




AECOM



***Technology Testing
Survey Workshop
FPDI 3A.1***

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Agenda

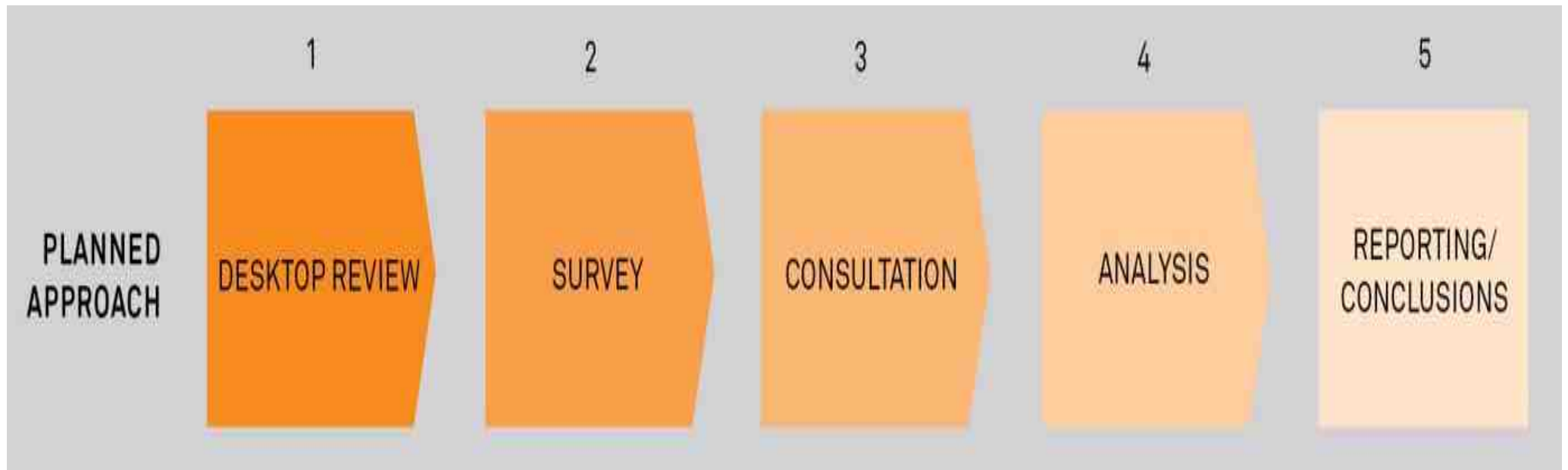
- TTS Project Aims
- Project Approach
- Desktop Survey findings
- Consultation findings
- Report Conclusions
- Report Recommendations
- Group discussion
- Report back on discussions

What did we set out to achieve?

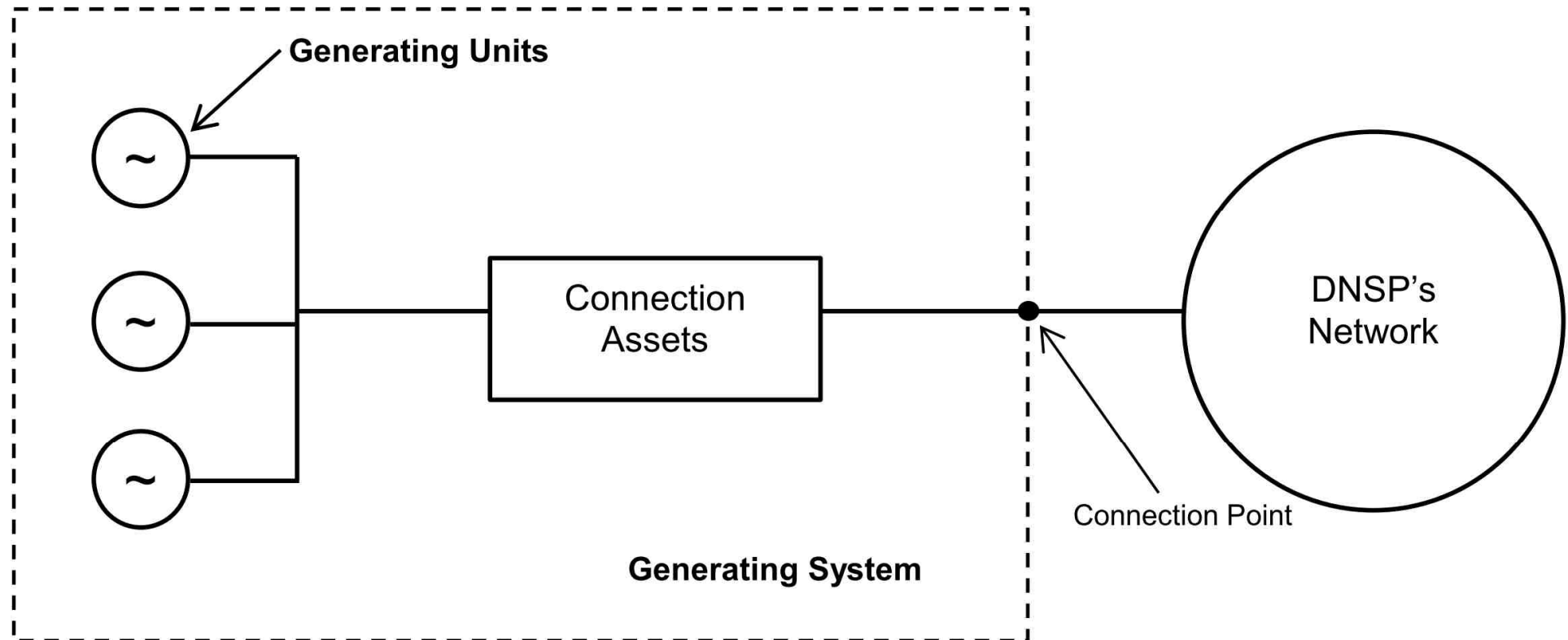
As part of the wider FPDl study on Australia's electricity distribution industry, the two high level goals of the survey were to ascertain:

- the need for an Australian testing and compliance framework and whether such a framework would assist both Distribution Network Service Providers (DNSPs) and proponents in the connection of inverter based systems to networks,
- if there is an identified need, and what such an arrangement could involve.

What activities did we undertake?



Units versus Systems



What could a framework look like?



Process Review

Table 3 Comparison of international testing and compliance framework processes

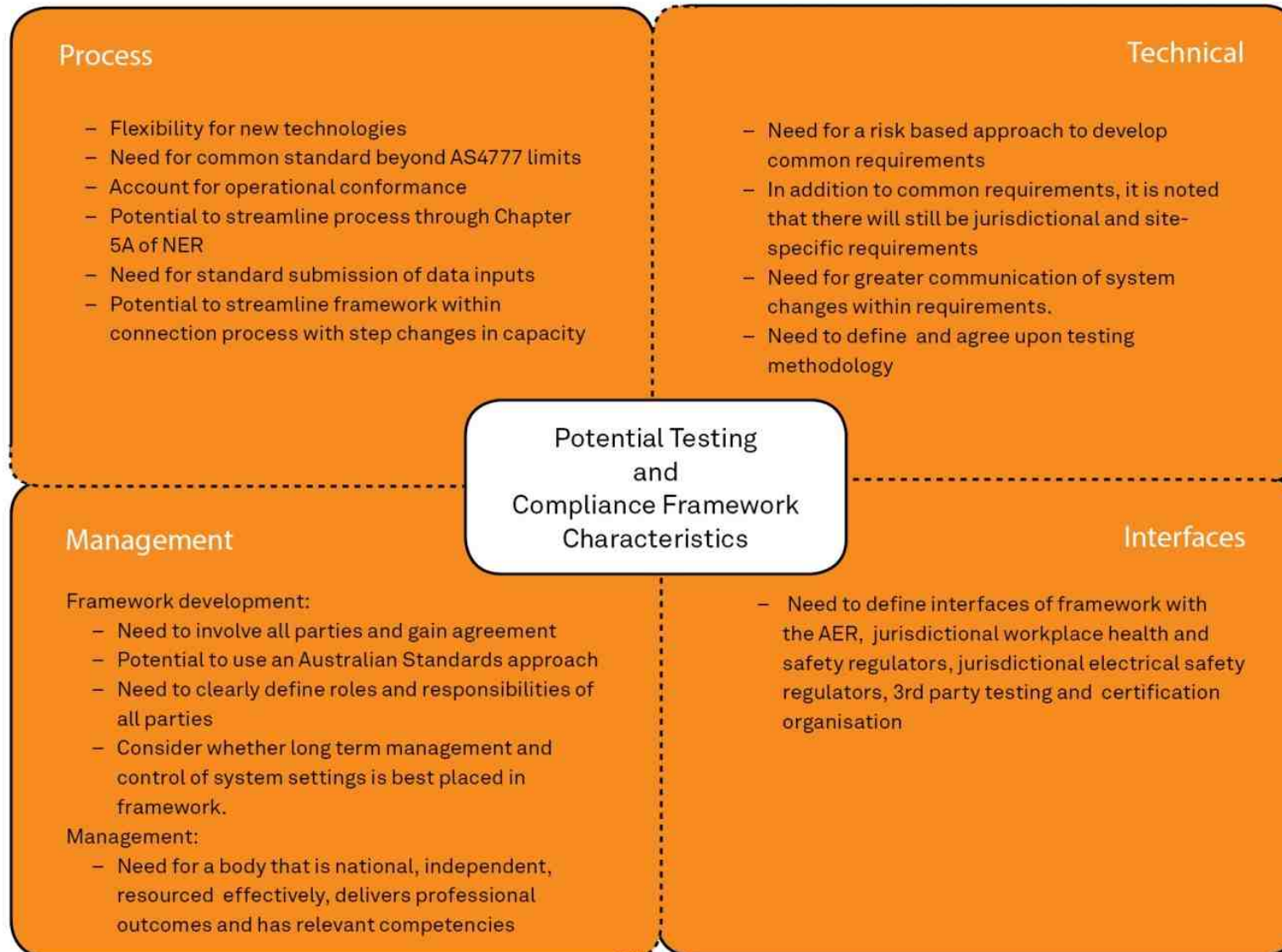
	BDEW Guidelines		IEEE 1547	EN 50438
Description	Staged testing and compliance framework as part of a standard connection process.		Describes the electrical requirements and testing procedures. "Certified" equipment check is part of a staged process to determine if conventional and special network impact studies are needed. Provides network operator assurance that the unit will separate in a reasonable period of time and behave in other ways predictably.	Describes the electrical requirements for the generating system and some guidance on testing methodology.
Size	For connections to the medium-voltage network > 1kV and < 60kV.		Aggregate capacity up to 10MVA at grid connection point.	For nominal currents up to and including 16 A per phase, single or multi-phase 230/400 V or multi-phase 230V.
Testing and Compliance	Third party type testing to verify electrical properties of a generating unit, which are to conform to requirements in BDEW guidelines, VDE rules and FGW and can also cover IEC, EN standards.	Third party testing to verify electrical properties of a generating system and to conform to requirements in BDEW guidelines, VDE rules and FGW and can also cover IEC, EN standards.	Type tests, production tests and commissioning tests.	Type tests for generating unit and interface protection.
Outcome	Generating unit certification.	Generating system certification.	Test reports covering the generating unit and generation system.	Test results sheet or type test certificate.
Stage within connection process	Provide third party generating unit certification in connection application.	Provide third party generating system certification to network operator for network connection inspection.	Preliminary review.	During equipment selection.

Equipment Capability

Table 4 Comparison of standard requirements

Classification	BDEW	IEEE1547	EN50438	IEC61727
Allowable feed in power	✓	✓	✓	
Operating range requirements		✓	✓	✓
Fault current contribution	✓		✓	
Quality of generated power	✓	✓	✓	✓
Response to abnormal network conditions	✓	✓		
Protection requirements		✓	✓	✓
Network support requirements	✓		✓	✓
Synchronisation		✓		
Connection equipment requirements	✓	✓	✓	✓
Reactive power capability	✓		✓	✓

Summary of Consultation Findings



Conclusions

- YES – there is a need for a framework

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- International Standards could provide a basis for an Australian framework, specifically:
 - Stage approvals process
 - Third party verifications for equipment
 - Inclusion of site specific requirements
 - Technology neutral technical requirements

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- Risks need to be well understood and assessed
- Whole of life approach
- **Independent national management**

Report Recommendations

- Gain agreement with all stakeholders
- Broader industry consultation
- Transparent review of connection standards and technical guidelines
- Complete a facilitated risk assessment to understand changes in risk allocations
- Develop a framework definition

Activity

- Split into groups
- Discuss within your group the conclusions and recommendations
- With respect to the conclusions and recommendations what other actions should the CEC consider?
- Report back

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- Independent national management

Recommendations

- Gain agreement with all stakeholders
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Close

- Any final questions before lunch?