



Connections Reform Initiative: Program of Trials to Improve the Connections Process

Call for Expressions of Interest

EOI submission period close date:

20 January 2023 (5pm AEDT)

Date: 7 December 2022



Contents

1	Information for Respondents	3
1.1	Context	3
1.2	Purpose of this Call for Expressions of Interest	3
1.3	Eligibility	4
1.4	Evaluation / Assessment Criteria	4
1.5	Key Dates	5
1.6	Submitting an EOI	5
1.7	Other matters	5
1.8	Q&A	6
2	EOI Response Template	8
2.1	Contact information	8
2.2	Project information	8
2.3	Description of the proposed trial	9
2.4	Proposed trial implementation methodology and timing	9
2.5	Assumptions / dependencies	9
A1.	Initiatives designed by the SCP Delivery Team	10
A2.	CRI Streamlined Connections Process: Measures of Success	13



1 Information for Respondents

1.1 Context

The Connections Reform Initiative (CRI) is jointly sponsored by the Australian Energy Market Operator (AEMO) and the Clean Energy Council (CEC). It was created in 2021 to help overcome challenges in connecting new generators to the National Electricity Market (NEM) grid during the fastest clean energy system transition in the world. It does this via a collaborative co-design approach that brings together people from across the industry, enabling them to work together to solve challenges relating to grid connections.

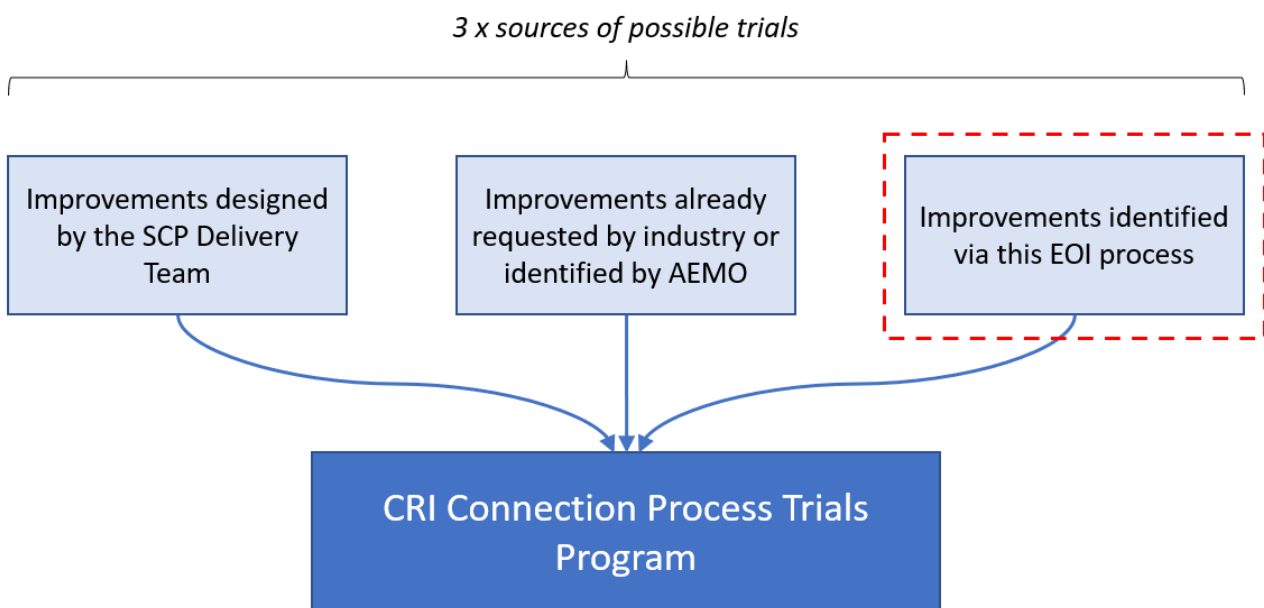
The Streamlined Connection Process (SCP) is a specific reform within the CRI (previously known as Batching). The SCP is identifying a suite of improvement initiatives (both large and more incremental) across the connections process. Significant progress has been made in identifying potential improvements to the connection process by the CRI's SCP Delivery Team. Nine initiatives have been identified so far, with most of these ready to progress to trial stage. These nine initiatives are detailed in Appendix A1. There have also been several improvements requested by industry, or identified by AEMO, which may progress to the trial stage.

The CRI is calling for expressions of interest (EOI) to participate in an integrated program of trials developed to test potential improvements to streamline the NEM connections process.

1.2 Purpose of this Call for Expressions of Interest

The trials already identified will be augmented by the CRI as a result of this EOI process, which represents a call to industry for additional suggested improvements to the connection process to be trialled.

The SCP Delivery Team's current initiatives, initiatives identified by industry and AEMO, and additional initiatives identified after evaluating EOI responses, will be integrated into the **CRI Connection Process Trials Program (the Program)**.



To develop the Program, AEMO and the appropriate Network Service Provider (NSP) will evaluate the responses to this EOI to determine the best fit for the overall Program, considering timing and staging of the proposed trials.

The principles the Program will adopt include:

- A portfolio of different ideas to improve the connections process will be tested - tackling real-world opportunities.
- A diversity of organisations will be involved, leveraging the energy, enthusiasm and input of volunteers.
- A supportive environment for participants will be provided including bundling proposed ideas, networking, technical assistance, and communication and publications support.

If successful, AEMO will consider making this a 'rolling' Program that is updated periodically with new trials. As such this EOI is expected to be the first in a series of EOIs.

1.3 Eligibility

There are no limits as such on the suggested participants in the Program, however we anticipate that the preferred expressions of interest will come from project developers collaborating with the nominated NSPs.

Likewise, there are no proposed limits applied to the "boundaries" of ideas, although it is expected that the stronger trial candidates will address known opportunities to improve particularly across the application to connect, registration and commissioning phases of the connections process.

1.4 Evaluation / Assessment Criteria

The Program will be developed in a way that provides a balance of trials across the stages of the connections process, as well as bringing together a diversity of Network Service Providers (NSPs) and developers to participate. It will also seek diversity in terms of trial scale, technology, complexity, and timeframes.

As well as ensuring a diversity of trials across the connection process, initiatives proposed for inclusion in the Program via this EOI will be assessed against their ability to address the performance areas defined in the Streamlined Connections Process 'Measures of Success' (refer to Appendix A2) with a focus on the following three areas:

1. Connection speed and cost (efficiency)
2. Connection certainty / confidence
3. Enhanced quality of connection enquiries / applications

1.5 Key Dates

Activity	Date
Publish EOI	7 December, 2022
EOI submission period closes	20 January 2023 (5pm AEDT)
Evaluation and Program Development complete, including clarifying questions to respondents	23 January – 10 February, 2023
Trial applicants advised of the outcomes	13 February, 2023
Connection Trials Program announced and Program kick-off	15 February, 2023

1.6 Submitting an EOI

All applicable sections of the EOI must be completed in the form of Section 2. An optional EOI Response Template¹ is available to assist respondents in submission preparation.

EOIs must be lodged in electronic form to reach the following email address by 5:00 pm (AEDT) on 20 January 2023: contact.connections@aemo.com.au.

Any enquiries regarding this EOI process can be directed to Tania McIntyre, Principal Project Manager for the Connections Reform Initiative at tania.mcintyre@aemo.com.au.

1.7 Other matters

Neither this EOI, nor a proposal submitted by an applicant, has any contractual, promissory, or restitutionary effect, and does not create any other rights, in relation to proceeding with the EOI process or inclusion in the Program.

AEMO may change this EOI or the requirements outlined in it by issuing an addendum.

Respondents participate in this EOI process at their own cost and risk. AEMO, CRI members, participating NSPs and their representatives will not be responsible for, and no respondent is entitled to be reimbursed for, any expense, liability or loss incurred in the preparation and submission of any proposal or information, or otherwise in relation to the EOI process or the Program.

Participation in a trial will not afford preferential consideration to any project in the connections process and does not provide any assurance that a project will achieve connection, registration or successful commissioning.

¹ Available on AEMO's Connection Reform Initiative webpage: [AEMO | Connections Reform Initiative](#)

1.8 Q&A

Question	Answer
Who will a) recommend and b) decide what ideas are selected for the Program?	A small panel of representatives from the appropriate NSPs and AEMO will evaluate the expressions of interest received for their network in order to develop the Program. The program of trials, and their progress, will be shared (on a de-identified basis) with the Reference Group established for the Streamlined Connection Process reform. This Reference Group comprises developers, NSPs and AEMO.
Who will decide when a trial should be shut down, if not progressing successfully?	The trial Project Manager, within AEMO, will have responsibility for managing that trial to its successful conclusion, or its early termination. Representatives from AEMO and the relevant NSP involved in the trial will also be advising the Project Manager on recommended actions.
Who will determine the sequence of trials?	Once there is a full list of proposed trials, and those have been evaluated by the appropriate NSP and AEMO representatives, an overall program will be developed. Key in determining both the number and scale of trials undertaken at any one point in time will be the ability of all volunteers to the process, including AEMO and the relevant NSP, to resource that proposed program of work.
How many trials are likely to be supported by the Program at any one time?	There is no fixed number of trials anticipated at this time. Some trials might be relatively quick, and some might be quite extended. The Program will not necessarily be limited by number of trials; rather, it will reflect the interest expressed by all parties, the expected value from the trials and the resource balance which needs to be struck as noted above.
What support will AEMO provide to participants in the Program?	Subject to resource balancing across the overall Program, AEMO intends to actively support the proposed trials by allocating the necessary resources as part of the SCP reform. The nature of support provided by AEMO will vary according to the needs of the individual trial and overall resourcing needs.

Question	Answer
Will funding be available through the CRI?	<p>Participation in the Program will be on a voluntary basis and funding will not be available to trial participants. Trial participants are expected to provide in-kind support for individual trials they are involved in, and benefit from.</p> <p>The CRI will coordinate core activities associated with the documentation of lessons learned (whether a trial is successful or not), and the dissemination of those to the market at large. This means that individual proponents can focus on projects which are of interest to them, and from which they will benefit.</p>
What incentive can be provided to volunteers to support the expected lessons learned process for each trial, when this is likely to come at a cost to trial participants?	<p>As noted above, the CRI will coordinate knowledge documentation/acquisition and sharing more broadly, with all information shared on a de-identified basis to preserve confidentiality. This will not be a cost that falls to volunteers to the program.</p>

2 EOI Response Template

2.1 Contact information

Organisation	
Contact person	
Position	
Email	
Phone	

2.2 Project information

Project name	
Connection point and connection point voltage	
Network Service Provider (NSP)	
Technology type	
Anticipated capacity (MW)	
Current connection stage	
Anticipated completion date	



2.3 Description of the proposed trial

Please provide a brief description of the proposed trial, including:

- the central hypothesis to be tested, i.e., how the trial will improve the connection process described with emphasis on the three criteria listed in Section 1.4
- stage of the connections process involved

2.4 Proposed trial implementation methodology and timing

Please describe briefly how the proposed trial could be implemented, including:

- key steps in the trial
- anticipated high-level dates of key trial milestones (including anticipated date of trial commencement)
- project partners and key stakeholders

2.5 Assumptions / dependencies

Please list any critical assumptions and/or dependencies surrounding the proposed trial as relevant, i.e.:

- any additional resourcing requirements (e.g., consultant support)
- project interdependencies



A1. Initiatives designed by the SCP Delivery Team

Stage	Initiative no.	Initiative	Next step	Description / areas to be explored
Enquiry	1	Update the connection enquiry form to incorporate additional proponent info and checklist of info back from NSP.	Progressing to trial	<ul style="list-style-type: none"> Expand enquiry form to request additional info of proponents, incl: evidence of land agreement, planning approval, OEM selection, PPA Agreement, finance/equity, design activities undertaken, grid modelling status, target dates, contractual dates (e.g. PPA sunset dates), schedule/program. Expand enquiry form to include checklist of info that developer wants back from the NSP in connection enquiry response. E.g. Harmonic Allocations, Min and Max fault level at POC.
Pre-application (new)	2	Detailed design of the optional pre-application stage.	To be the outcome of pre-application trial	<ul style="list-style-type: none"> New optional step available to proponents. Purpose is to drive early collaboration between proponent, NSP and AEMO and enable early identification of 'deal breakers', additional equipment and high-level design decisions, etc. before Application stage. (Not about landing draft GPS agreement.). NSP and AEMO have the right to re-visit at Application stage.
	3	Develop the Guideline that sets out the 'menu' of design packages, possible studies to be performed against each clause and guiding principles.	Progressing to trial	

Stage	Initiative no.	Initiative	Next step	Description / areas to be explored
Application	4	Develop the detailed design and process for batched assessment studies.	Perform detailed design prior to trial	<ul style="list-style-type: none"> • Batched power system studies to avoid re-work if a nearby project becomes 'committed'.
	5	Identify the appropriate responsibility / scope split between AEMO and NSP on key GPS clauses.	Progressing to trial	<ul style="list-style-type: none"> • Agreed 'scope of assessment', including split between AEMO and NSP on key GPS clauses (e.g. those pertinent to NSP FIA, AEMO Wide Area studies). Agreed roles and responsibilities throughout the phase.
	6	AEMO access standards assessment requirements Guideline review.	Progressing to trial	<ul style="list-style-type: none"> • Review of AEMO access standards assessment requirements Guideline to reflect real and current scenarios.
R1 & Registration	7	Work through the practical implications and detailed design of decoupling R1 and registration.	Perform detailed design prior to trial	<ul style="list-style-type: none"> • Decoupling of R1 and registration to streamline proponent EPC contracting.
	8	R1 pre-agreed scope.	Progressing to trial	<ul style="list-style-type: none"> • Seek to pre-agree the scope of work across all parties for the R1 stage.

Stage	Initiative no.	Initiative	Next step	Description / areas to be explored
Commissioning	9	Commissioning stage detailed review: generator commissioning practices, NER gap-analysis and review of AEMO's Commissioning Guidelines and templates.*	Work in progress via external consultant.	<ul style="list-style-type: none"> • Standard hold point approach across the NEM by technology and capacity. • Standard communications fail requirements and templates. • Consistent approach between NSP/AEMO. • Commissioning pack to build momentum and certainty. • Staging commissioning and dynamic stability checks.

* A previous 'Commissioning template harmonisation across NSPs' initiative has now been absorbed into this initiative given overlaps.

A2. CRI Streamlined Connections Process: Measures of Success

Performance Area	Measures of Success
Connection speed and cost (efficiency)	<ol style="list-style-type: none"> 1. Time (<u>ave.</u>, median, min, max) for each phase of connection process: Application to 534, R1 to registration, Hold Point Tests to Approval. 2. Number of model & documentation iterations (tracked separately) from connection application (with preliminary collaboration before this). 3. Total engineering (<u>ave.</u>, median, min, max) hours tracked at an aggregate level. Aggregate as project specific may be misrepresentative. 4. Survey into stakeholder satisfaction (two-way across all parties) - aggregate, not project specific.
Connection certainty / confidence	<ol style="list-style-type: none"> 5. Survey into how consistent were negotiating positions through the negotiation process? Could agreements be relied upon? Did engineers have power to make a call? 6. Survey into consistency between regions. 7. Track against set key milestone dates in the 5.3.4A or OTC (at a macro level).
Enhanced quality of connection enquiries / applications	<ol style="list-style-type: none"> 8. Issue tracker metrics (portfolio level): Number of issues ranked by risk; tracking of distinction between model issues, model accuracy issues and plant performance issues; time to close an issue; number of back/forth on individual issues. 9. Ratio of projects that enter enquiry stage, proceed to connection application, and to exit registration stage. Assess stakeholders for any patterns on consultants, OEM, Developer, NSP etc. 10. Number of major / minor model changes: R0 vs R1 vs R2.
Improved grid / market / environmental outcomes	<ol style="list-style-type: none"> 11. Total MW connected and number of projects connected. 12. Survey with finance providers and equity on perceived grid connection risk in Australia compared to other markets.
Improved use of scarce people resources	<ol style="list-style-type: none"> 13. Staff turnover rates: people leaving Grid Connections for different roles, average tenure of Power System engineers. (Data to be provided by HR firm.) 14. Anonymised <u>ave.</u> employee hours per week (introduce time-sheeting system for TNSP / AEMO) and survey developers/consultants, etc.
Cost of energy	<ol style="list-style-type: none"> 15. Annual stranded asset system study (PSS/E and real data) to identify utilisation of reactive plant under all contingencies and operating scenarios.
System and generator performance	<ol style="list-style-type: none"> 16. Number of non-conformances (NCRs) - both commissioning and post-commissioning (rated by risk). 17. Number of new 'non-thermal' system constraints identified post-connection (e.g., stability, oscillations, West Murray, etc.)