Major Customer Connection Process

Dynamic (Network RMS) Study Self-Serve

Network RMS Study Self-Serve – part of a broader planning ecosystem

Speeding up new connections is just one of many steps Western Power is taking to improve access to the network for generator, storage and demand facilities. We are committed to supporting the global energy transition to a low carbon future and this requires us to plan smarter to accommodate significant expansion and an increasingly complex grid.

We are evolving our planning process to:

- Find ways to better signal available capacity while promoting rapid access at low risk alongside major expansions.
- Keep abreast of the challenges of renewable generation dominant energy systems including how to maintain system strength.
- Develop new approaches to funding expansion investment while balancing financial and performance risk equitably between new entrants and existing customers.

Benefit – Dynamic (Network RMS) Study Self-Serve

What's changed?

Network RMS study (wide area RMS) completed by Western Power.

Customers can engage Accredited Service Provider (ASP) directly to complete. Validated by WP.

Benefits

- The customer has greater control over the balance between cost and speed in progressing a connection study.
- Enable the customers to maintain commercial flexibility by keeping more than one Original Equipment Manufacturer (OEM) supplier in the mix.
- Enable Western Power to standardise the approach of how we run Connection Studies internally.
- Improving the customer experience through rapid feedback on model validity, and a complete view of all rectification requirements.

Connection studies | Framework

Steady State	Dynamic			
	RMS		EMT	
Wide Area	SMIB	Wide Area	SMIB	Wide Area
Study focus & cases				

Assessment of below at Min | Max demand:
• Thermal loading
• Voltage step
• Voltage range
• N-1 & N-1-1
• Fault level assessment
• Develop Remedial Action Scheme (if required)
	• Min | Max demand
	• Min | Max Fault level
	• PQ allocation
	• Frequency sweep
	• *GPS.R0 compliance (Appendix 12)*
		• Min | Max demand
		• Large disturbance (fault)
		  ○ Line trip
		  ○ Load rejection
		  ○ Generator trip
		• *GPS.R0 compliance (Appendix 12.4)*
		• *Tech Rules compliance (Clause 2.2.8)*
			• Min demand / low SCR
			• Large disturbance (fault)
			  ○ POC
			  ○ Busbar
			• Small disturbance (step)
			  ○ Active power
			  ○ Reactive power
			  ○ Voltage
			  ○ Power factor
				• Min demand / low SCR
				• Large disturbance (fault)
				  ○ POC
				  ○ Busbar

Typical connection impacts				
• Thermal – constraint (SCED) • Voltage – install equipment (e.g. statcom)	• Controller retuning	• Controller retuning	• Install equipment	• Controller retuning

Customer self-serve pathway developed | planned

Generators & storage facilities only

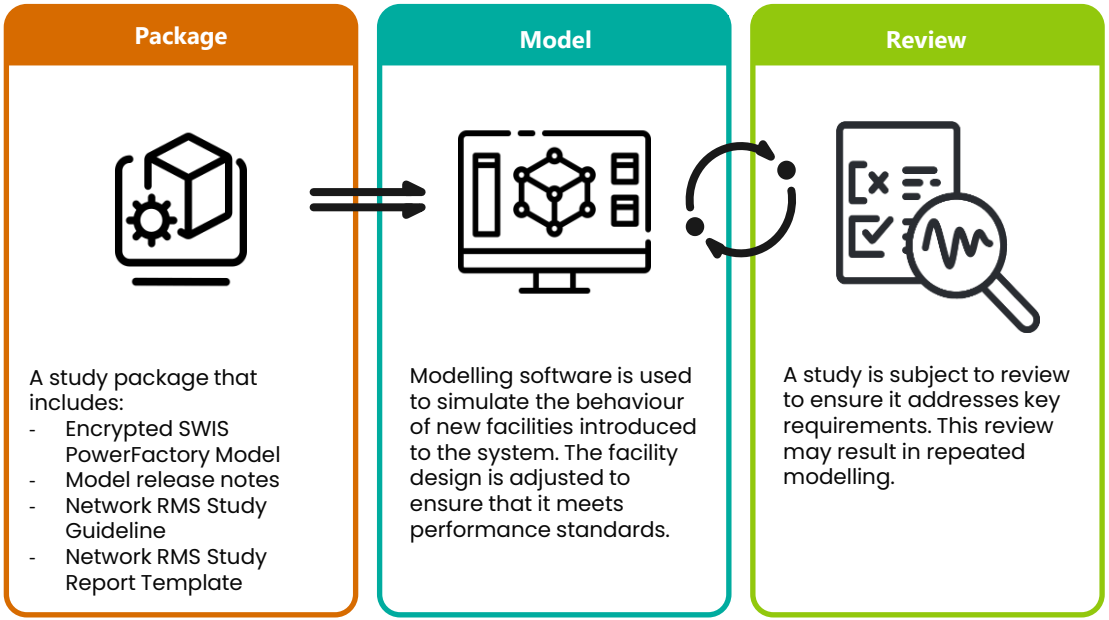
Network RMS Self-Serve – suitability criteria

Not all customers are eligible for the self-serve pathway, for example, connection studies with high levels of complexity that require significant engagement with internal stakeholders may not be suited to the self-serve pathway – the Western Power Planning Engineer is required to provide recommendation on suitability. Key considerations to determine the suitability of a connection application for the self-serve study pathway are:

- In which part of the Network does the customer want to connect?
- Will complex remedial action schemes (e.g., RAS, runback) be required?
- Will upstream network augmentation will be required to support the connection?
- Will commercial or OEM confidential information that cannot be shared with an SP under NDA be required?

Network RMS Self-Serve – approach

Self-serve connection studies have three steps as illustrated. The approach has been piloted with several customers to refine and ensure alignment with other activities across the customer connection process.



Network RMS Study Self-Serve – package overview

For customers choosing to follow the self-serve pathway, the nominated Service Provider (SP) will be provided a study package subject to return of a signed Terms of Use and/or NDA from the SP. Each study package will contain:

SWIS base model

An encrypted PowerFactory model that includes:

- Network nodes, lines, primary plant, operational facilities and committed facilities representing the SWIS.
- A snapshot of maximum & minimum load states (demand | dispatch) for each year of the study period.
- A unique ID embedded in all models that are released.

Additional facilities

A summary of facilities that should be added to each study:

- Facility type.
- Generation DSOC (MW).
- Load CMD (MW).
- Estimated in service date.

Guideline & template

A guideline and template outlining the requirements for each study:

- Technical requirements including a Scope of Work (SoW) for Service Providers.
- Guideline on study methodology and the formulation of study cases.
- A report template for publishing study results for review by the Western Power Connection Planner.
- SWIS Base Model Release Notes.

What does the customer do if they want to undertake Dynamic (Network RMS) Self-Serve study?

- The customer must contact their Senior Access Consultant.
- WP will undertake an assessment of the project and confirm whether Dynamic (Network RMS) studies can be delivered by the customer.
- WP will confirm the agreed pathway with the customer as part of the Project Delivery Approach (PDA) meeting.
- Once ready to conduct their Dynamic (Network RMS) study, the customer's selected service provider must submit a request using the SWIS Base Model request form on the WP website.
- The customer's Senior Access Consultant must confirm there are funds available for GT to complete the Dynamic (Network RMS) Study Validation.
- If the customer has any questions throughout the Dynamic (Network RMS) self-serve study process they should communicate via their Senior Access Consultant.

For more information contact
network.access@westernpower.com.au