16 July 2012

Mr John Pierce
Chairman
Australian Energy Market Commission
Level 5, 201 Elizabeth Street
Sydney NSW 2000

Via website: www.aemc.gov.au

Dear John

Transmission Frameworks Review First Interim Report – Supplementary Submission on Connections

In its First Interim Report on the Transmission Frameworks Review, the Commission commented on the current connection arrangements in the National Electricity Rules ("Rules") and considered that the current connection arrangements should be amended to clarify their application and address the causes of current uncertainty.

Grid Australia supports amendments to the Rules to clarify connection arrangements.

This supplementary submission sets out a high level conceptual design which is intended to help simplify, clarify and give functional meaning to the key terms and concepts related to connections and transmission services. This includes addressing the question of "what does a network user receive when a TNSP provides a transmission service?"

Grid Australia looks forward to continuing to work with the AEMC and stakeholders through the further stages of the review. If you require any further information, please do not hesitate to contact me on (08) 8404 7983.

Yours sincerely

Rainer Korte
Chairman
Grid Australia Regulatory Managers Group

grid australia
BACKBONE OF THE NEM

Transmission Frameworks Review

Supplementary Submission on Connections in response to AEMC First Interim Report

July 2012

Powerlink Queensland
TransGrid
ElectraNet electricity transmission
TRANSEND
SP AusNet A member of Singapore Power Group

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1. Background

On 17 November 2011, the Australian Energy Commission ("AEMC") published its First Interim Report Transmissions Framework Review ("TFR Report").

The TFR Report sets out a series of potential alternative paths forward for the development of transmission arrangements in the National Electricity Market.

In particular, the TFR Report comments on the current connection arrangements in the National Electricity Rules ("Rules"). The AEMC considers the current connection arrangements should be amended to clarify their application and address the causes of current uncertainty.

The main areas raised by the AEMC for amendment and clarification are set out below.

(a) Should the types of services required to connect to a transmission network be rationalised or expanded?

(b) For each service, what exactly does a transmission network service provider ("TNSP") provide and a connection applicant receive?

(c) The relationship between physical connection, the provision of the functional services and the construction of the assets that deliver the services (does a service include the construction of the underlying assets).

(d) The relationship between assets used to provide connection services and assets used to provide shared transmission services, noting that this categorisation does not affect who pays for the service (the connection applicant).

(e) The classification and treatment of "extensions".

(f) The location of the connection point.

(g) What is the boundary that marks the end of a transmission system for the purposes of regulation under the National Electricity Law ("NEL") and the Rules?

(h) Aligning the connection process in the Rules to better reflect current TNSP practices.

The objective of this paper is to address the matters raised above and propose a conceptual design to amend the Rules to simplify and provide clarity ("Objective").

2. Process methodology to deliver the Objective

This paper outlines a high level conceptual design of a proposed regulatory structure ("Conceptual Design") to achieve the Objective.

The establishment and implementation of the Conceptual Design involves defining and following a process methodology.

The proposed process methodology is set out below.

(a) *Survey the current landscape* – identify the key terms and definitions in the Rules that deal with connection, the provision of transmission services and associated matters, including pricing.

(b) *Key connection and service provision processes* - step away from the Rules and identify the key concepts and characteristics that, in practice, guide and deliver connections and the provision of transmission services.

(c) *Contributors to current confusion* – step back into the Rules and identify the concepts and provisions that create confusion, impose barriers and don't align with day to day practices.

(d) *Keep it simple and give meaning (Conceptual Design)* – outline a Conceptual Design that simplifies, clarifies and aligns concepts, definitions and provisions and gives them better practical meaning. This will be a move away from descriptions that are abstract to descriptions that are more functional and consistent with the physical and electrical characteristics and attributes of the relevant concepts and definitions.

(e) *Economic principles* – the Conceptual Design must be consistent with the current principles of economic regulation that apply to prescribed transmission services and negotiated transmission services, as they apply to a transmission system regulated by the Rules.

(f) *Competition Principles Agreement* – the Conceptual design must also be consistent with Part IIIA of the *Competition and Consumer Act 2010,* in particular the criteria for certification of effective State based access regimes.

(g) *Existing Jurisdictional arrangements* – the Conceptual Design and its implementation will need to be consistent with arrangements that currently exist and apply in each Jurisdiction – see paragraphs 3.10 to 3.11.

(h) *Consequential changes* – be mindful that the Conceptual Design will involve consequential changes to a number of provisions of the Rules, and potentially the NEL, and this will need to be monitored and tracked as part of the detailed drafting stage.

3. Conceptual Design of regulatory changes

3.1 Survey of the current landscape

The survey of the current landscape has involved identifying the concepts and definitions related to "assets", 'services", "service delivery/standards", "pricing" and "network user" – see attachment 1**.**

3.2 Key connection and service provision processes

Stepping outside the Rules, there are five key processes involved in establishing a connection and providing transmission services. These processes are outlined and described in Diagram 1 below. These matters are described as processes, rather than sequential time based steps or stages, to highlight the key components involved in the overall connection process. Similar processes would apply to modifying an existing connection.

(a) **Process 1** – the connection applicant provides the TNSP with its connection and technical requirements for its facility, or proposed facility, including its requested capability, which capability must be within the parameters as specified in Chapter 5 of the Rules.[1]

(b) **Process 2** – the TNSP and the connection applicant agree on the geographic location of the proposed connection point. This is fundamental as it dictates the following matters – available capability, the scope and size of the connection and works to be performed, performance standards to be complied with and charges payable for the provision of the agreed capability and associated assets.

(c) **Process 3** –the TNSP determining the amount of power transfer capability that is available from its transmission network to provide capability requested by the connection applicant at the proposed connection point.

(d) **Process 4** – if the amount of available power transfer capability is sufficient to provide the connection applicant's requested capability, then the parties move straight to process 5. If the amount of available power transfer capability is not sufficient and an augmentation is justified through the application of the Regulatory Investment Test – Transmission, then the provision of the augmentation will be a prescribed transmission service. If this is not the case then the connection applicant has two choices:

- it can accept the capability that is available and move to process 5. The connection applicant can then wait for future regulated works to be carried out to provide additional or improved power transfer capability in the

[1] In Victoria, connection applicants must deal with the TNSP responsible for planning and providing shared network services (formerly VENCorp, now AEMO) and the incumbent network owner (SP AusNet) at the point of connection. This necessarily adds complexity within the 5 process steps.

transmission network and if this happens make a new connection application for additional/improved capability; or

- it can ask the TNSP to consider progressing a funded augmentation to provide for additional or more reliable power transfer capability in the transmission network which is required by the connection applicant to meet its requested capability.

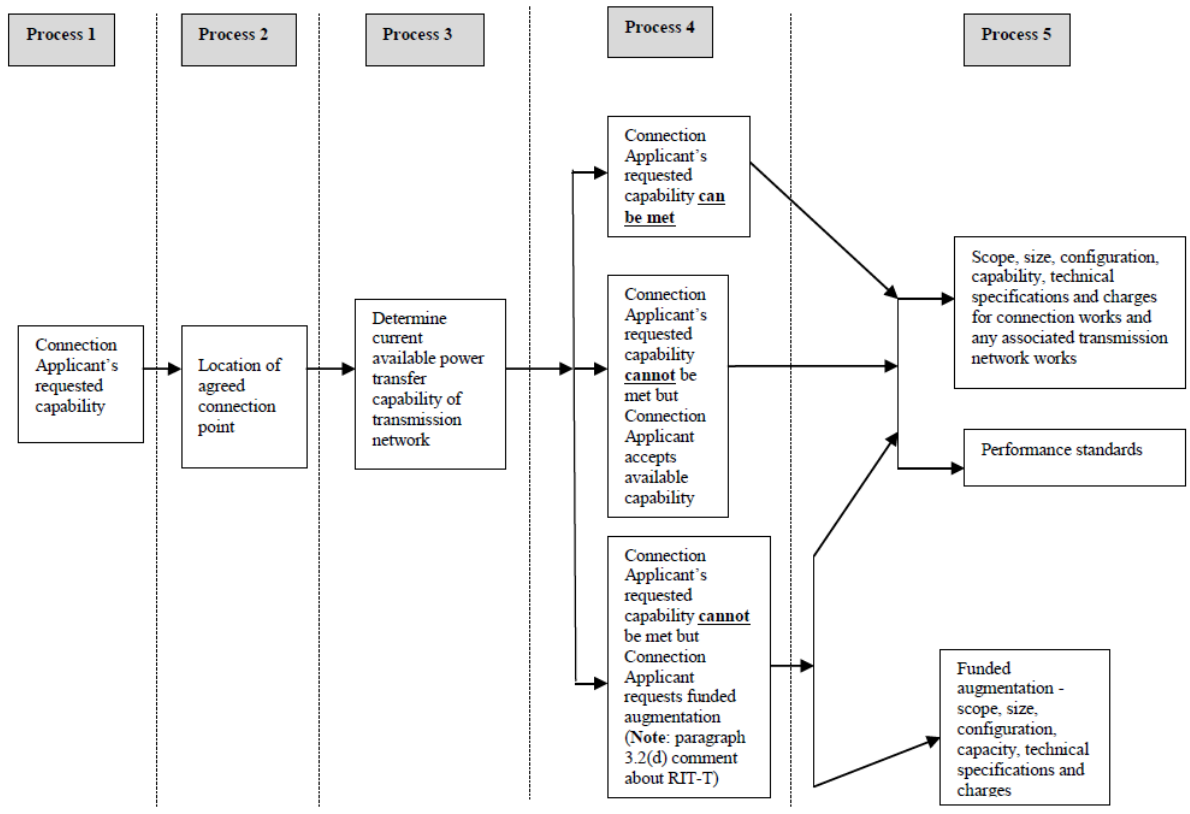
(e) **Process 5** – the TNSP and connection applicant agreeing on the arrangements and charges to establish the connection and provide the agreed capability.

Where more than one agreed connection point is being considered, processes 3 to 5 would be undertaken for each agreed connection point.

The offer to connect processes in Chapter 5 of the Rules is complex and prescriptive and it should be reviewed and streamlined to reflect the minimum level of process needed to achieve the outcomes referred to above. In addition, the offer to connect process should be flexible to provide for different contracting arrangements between a TNSP and a customer (for example construction of works and provision of functional transmission services) to meet the customer's needs and project timelines.

The underlying source of criticism about delays in, and the complexity of, the offer to connect process is found in the current level of prescription and process in Chapter 5.

Diagram 1 – key connection and service processes



3.3 Contributors to current confusion

There are eight main contributors to the confusion referred to by the AEMC[2].

(a) Key terms, concepts and their supporting definitions being expressed in an abstract way, rather than stating their functional and practical purpose, particularly those related to "services".

(b) Excessive definitions, sub-definitions and cross referencing between them.

(c) A lack of clarity around the relationship between "functional services" and the provision of the "physical assets" needed to provide the functional services.

(d) Multiple terms and definitions relating to the boundary of a transmission system.

(e) The interface between Chapter 5 and Chapter 6A, the relationship between terms used for pricing purposes and terms used for connection and the provision of services and the interface with other Chapters of the Rules.

(f) Terms in the Rules that are inconsistent with the same terms used in the National Electricity Law.

(g) The use of multiple concepts and terms that overlap and conflict with each other.

(h) The offer to connect process is too complex and prescriptive.

3.4 The Conceptual Design

The key feature of the Conceptual Design is to simplify, clarify and give functional meaning to the key terms and concepts flowing from "Transmission Services".

A "model" outline of the Conceptual Design is described in Diagram 2 below. The Conceptual Design needs to be read with the connection processes outlined in diagram 1 and it is subject to the comments below concerning Jurisdictional Arrangements.

Under the Conceptual Design the answer to the question above "what does a network user receive when a TNSP provides a transmission service?" would be:

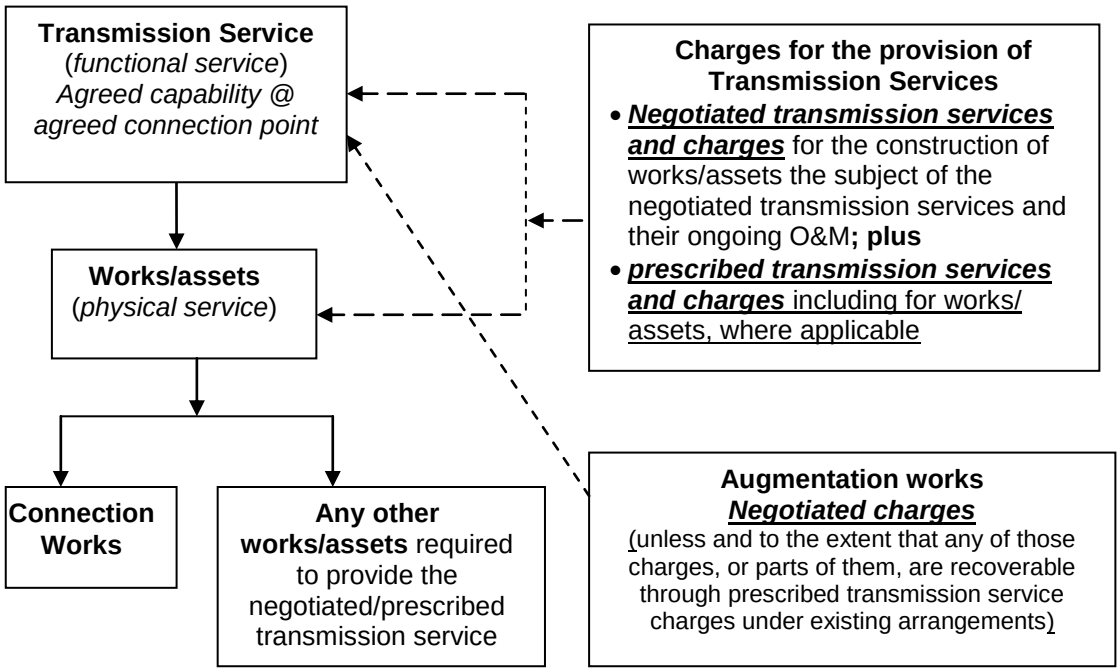
A Network User will be able to send out or receive, at its agreed connection point, up to # MW or # MVA of electricity, as specified in its connection agreement. The

[2] In Victoria there are additional factors to be considered because of the particular jurisdictional arrangements. Asset ownership is separated from planning and investment decision making. AEMO plans and directs most network augmentation, and buys bulk transmission network services from network owners for sale to customers. Connection applicants must negotiate with both AEMO (on shared transmission network use) and the incumbent network owner (on connection asset use). The incumbent network owner also has an operational interest in the shared transmission network arrangements negotiated with the connection applicant. The allocation of responsibilities and risks is accordingly additionally complex, and to account for the specific interests of the parties the tripartite negotiations can be difficult, lengthy and costly.

connection agreement, and any related project/development/works agreement, will provide for the connection work and any associated transmission network works, the charges payable for the provision of these services and other terms and conditions relevant to the provision of services.[3]

The implementation of the Conceptual Design will need to be consistent with the arrangements that currently apply and exist within each Jurisdiction, including, Jurisdictional Derogations, other applicable Jurisdictional Legislation and current connection agreements/arrangements ("Jurisdictional Arrangements"). To the extent that any Jurisdictional Arrangements are inconsistent with the Conceptual Design, then specific arrangements must be put in place to preserve or grandfather, as applicable, any inconsistent Jurisdictional Arrangements. Over time, the objective would be for inconsistent Jurisdictional arrangements to be harmonised across all Jurisdictions, where consistent with the National Electricity Objective.

Diagram 2 – Conceptual design



[3] Some TNSPs may provide services at voltages lower than those provided within the Chapter 10 definition of "transmission network", in which case, a connection agreement will provide that a Network User will be able to send out or receive up to # MW or # MVA of electricity at such point of supply agreed by the parties in the connection agreement.

Table 1 below sets out the key terms and their high level meanings applicable to the Conceptual Design. The table is not intended to be an exhaustive list of all key terms or a complete drafting solution to give effect to the Conceptual Design. It also does not take into consideration any adjustments that may be needed to take account of any conflicting Jurisdictional Arrangements or any adjustments required to align with transitional provisions in the Rules (for example, Rule 11.6.11, prescribed connection services). Note: As per current Rules arrangements, under the Conceptual Design: (a) Transmission network does not include connection assets; and (b) Transmission system includes both transmission network and connection assets.

Table 1 – Concept Design terms and their meaning

Term	Current Rules Definition	Basic Concept Design meaning
Transmission service	The services provided by means of, or in connection with, a *transmission system*.	The provision of *agreed capability* at a connection point agreed between the TNSP and the applicant [excludes a non-regulated transmission service]
Agreed capability	In relation to a *connection point*, the capability to receive or send out power for that *connection point* determined in accordance with the relevant *connection agreement*.	At the agreed connection point, the maximum amount of electricity that a Network User may receive, send out or receive and send out, at the agreed connection point measured in either MW or MVA, as provided for in the Network User's connection agreement. The agreed amount must be specified in or able to be calculated under a Network User's connection agreement but, under no circumstances, can the agreed amount be more than the maximum amount of electricity permitted to be transferred through (1) the *connection assets* at the agreed connection point or (2) the transmission network or distribution network.
Connection works	No Rules definition.	The construction of the *connection assets* required to establish the *connection*.
Connection assets	Those components of a *transmission or distribution system* which are used to provide *connection services*.	For an agreed connection point, those components of *transmission system* (that are not transmission network) that are used only to establish the *connection* at the agreed connection point but excluding any assets used to provide a non-regulated transmission service.

Term	Current Rules Definition	Basic Concept Design meaning
connect, *connected*, *connection*	To form a physical link to or through a *transmission network* or *distribution network*.	To form a physical link to a transmission network or distribution network using *connection assets*.

3.5 Applying the Conceptual Design to an AEMC example

Diagram 3 below is based on the diagram used by the AEMC to describe a new generator connection as outlined in the AEMC's example at page 158 of its TFR Report. This diagram is not intended to represent a typical TNSP connection configuration for a new generator connection and it is unlikely a TNSP would use this configuration for this type of connection. Diagram 3 is used only as a reference and point of comparison to show the descriptions and categorisations that would apply using the Conceptual Design.

For further information on connection configuration options, please refer to Grid Australia's "Connection Configuration Guidelines", 20 December 2011[4].

The application of the Conceptual Design:

(a) categorises the relevant assets that are required to provide the agreed capability as 'connection assets' (those in red) and 'transmission network' (those in blue);

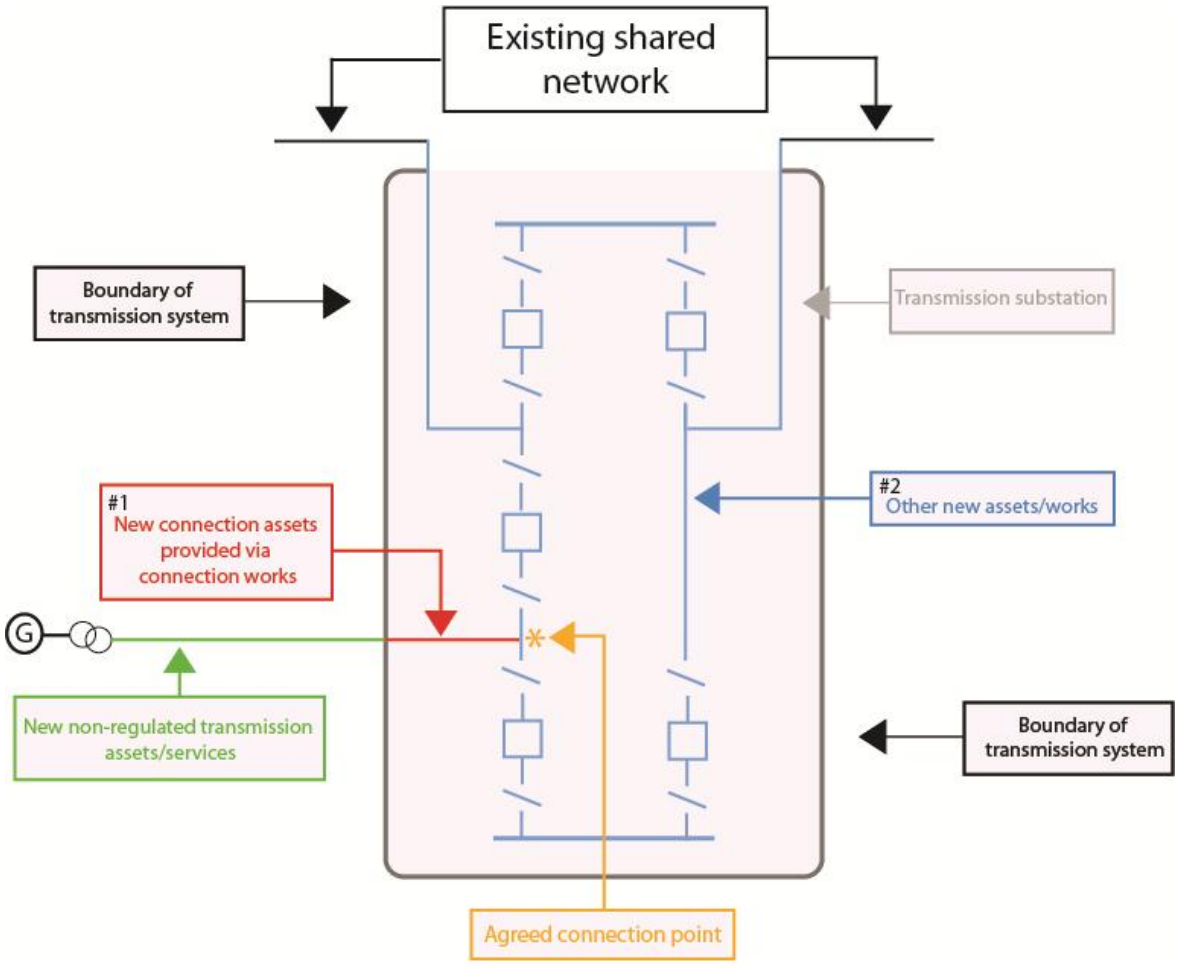
(b) clearly defines the outer boundary of the transmission system;

(c) clarifies the meaning of an 'extension' (the line in green is not regulated by the NEL/Rules); and

(d) provides the link between functional service and the assets needed to provide the functional service.

[4] Available at www.gridaustralia.com.au

Diagram 3 – example of a new generator connection



#1 Negotiated transmission service

#2 Negotiated transmission service or prescribed transmission service, as applicable

Attachment 1 – Key Rules definitions

Transmission Frameworks Review – Key Chapter 10 Definitions

No	Asset Definitions		
1	Augmentation	15	Substation
2	Busbar	16	Switchyard
3	Connect, connected, connection	17	Transmission element
4	Connection assets	18	Transmission line
5	Connection point	19	Transmission network
6	Extension	20	Transmission network connection point
7	Facilities	21	Transmission or distribution system
8	National grid	22	Transmission plant
9	National transmission grid	23	Transmission system
10	Network		
11	Network connection		
12	Network element		
13	Plant		
14	Power system		

No	Service Category Definitions		
24	Above-standard system shared transmission service	40	Prescribed entry services
25	Connection service	41	Prescribed exit services
26	Contestable	42	Prescribed shared transmission services
27	Customer transmission use of system, Customer transmission use of system service	43	Prescribed transmission service
28	Entry service	44	Prescribed TUOS services, prescribed transmission use of system services
29	Exit service	45	Shared transmission service
30	Generator transmission use of transmission, Generator transmission use of system service	46	Supply
31	Load	47	Terms and conditions of access
32	Maximum demand	48	Transmission
33	Negotiable service	49	Transmission Network User Access
34	Negotiated transmission service	50	Transmission service
35	Negotiated use of system service	51	Transmission services access dispute
36	Network service	52	Transmission use of system, transmission use of system services
37	Non-regulated transmission services	53	Use of system
38	Prescribed common transmission services	54	Use of system services
39	Prescribed connection services		

No	Service Delivery / Standards Definitions		
55	Agreed capability	58	Network capability
56	Application to connect	59	Power transfer
57	Connection agreement	60	Power transfer capability

No	Pricing Definitions		
61	Access charge	63	Negotiated use of system charges
62	Categories of prescribed transmission services		

No	Customer Definitions		
64	Connection Applicant	71	Network Service provider
65	Customer	72	Network User
66	Distribution customer	73	Transmission Customer
67	Distribution Network User	74	Transmission Network Service Provider
68	Generator	75	Transmission Network user
69	Intending participant	76	Registered Participant
70	Market network Service Provider		