

WG13 Issues - CIM Issues #5076

Convention and usage of operational limits of GeneratingUnit and injections

09/17/2021 04:49 AM - Chavdar Ivanov

Status:	In Progress		
Priority:	High		
Target version:			
Author/Contact Info:	chavdar.ivanov@griddigit.eu	Standard(s):	61970-301, 61970-452, 61970-456
Base Release:	CIM17	Version:	301Ed7.1
Solution to be Applied To:	CIM18 or CIM17 amendment	Clause:	
Solution Version:		Sub-Clause:	
Solution Applied By:		Paragraph:	
Completion Date:		Table:	
CIM Keywords:	61970-Production	Originally Closed in Version:	
Breaking Change:	No	Origination Date:	09/17/2021
Breaking Change Description:		Origination ID:	
CIM Impacted Groups:	WG13	Originally Assigned To:	
Requestor:	Chavdar Ivanov		

Description

There is ambiguity in the usage and definition of the following attributes

GeneratingUnit.maxOperatingP

GeneratingUnit.minOperatingP

EquivalentInjection.minP

EquivalentInjection.maxP

ExternalNetworkInjection.minP

ExternalNetworkInjection.maxP

EquivalentInjection.minQ

EquivalentInjection.maxQ

ExternalNetworkInjection.minQ

ExternalNetworkInjection.maxQ

GeneratingUnit and the injections can operate both in generator and in motor mode. It is not clear what is the sign convention for the limits. Is it positive when generating and negative when consuming? If yes a GeneratingUnit of type motor needs to have its minOperatingP and maxOperatingP negative. However do we require that $\text{abs}(\text{minOperatingP}) < \text{abs}(\text{maxOperatingP})$? If not doing this one can do $\text{maxOperatingP} = -5 > \text{minOperatingP} = -100$ which will need to be most probably imported in an application as $\text{Pmax} = 100$ and $\text{Pmin} = 5$, meaning we do not have 1:1 mapping in the sense of meaning maxOperatingP and minOperatingP.

Whatever the solution is this needs to be compatible with the understanding of ReactiveCapabilityCurve and xvalue there in case of motor operation

Similar clarification is necessary for EquivalentInjection and ExternalNetworkInjection where we do not have the operating mode in EQ, but we do have limits there.

Proposed Solution

Assign to the Physical Device Subgroup (9/22/2021)

Decision

Call 18 Oct 2023

Different options are possible:

-Option 1: Changing descriptions and moving attributes to SSH, or

-Option 2: In the EQ have the normal values and have another attribute (optional) in SSH

Option 2 is better option and should be implemented if there is no disagreement in Minneapolis meeting the week of 23 Oct 2023

If option 2 is approved the changes will be

Create the following attributes and add them to EQ profile in 452

GeneratingUnit.normalMaxOperatingP
GeneratingUnit.normalMinOperatingP
EquivalentInjection.normalMinP
EquivalentInjection.normalMaxP
ExternalNetworkInjection.normalMinP
ExternalNetworkInjection.normalMaxP
EquivalentInjection.normalMinQ
EquivalentInjection.normalMaxQ
ExternalNetworkInjection.normalMinQ
ExternalNetworkInjection.normalMaxQ

Add the following attributes in SSH (456), remove attributes from EQ (452) and modify the descriptions so that it is clear that SSH value depends on the operating mode

GeneratingUnit.maxOperatingP
GeneratingUnit.minOperatingP
EquivalentInjection.minP
EquivalentInjection.maxP
ExternalNetworkInjection.minP
ExternalNetworkInjection.maxP
EquivalentInjection.minQ
EquivalentInjection.maxQ
ExternalNetworkInjection.minQ
ExternalNetworkInjection.maxQ

History

#1 - 09/22/2021 10:24 AM - Eric Stephan

- Decision updated

#2 - 12/01/2021 11:39 AM - Eric Stephan

- Proposed Solution updated

- Standard(s) changed from 61970-301 to 61970-301, 61970-452, 61970-456

- Version changed from Ed7.1 to 301Ed7.1

- Decision updated

- CIM Keywords 61970-Production added

- CIM Keywords deleted (2)

#3 - 10/18/2023 11:03 AM - Chavdar Ivanov

- Status changed from New to Open

- Decision updated

#4 - 10/18/2023 11:03 AM - Chavdar Ivanov

- Status changed from Open to In Progress