



# Simulation Software Monitoring for the EU grid connection network codes

September 2024

## NC RfG 2016

### Article 15, 6 (c)-(iii):

[...] *the request by the relevant system operator referred to in point (i) shall be coordinated with the relevant TSO. It shall include:*

— *the **format** in which models are to be provided,*

### Article 43.3:

3. *To demonstrate compliance with the requirements of this Regulation, the power-generating facility owner shall provide a report with the simulation results for each individual power-generating module within the power-generating facility. The power-generating facility owner shall produce and provide a **validated** simulation model for a given power-generating module. The scope of the simulation models is set out in point (c) of Article 15(6).*

## In practice...



**In some Member States, *format* is interpreted as being specific simulation software**

Exclusively referring a commercial software in regional regulation document or guidelines is problematic.



**There is no monitoring/regulation for the qualification of simulation software.**

According to the German FGW certification databank (until 2023) only three software solutions have proven FRT validation.

# Our proposal

## Article 15, 6 (c)-(iii):

*[...] the request by the relevant system operator referred to in point (i) shall be coordinated with the relevant TSO. It shall include:*

- the **format** in which models are to be provided,



## Change to:

*[...] the request by the relevant system operator referred to in point (i) shall be coordinated with the relevant TSO.*

*It shall include:*

- Simulation models according to Article 43,

## Article 43.3:

*3. To demonstrate compliance with the requirements of this Regulation, the power-generating facility owner shall provide a report with the simulation results for each individual power-generating module within the power-generating facility. The power-generating facility owner shall produce and provide a validated simulation model for a given power-generating module. The scope of the simulation models is set out in point (c) of Article 15(6).*



## Add new requirement:

*Simulation software applied for creating simulation model shall:*

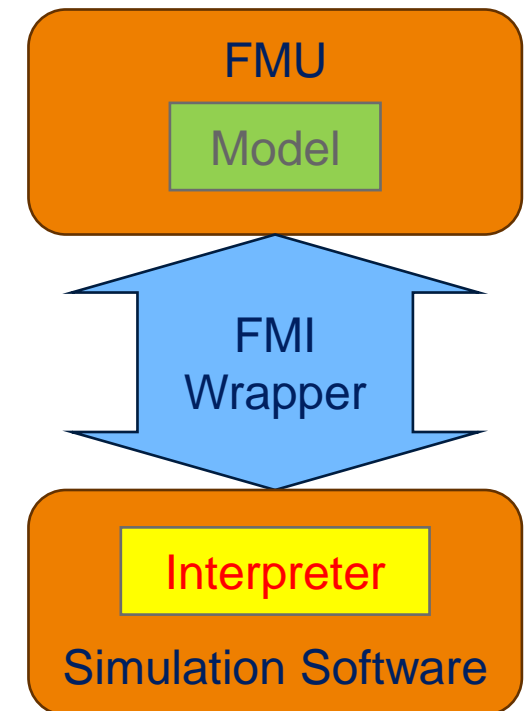
- contain compatible interpreter for the latest standard for common model exchange between different software platforms.*
- have been proven via test validation as qualified software for the EU grid connection network codes.*

# FMI Standard (Function Mock-Up Interface)

- FMI is a leading industrial standard to exchange dynamic simulation models

[Functional Mock-Up Interface \(fmi-standard.org\)](http://fmi-standard.org)

- So far, 214 tools supports the FMI Standard, that is neutral and common among different simulation and controller platforms.
- FMU (Function Mock-Up Unit) is a model package that is compliant with FMI standard
- Although the grid code analysis with FMI/FMU is under investigation, it is possible to upgrade FMI standards in the future.
  - FMI organisation has regular calls for problems that shall be addressed in the future development of the FMI standard.







**Thank you! Any comments or questions?**