

WG13 Issues - CIM Issues #5099

Not possible to properly model variable shunt reactor

10/03/2021 04:24 PM - Eric Stephan

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|-------------------------------------|---|--------------------------------------|-----------|
| Status: | Open | | |
| Priority: | High | | |
| Target version: | | | |
| Author/Contact Info: | Domagoj Peharda/Domagoj.Peharda@koncar-ket-hr | Standard(s): | 61970-301 |
| Base Release: | CIM17 | Version: | |
| Solution to be Applied To: | CIM18 | Clause: | |
| Solution Version: | | Sub-Clause: | |
| Solution Applied By: | | Paragraph: | |
| Completion Date: | | Table: | |
| CIM Keywords: | | Originally Closed in Version: | |
| Breaking Change: | No | Origination Date: | |
| Breaking Change Description: | | Origination ID: | |
| CIM Impacted Groups: | WG13, WG14 | Originally Assigned To: | |
| Requestor: | Domagoj Peharda | | |

Description

It is not possible to properly model variable shunt reactor which has "Large regulation ranges from 20% to 100%". ShuntCompensator has implicit range 0% to 100% as only maximum sections are listed, while 0 section (or 0 Mvar) is presumed to be available. For VSR this is not true. Only way for a VSR to have 0 Mvar is to disconnect it using an external switch.

Proposed Solution

Since variable shunt compensator cannot be linear because $g = \text{Re}(1/(r+jx))$ it is enough to specialize the NonlinearShuntCompensator class.

Proposed note for the specialized class VariableShuntCompensator:

A variable shunt compensator is a oil-filled reactor with discrete on-line regulation of reactive power. The regulation range typically varies between 30% and 100% of rated reactive power. When energized VSR cannot have a reactive output of 0 Mvar, so minimal valid section number is 1 with reactive power output at either 100% or at minimal reactive power output (reactive power can raise or fall with increasing section number).

History

#1 - 10/20/2021 10:32 AM - Eric Stephan

- Solution Version deleted (CIM18v01)
- CIM Impacted Groups WG14 added

#2 - 10/20/2021 10:33 AM - Eric Stephan

- Status changed from New to Open

#3 - 01/24/2022 02:05 AM - Domagoj Peharda

- Proposed Solution updated
- Decision updated

#4 - 01/27/2022 01:10 PM - Domagoj Peharda

- Proposed Solution updated
- Decision updated

#5 - 01/27/2022 01:11 PM - Domagoj Peharda

- *Proposed Solution updated*

#6 - 01/27/2022 01:22 PM - Domagoj Peharda

- *Author/Contact Info changed from Domagoj Peharda/Domagoj.Peeharda@koncar-ket-hr to Domagoj Peharda/Domagoj.Peharda@koncar-ket-hr*