



Model Exchange for Interaction Studies

Introduction

- ECC.6.3.17 requires Users to carry out interaction studies prior to connection.
- ECC.6.3.17 requires all relevant parties identified by ESO shall contribute to the studies and shall provide all relevant data and models as reasonably required to meet the purposes of the studies. ESO shall collect this data and, where applicable, pass it on to the party responsible for the studies.
- This presentation is to outline the high level process of model exchange.
- A guidance note will be published shortly on the detailed process, any feedback is welcome.

Model exchange process



Agree fault level data

SQSS Condition	3-phase Sub-Transient (kA)	1-phase sub-transient (kA)	Purpose (It is recommended the relevant fault levels are used for the following purposes)
<u>Minimum fault level</u>			1. Protection settings with additional appropriate safety margins. 2. Electromagnetic transient study in relation to CC.6.1.7(a) and (b) and TOV (TGN 288). 3. Any study in relation to unbalance.
<u>Post fault minimum fault level</u>			1. Fault ride through 2. Transient active and reactive power exchange studies 3. For SSTI and control interaction studies the part of network around the point-of-interest is usually modelled. Post fault minimum fault level, which represent a N-1-D condition on a summer minimum scenario should be included in the study cases.
<u>Winter fault level</u>			

Non-Disclosure Agreement (NDA)

- A Non-Disclosure Agreement is required between NGESO and the User, and any other party that will have access to the model data, e.g., consultant or developer.
- The model cannot be provided before the NDAs have been signed.

ESO to request permission to share third party data

- NGESO will write to the data owners, asking for permission to share their data with the User
 - If the permission is given, the third party data will be included in the model exchange
 - If the permission is not given, a generic model will be used to represent the user's plant

ESO to produce the reduced models (1)

- DlgSILENT PowerFactory (PF) model will be provided
- The model will be derived from the Electricity Ten Year Statement (ETYS) RMS model: winter peak, summer minimum
- The parts of the network outside of the study area will be reduced and represented by equivalent voltage sources

ESO to produce the reduced models (2)

- Synchronous machines
- Windfarms
- HVDCs
- Future plants

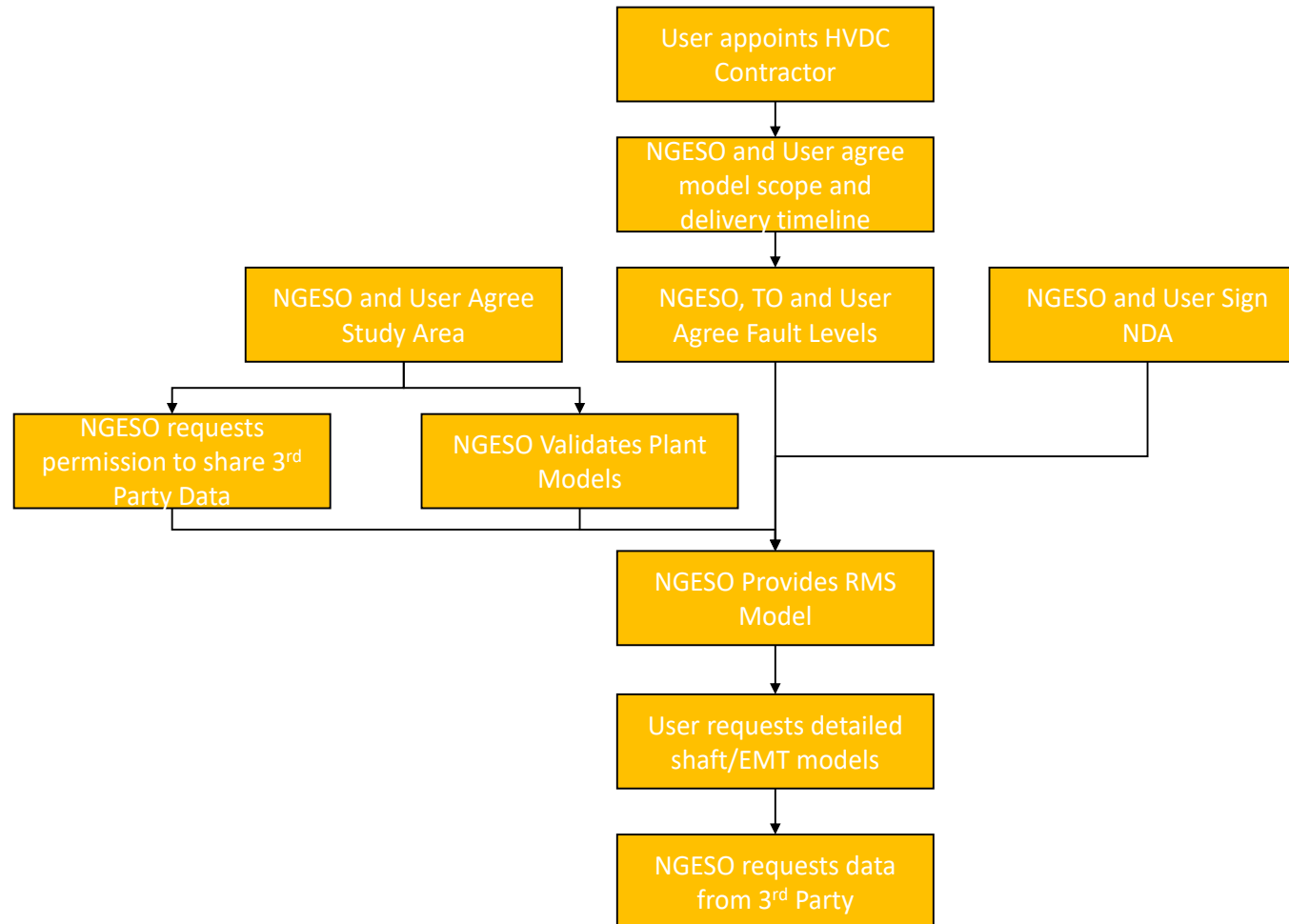
ESO to carry out quality check and issue the model

- Load flow
- RMS initialisation and simulation
- Pre and post fault voltage level and TOV
- Model to be shared through a secured link with a detailed release note

Additional data request

- Shaft data for SSTI studies
- Power Electronic Devices EMT Models for control interaction studies
- Ongoing GC0141 is looking into the issues

Overall model exchange process



Indicative timeline

Task	Indicative Timeline
Obtain Permission from Generator Owners	4 weeks
Windfarm, HVDC model validation	8 – 12 weeks
Model Reduction Work and RMS Model Provision	8 weeks
Obtain Turbine-Generator Shaft Data (the timeline can vary depending on whether the data is available and when the permission will be granted)	2 - 8 months
Obtain detailed EMT Model of Power Electronic Device	The timeline can vary depending on whether the data is available and whether permission will be granted