provider has established different requirement that apply to all generators in the Control Area on a comparable basis***". This brings us to PRC-024-2 which went into effect in the year 2016 and is a different requirement that applies to all generators in the Control Area.

PRC-024-2 applies for both Wind Power Plants (WPP) and Solar Power Plants (SPP) rated greater than 75 MVA and interconnecting above 100 kV, connected to the Bulk Electric System (BES).

PRC-024-2 for a limited time requires operation up to 1.2pu Voltage at the high side of the Main Plant Transformer (MPT)<sup>1</sup> and down to zero volts at the high side of the MPT with the relays set to trip the generators with specified times and zones; where the relay set points are derived from calculated voltages.

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<sup>1</sup> See NERC I4 definition Bulk Electric System Glossary of Terms Used in NERC Reliability Standards Updated July 3, 2018. "*Dispersed power producing resources that aggregate to a total capacity greater than 75 MVA (gross nameplate rating), and that are connected through a system designed primarily for delivering such capacity to a common point of connection at a voltage of 100 kV or above. Thus, the facilities designated as BES are: a) The individual resources, and b) The system designed primarily for delivering capacity from the point where those resources aggregate to greater than 75 MVA to a common point of connection at a voltage of 100 kV or above.*"

## **KEY POINTS:**

***1) Older plants need to comply with NERC PRC 024 Standards.***

***2) EMA VDH/GSMI can help meet such standards.***

***3) VDH/GSMI provides a faster clearer signal to the Generators than Remote Trip.***

***4) VDH/GSMI provides a clear signal for both high voltage and low voltage conditions.***

***5) VDH/GSMI approved around 12 years after Order 2003-A***

FERC Order 2003-A was approved around the year 2004. The VDH/GSMI was patented as a new and Novel Art on 2007(See US Patent No. 7724489) and NERCs PRC-024-2 went into effect in the year 2016. Engineers did not design to future standards not in effect regarding the older power plants. Therefore, considering that PRC-024-2 does apply to older plants, we can ask the question: Do Generators Owners have a solution for required Network Upgrades in accordance with FERC order 2003-C and PRC-024?

VDH/GSMI grounding breaker can help meet the requirements in PRC-024-2 and assist relay engineers by providing reliable signals they can depend on. VDH/GSMI provides a balanced zero, positive and negative sequence path to ground, where other solutions cannot. VDH/GSMI can commutate in approximately 12ms. If the Collection Feeder Circuit needs to trip due to a fault, VDH/GSMI will provide a clear signal either remotely or locally faster than any remote trip scheme available.

Considering that NERC's PRC-024-2 is going to apply to old WPP and SPP because the Transmission Provider has established different requirement that apply to all generators in the Control Area on a comparable basis, then Engineers are going to need reliable equipment and a cost-effective solution such as the VDH/GSMI to help meet new and more challenging standards<sup>2</sup>.

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<sup>2</sup> In Order 2003 FERC writes “We expect a Transmission Providers to follow NERC procedures and to take every precaution not to cause any material adverse impact on the safe and reliable operation of the Generating Facility.” Please find FERC Docket No. RM02-1-000, paragraph 536.