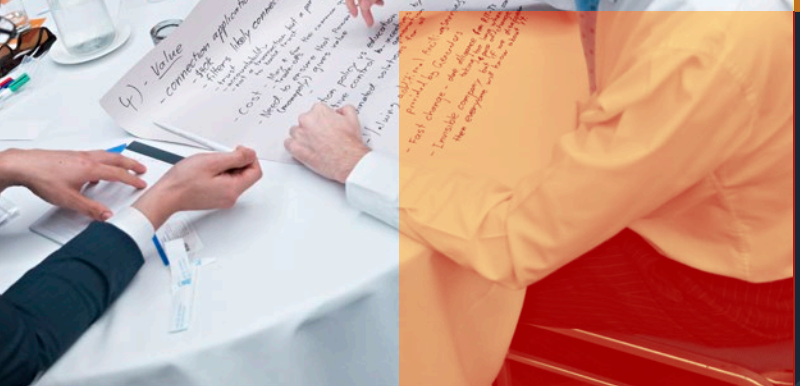
Transmission Network Forum 2018



Powerlink QUEENSLAND®

Powerlink hosted its annual Transmission Network Forum on 7 September 2018 providing an opportunity to discuss ongoing industry changes facing the energy sector with key stakeholders.

A record number of 120 key energy industry and customer representatives attended the forum which forms an important part of Powerlink's stakeholder engagement program.

Chief Executive Merryn York presented on the transformational change happening in the energy industry and the evolving role of Powerlink's transmission network.

Three breakout sessions were then held to discuss:

- Managing demand 'hollows and peaks' to improve network utilisation and customer outcomes
- Navigating the renewable connection process
- Creating Powerlink's network vision.

Feedback from the attendees will be factored into Powerlink's ongoing network planning and decision making on how the business' role is changing.

To view the forum presentations visit www.powerlink.com.au, or contact us on 1800 635 369. For more information on business development opportunities and connections, please contact Powerlink at businessdevelopment@powerlink.com.au.

Session 1

Managing demand 'hollows and peaks' to improve network utilisation and customer outcomes

Breakout session 1

Managing demand 'hollows and peaks' to improve network utilisation and customer outcomes

This session provided an overview of transmission network utilisation and the value the network provides to the customer.

Discussions focused on the changing shape of transmission demand and its impact on the supply chain, and opportunities to level out network utilisation while providing cost-effective, reliable and safe delivery of electricity.

Attendees were invited to provide input into each of the following questions:

- What other challenges does the peak and hollow load profile present?
- What opportunities are available on the transmission network to
    - reduce peak-time demand
    - increase day-time demand
- What is the best way to coordinate this work across the power supply system?
- How do you value our network and the service it provides?

  Benefits and trade-offs

  Economic and community considerations

The following provides a high-level summary of the key themes discussed.

Question 1

What other challenges does the peak and hollow load profile present?

Pricing and tariffs

- The hollow and peak load profile has the potential to impact market spot price – which may lead to negative outcomes for customers.
- Need to ensure that customers are not penalised for 'one-off', irregular events that do not coincide with system peak conditions.
- Need to develop tariffs:
    - that better reflect the wholesale price (e.g. solar feed-in tariff should reflect low day energy price)
    - that recognise the different load profiles
    - where fixed costs are paid for by a 'fixed' tariff.

Uncertainty for new generation projects

- Peak and hollow load profile results in uncertainty for new generator projects.
- How can we encourage new loads both from a timing perspective (during times of hollow) and geographically?
- How will the load profile trend impact on future Marginal Loss Factors (MLFs)?
- Need to provide better signals to locate new generation to assist managing the daily load profile.

Network value

- How do we capture the value of the network when experiencing low utilisation?
- How can new and still emerging technologies be factored in and potentially used to customer's advantage?
- Transmission network is a platform to connect participants (e.g. storage as a solution to intermittency may rely on transmission capacity).

Question 2

What opportunities are available on the transmission network to reduce peak time demand and increase daytime demand?

Consumer behaviour

- Investigate use of technology, including smart meters, that can provide more data to consumers, so they can make informed decisions about their own energy usage.
- Encourage the use of automatic appliances and home energy management systems to shift demand into the daytime.

Price signals

- Investigate how transmission can provide better signals to distribution network and directly-connected customers. Can cost reflective tariffs be introduced at a transmission level?
- Introduce pricing incentives to charge electric vehicles throughout the day.
- Implement cost reflective pricing for services provided by synchronous generators.

Storage

- Introduction of large scale storage (battery, pumped hydro) to supplement the network during peak-time demand.

Industry considerations

- Regulatory and market structure needs to be more agile to keep up with the changes in demand patterns and technology.
- Integration across the supply chain and a holistic response from industry will be needed.

Question 3

What is the best way to coordinate this work across the power supply system?

Whole of power system view

- Common view that coordination of response should not be done by a specific part of the power system to avoid any perception of 'vested interests', but there were diverse views on who should lead this coordination.
- COAG, the Energy Security Board (ESB), the Australian Energy Regulator (AER) and Australian Energy Market Operator (AEMO) were all identified as potentially having a role to play in coordinating a response.

Develop a clear road map

- Opportunity to engage with all parts of the power system, including customers, to develop a road map.
- Customers want to keep things simple and maintain reliable electricity supply at a cost effective price.
- Demonstrate the value provided by the network.

Incentivise rather than penalise

- How can we use incentives rather than penalties across the power system to encourage the necessary shift in behaviour?
- Incentives can be used for generation location, pricing structures and allow new participants to enter the market.

Question 4

How do you value our network and the service it provides?

Benefits and trade-offs
Economic and community considerations

Platform for generation, data and services

- Transmission network is an important platform that connects market participants across Queensland and connects to the wider National Electricity Market (NEM).
- The network is an enabler of generation diversity and allows for new ancillary services.
- Well positioned to connect with storage services in the future.
- The transmission network acts like a giant battery for the power system (additional transmission capacity can avoid spilling renewable energy and the energy from the displaced generator can be used at a later time).
- Network is a platform that could potentially enable sharing of data across the power system.

Supporting the Queensland economy

- Transmission network provides resilience and reliability of supply that is fundamental to Queensland's economy.
- Connection to the National Electricity Market creates significant opportunities for existing and new customers and market participants.

Network value

- Network has high value, but only realised when it is not delivering a reliable supply of electricity.
- As a regulated business, Powerlink needs to ensure it continues to maximise value for its customers.
- Energy pricing (Regulated Asset Base (RAB)/energy throughput) is not a good indicator of the value of a Transport Network Service Provider (TNSP).

Session
2

Navigating the renewable connection process

Breakout Session 2
Navigating the renewable connection process

This session focused on the renewable connection process in Queensland. The presentation provided an overview of the transmission connections and planning rule changes, network constraints that exist across parts of Queensland and specific measures that can be taken to facilitate a smooth connection process.

Attendees were invited to provide input into each of the following questions:

- What recent or upcoming changes are you aware of that will improve or impact on the connection process?
- How can Powerlink improve its service to respond to these changes?
- How else can Powerlink help you through the connection process?

The following provides a high-level summary of the key themes discussed.

Question 1

What recent or upcoming changes are you aware of that will improve or impact on the connection process?

System strength assessment processes

- Preliminary Impact Assessment (PIA) is capturing too many projects.
- Uncertainty around the Full Impact Assessments (FIA) as total project costs and timing are unknown. FIA is onerous, detailed and time consuming. There is a need to streamline the FIA process for proponents.
- The assessment process is not sequential but more cyclical.
- Limited resources across the industry to develop, design and model plants performance.

Greater clarity on Identified User Shared Assets (IUSA)

- More information and clarity is required on the IUSA including easement clarification and roles and responsibilities.
- Proponents also need have a better understanding of what information is available for them to review and consider.

Power system modelling

- Developing a Transmission Network Service Provider (TNSP) network-wide Power Systems Computer Aided Design (PSCAD) model would generate significant benefits for the connection process.

Information exchange and engagement

- Agreement that more information and engagement on the connection process would be beneficial and enable questions to be asked earlier to avoid problems.
- More information needs to be provided on the increase in fees associated with the connection process to demonstrate value to customers.
- Shared problem solving would provide market benefits.

Question 2

How can Powerlink improve its service to respond to these changes?

Share experience and learnings

- A forum would be beneficial between AEMO, Network Service Providers (NSP) and generators to leverage learnings and improve the baseline of skills.
- Run technical workshops to educate consultants and Subject Matter Experts (SME) about Powerlink's expectations and insights to navigating the connection process.
- Share lessons learned through each connection – adhering to confidentiality obligations.

More information to deliver greater clarity and certainty

- Powerlink to investigate how it can provide greater visibility on volume of enquiries and resources available to support proponent through connection process.
- Provide information on future planned outages to assist proponents to plan connection works.
- Develop a map for proponents that details current capacity across Powerlink network and what reserves are available for connection.
- Greater clarity on roles and responsibilities during the connection process, in particular for aspects like easement acquisition and Generator Performance Standards (GPS) modelling.
- Help understand how grid forming inverters can impact system strength.

Compress timeframes

- Compressing timeframes is still a key driver, particularly with emerging trend of shorter timeframes associated with Power Purchase Agreements (PPAs).
- Can Powerlink streamline its response to connection enquiries to be shorter than the 30 days allocated under the Rules?
- Powerlink to provide improved modelling and access to network planners to help streamline the system strength and GPS assessment process.

Question 3

How else can Powerlink help you through the connection process?

Early engagement

- Collaboration is vital between Powerlink and the proponent to achieve project outcomes.
- Powerlink can share lessons learned through each connection it undertakes, within the limits of confidentiality, and continue to build relationships and collaborate.
- Use a simple checklist to help guide proponents through the connection process.

Provision of network services

- Powerlink should investigate providing network support services, including synchronous condenser establishment and storage to generate benefits for proponents and operation of the network.

Tighten delivery timeframes

- Investigate what preliminary works (easements, approvals, early works) can be delivered during the application stage to help reduce delivery timeframes.

Session
3

Creating Powerlink's network vision

Breakout Session 3
Creating Powerlink's network vision

This session focused on the development of a network vision which aims to identify Powerlink's value proposition to customers for the next 30 years.

Aurecon delivered the presentation with Powerlink as they are engaged to assist in the development of the vision.

Attendees were invited to provide input into each of the following questions:

- What trends are you seeing that impact your market and customers?
- If these continue, what could your business look like in the future?
- What would help you unlock the future and what role might Powerlink play?

The following provides a high-level summary of the key themes discussed.

Question 1

What trends are you seeing that impact your market and customers?

Customer behaviour and expectations

- Customers want greater choice. This being driven by a desire to be better informed on their decisions to reduce costs.
- Customers have low trust and tolerance levels.
- All customers have increasing expectations to be engaged well in advance.

Demographic, economic and environmental changes

- Need to manage impacts of an aging population, diminishing resource base and high impact weather events.
- Globalisation is driving businesses to reduce costs, improve efficiency and have shorter investment payback periods.

Technology and pace of change

- Pace of change is accelerating, from 30 to 40 year planning horizon to exponential. Some areas of the industry are slow to respond to the change.
- Decarbonisation is driving variability in supply and demand. Need to understand how climate change will impact in future (e.g. solar, flood, wind droughts).
- Hydrogen has been completely off the radar until recently.
- Will see increase in micro-grids being controlled by an intelligence platform enabled by batteries and renewables.

Question 2

If these continue, what could your business look like in the future?

Technology and innovation

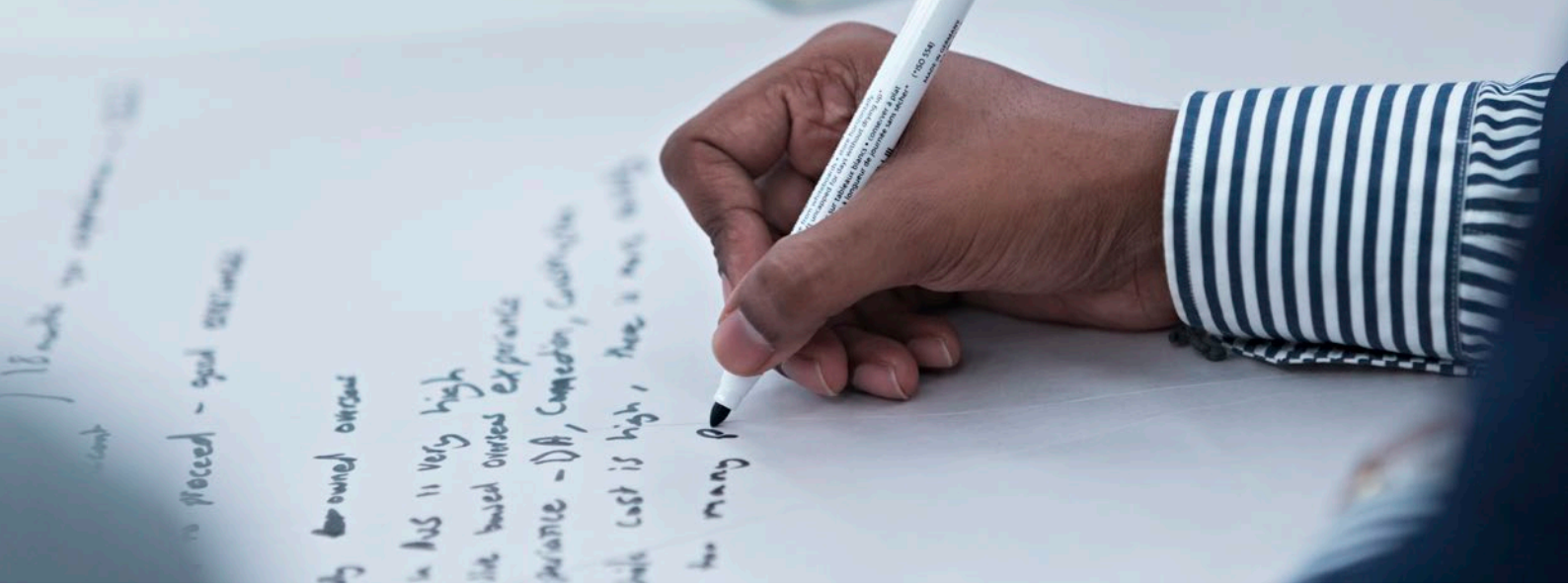
- More bespoke configurations as technology becomes cheaper.
- High energy intensive and heavy industries will continue to look at efficiencies and decarbonisation. Could lead to an increase in co-generation by service bundling and asset sharing.
- Increasing reliance on data.

Customer profiles

- Looking after vulnerable residents is a must as an ageing population and remote agricultural and industrial users will only increase this pressure.
- Customers' expectations and value perceptions remain a critical driver.

Economic opportunities

- Global decarbonisation would create a level playing field that would enable industrial customers to be more competitive.
- Queensland is well placed to have a global impact as it presents an ideal testing ground for many sectors, diverse geography and skills distribution; remote mining; agriculture – biofuels and role in energy supply chain.
- Industry and business needs to acknowledge that a transition is occurring and have an orderly and managed approach to achieve balance on the energy trilemma.



Question 3

What would help you unlock the future and what role might Powerlink play?

Continue to deliver essential service

- Powerlink should continue focusing on delivering a reliable supply of electricity as it is an essential service for the community.

A platform to facilitate new services

- Traders of bandwidth, equitable energy trading, exotic energy traders, system stability (greater than what Powerlink does now)
- Investigate new service integration incubator for new technology and potential research and development.
- Leader in technical skills training and deployment, improving productivity while lowering costs.
- Shift toward facilitating other energy markets (e.g. hydrogen) with a provision of upstream and downstream services (e.g. procurement, transport, transformer supplier).

A platform to share data

- Customer centric - share information, engage to inform decision making, incorporate risk analysis, improve productivity and lower costs.
- Customer driven change will require true partnerships that work both ways, and entice others to shape a more resilient energy network that allows for better enablement, better configuration and more clarity of choice.

Network of future

- Network is regionally or sub-regionally based and modelled around growing load centres (e.g. Rockhampton, Toowoomba, Ipswich).
- Larger role in High Voltate Direct Current (HVDC) connections for large scale renewables, potentially internationally with 10-20,000MW to Indonesia/Singapore due to Powerlink's infrastructure in northern Australia.
- The transmission network could be smaller in the future and provide more point-to-point based value. Can also be an enabler of resilience and ethical supply management.

Contact us

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