

Revenue Proposal Reference Group (RPRG) Meeting #3

31 January 2020, 1:00pm – 4:00pm



A large, light gray circular graphic containing a map of Queensland, Australia. The map shows the state's outline and major cities like Brisbane, Gold Coast, and Townsville. The text is overlaid on this graphic.

Introduction, minutes and governance

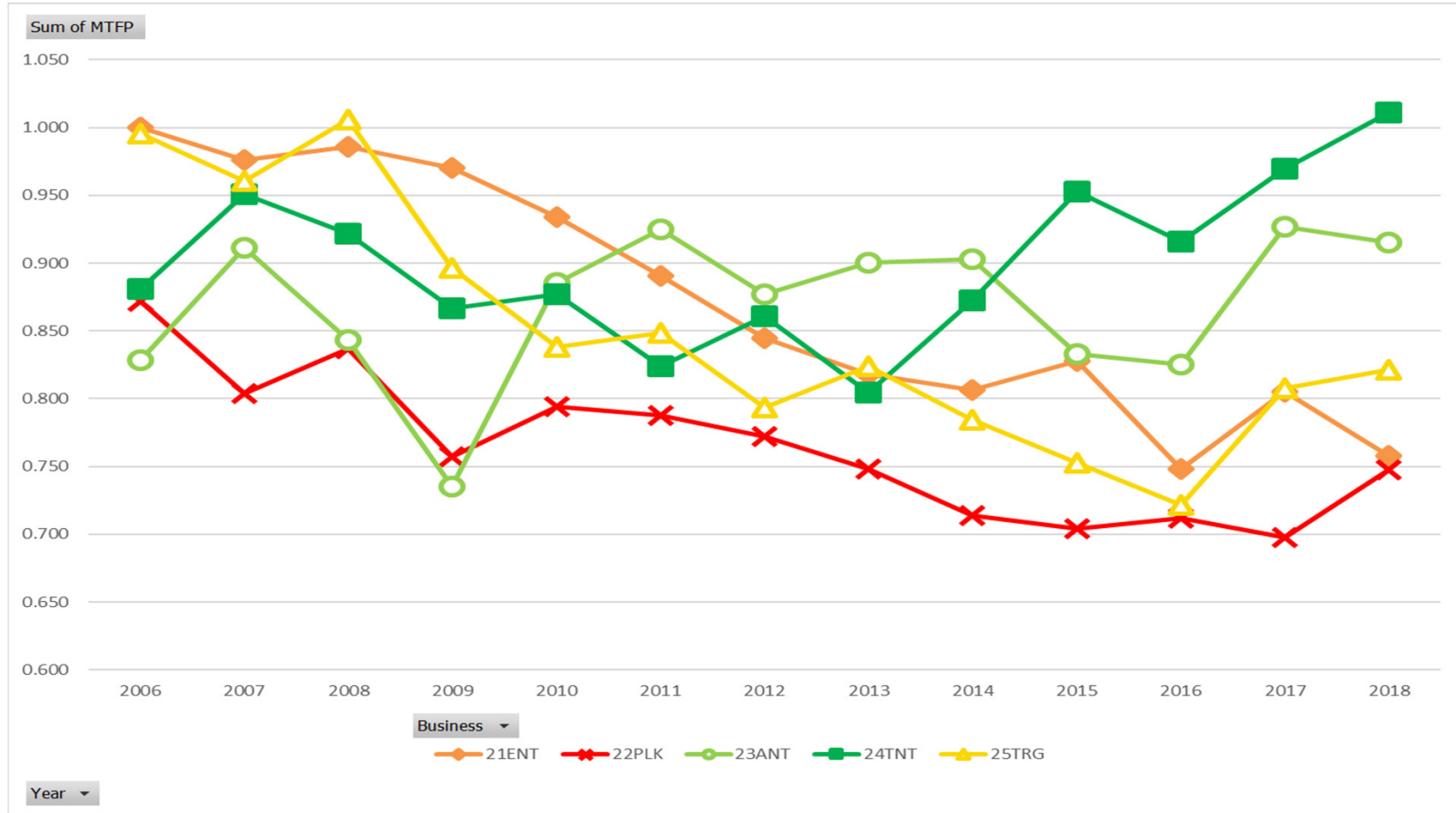
Matthew Myers

Benchmarking Update

Projections Using 2018/19 RIN Returns



Recap – 2019 Annual Benchmarking Report (RIN Data to 2017/18)



Some key assumptions

Energy not supplied – not reported as part of the Economic Benchmarking or STPIS data so assume the average of the previous five years result for each TNSP

- ElectraNet – Average (299, 67, 787, 86, 55) = 259 MWh
- Powerlink – Average (269, 138, 17, 132, 146) = 140 MWh
- AusNet – Average (102, 1147, 1594, 4, 16) = 573 MWh
- TasNetworks – Average (102, 82, 53, 81, 29) = 69 MWh
- TransGrid – Average (93, 843, 1315, 105, 62) = 483 MWh

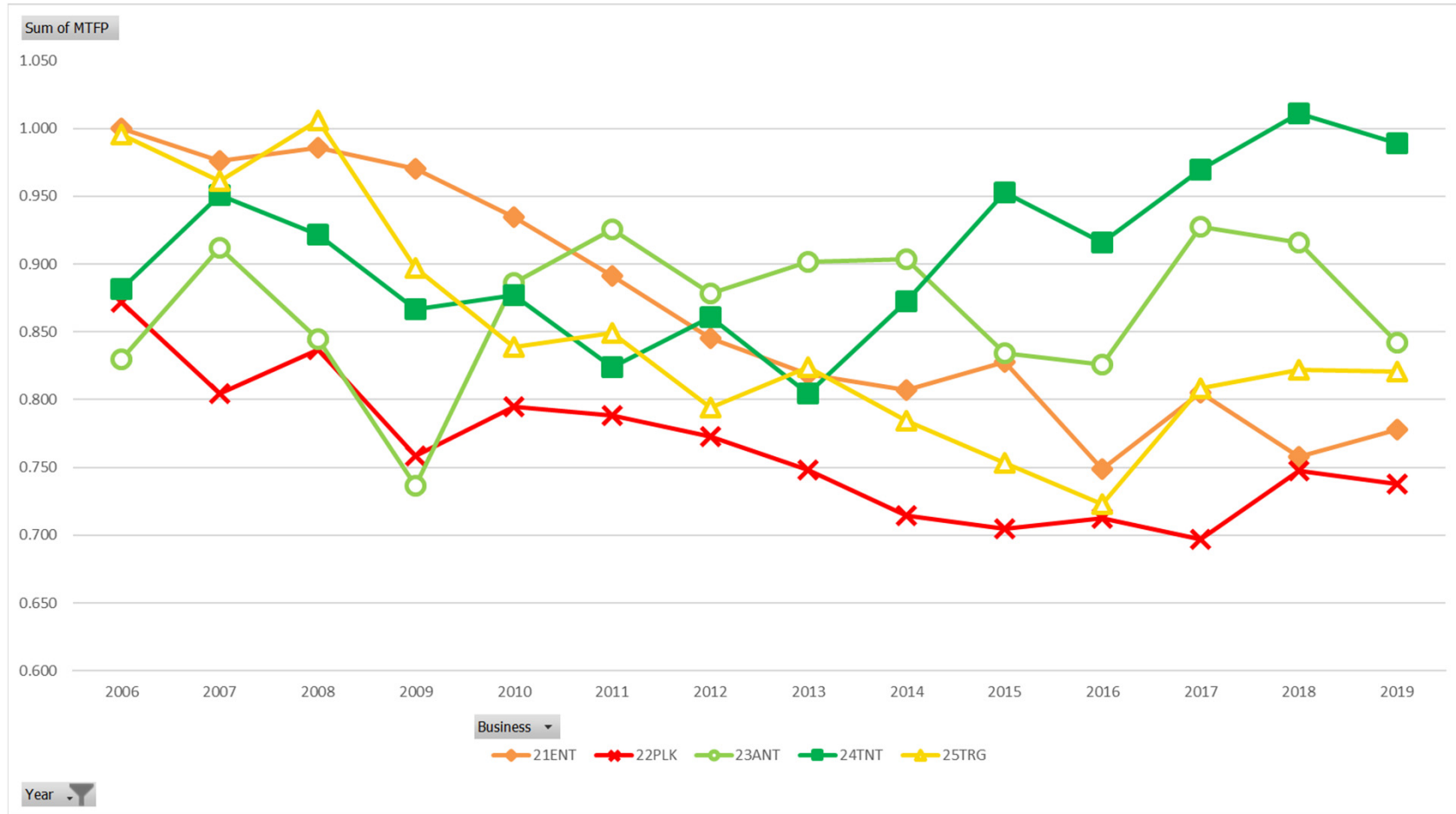
Note – Powerlink actual energy not supplied for 2019 was 0 MWh

Victorian data – not all required benchmarking data is provided as part of the AusNet RIN

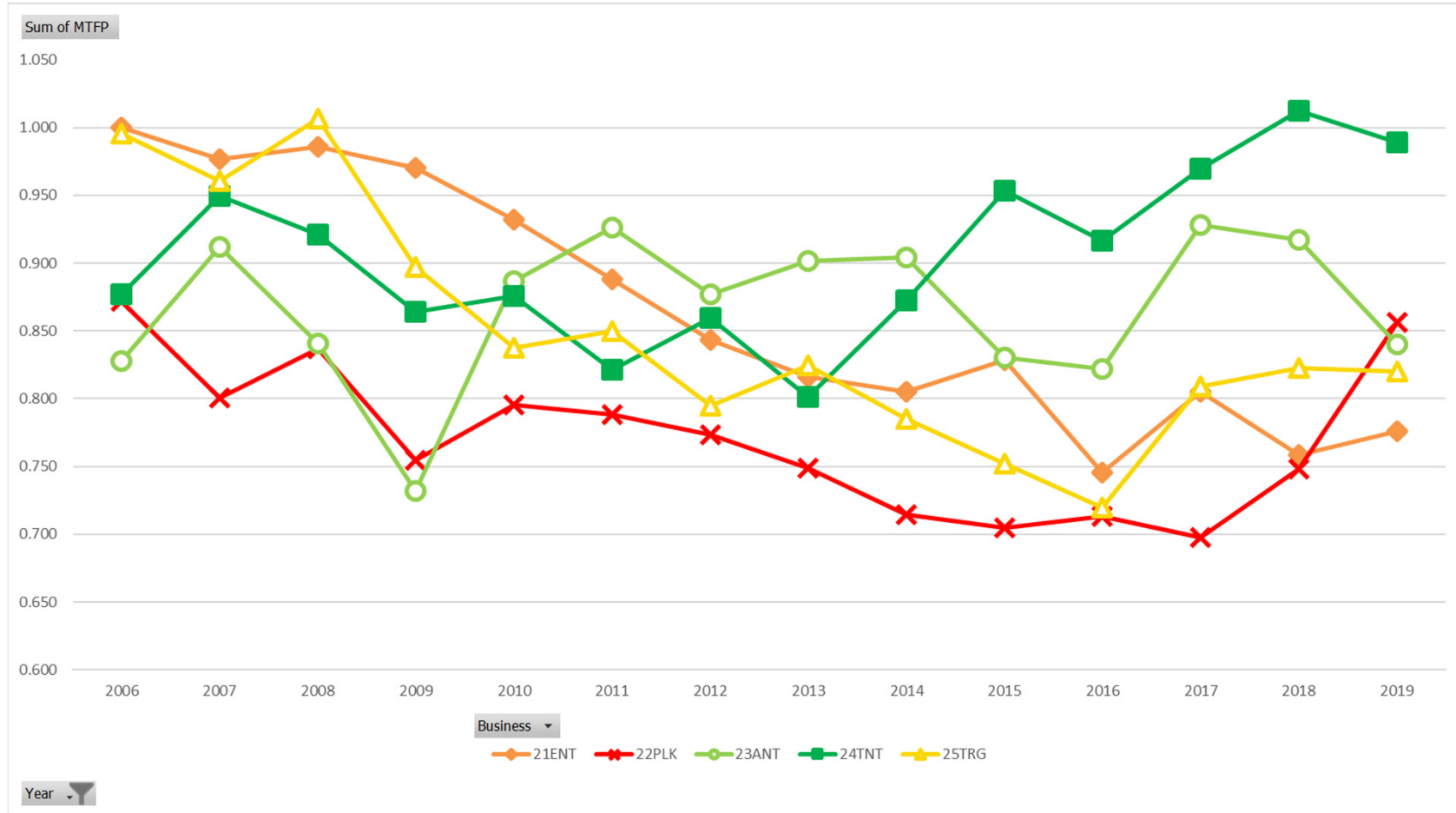
- add \$70 million additional revenue for connections and AEMO Victorian planning functions
- energy transported and maximum demand are taken from 2019 ESOO data.

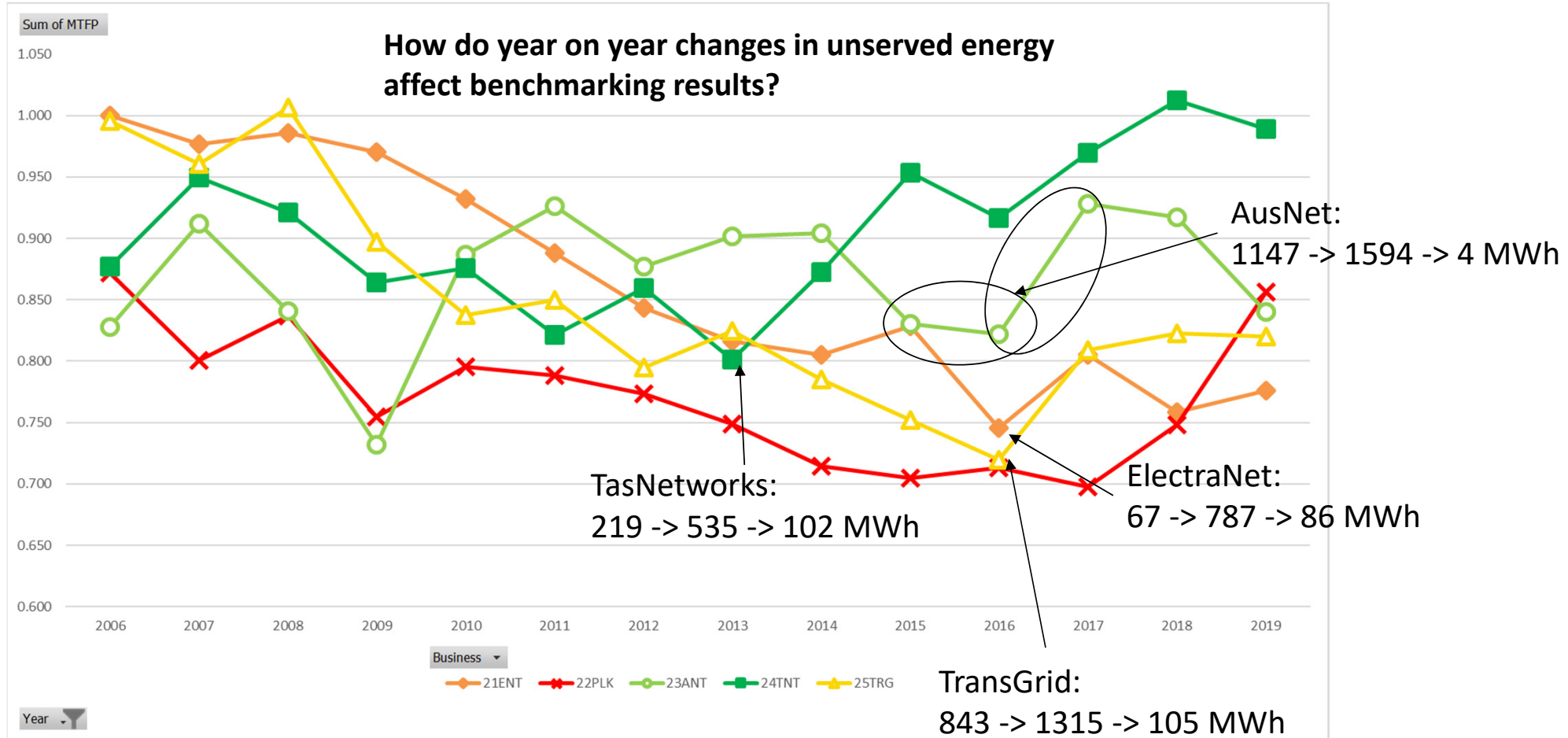
This benchmarking update has been prepared by Powerlink as an indicator of Powerlink's 2019 performance only.

Update – using standard assumptions for energy not supplied



Update – using Powerlink actual energy not supplied (0 MWh)





A large, light gray circular graphic containing a map of Queensland, Australia. Overlaid on the map is a network of white lines representing power lines, with several circular nodes indicating substations or connection points.

ISP and Contingent Projects

Greg Hesse

- Contingent Projects – Setting the scene
- Summary of Draft 2020 Integrated System Plan (ISP) recommendations
- Powerlink initial observations of Draft 2020 ISP
- Proposed approach to Contingent Projects for the Revenue Proposal
- Candidate triggers for Contingent Projects (Interactive Discussion)

- Contingent projects are not included within the ex-ante capex forecast.
- They provide a path for amending a Revenue Determination during a regulatory period, if certain pre-defined triggers occur.
- What defines a contingent project?
 - Uncertainty of an event which may trigger capex investment, or uncertainty of associated costs.
 - Capex is reasonably required to meet the capex objectives, if the triggers occur.
 - Trigger events are reasonably time and location specific and objectively verifiable.
 - Cost is more than \$30 million or 5% of 1st year Maximum Allowed Revenue, whichever is greater.
- The AER decides which proposed contingent projects are accepted as part of the Revenue Determination process.
- The Actionable ISP Draft Rules also provide that specific ISP identified projects are deemed contingent. This means new contingent project triggers can be introduced within a regulatory period, via the ISP.

Contingent projects – setting the scene



- Although contingent projects often represent large potential investments, few have been triggered.

TNSP	# of CP allowed	\$ million of CP allowed	# of CP triggered	\$ million of CP triggered
Powerlink	29	3,050	1	20
TransGrid	25	5,766	1*	223*
AusNet	0	0	0	0
TasNetworks	12	1,172	0	0
ElectraNet	35	3,335	4*	381*
TOTAL	101	13,323	6*	624*

Powerlink's one triggered CP was South Pine to Sandgate undergrounding in 2008.

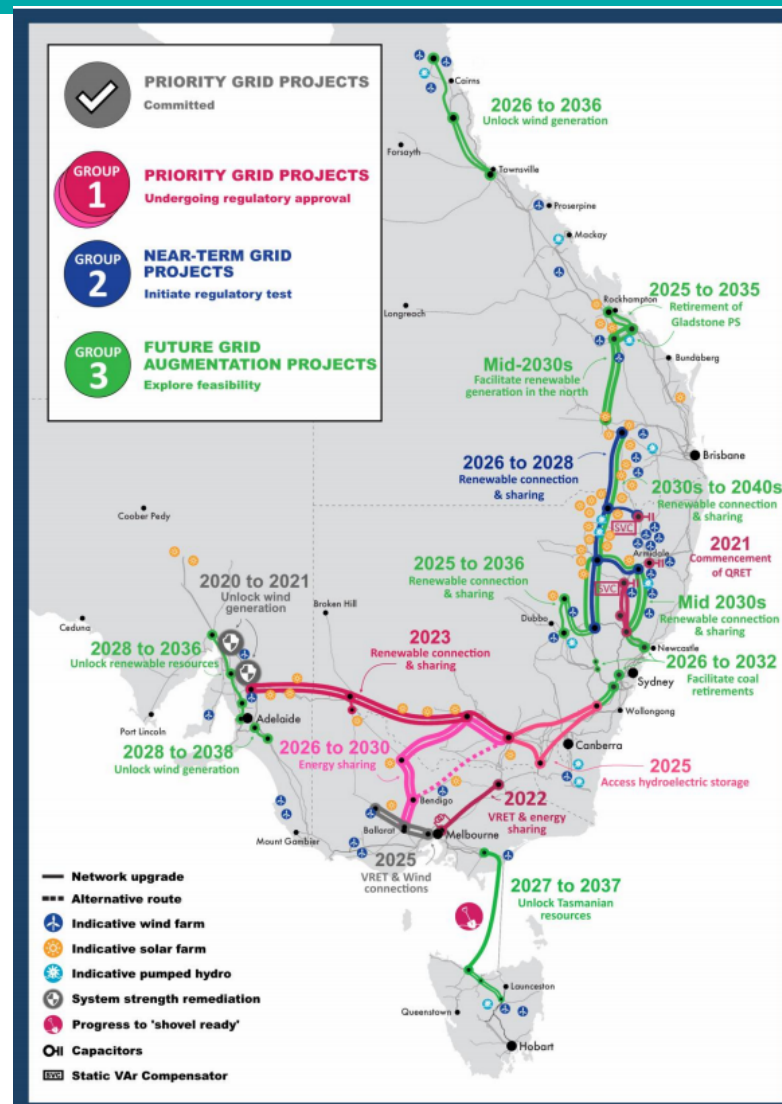
* SA Energy Transformation (~\$1,500 million) Contingent Project is expected to be triggered immediately following AER decision that the project satisfies the requirements of the RIT-T – not included in the above table.

Analysis of ACCC/AER Final Decisions for Transmission Network Service Providers (TNSPs), 2004 – 2020

Draft 2020 Integrated System Plan

Released December 2019 by AEMO. Proposed Queensland projects:

- Group 1 (priority projects): QNI minor upgrade.
- Group 2 (near-term): QNI medium upgrade.
- Group 3 (future):
 - QNI large upgrade.
 - Far North Queensland REZ.
 - CQ-SQ Augmentation.
 - Gladstone Area Augmentation.



Strengths

- More consultative process, including use of technical working groups.
- Provides a whole-of-system roadmap to inform participants and policy makers.

Opportunities

- More detailed power system analysis across scenarios, to test for potential issues such as system strength limits.
- Further validation of cost/benefit analysis using time-sequential modelling to test transmission constraints across more scenarios.
- Analyse the impact of the NSW Electricity Strategy released in late November 2019.

Powerlink wants to be satisfied there is sufficient robustness to the prima facie case before AEMO triggers the Actionable ISP provisions.

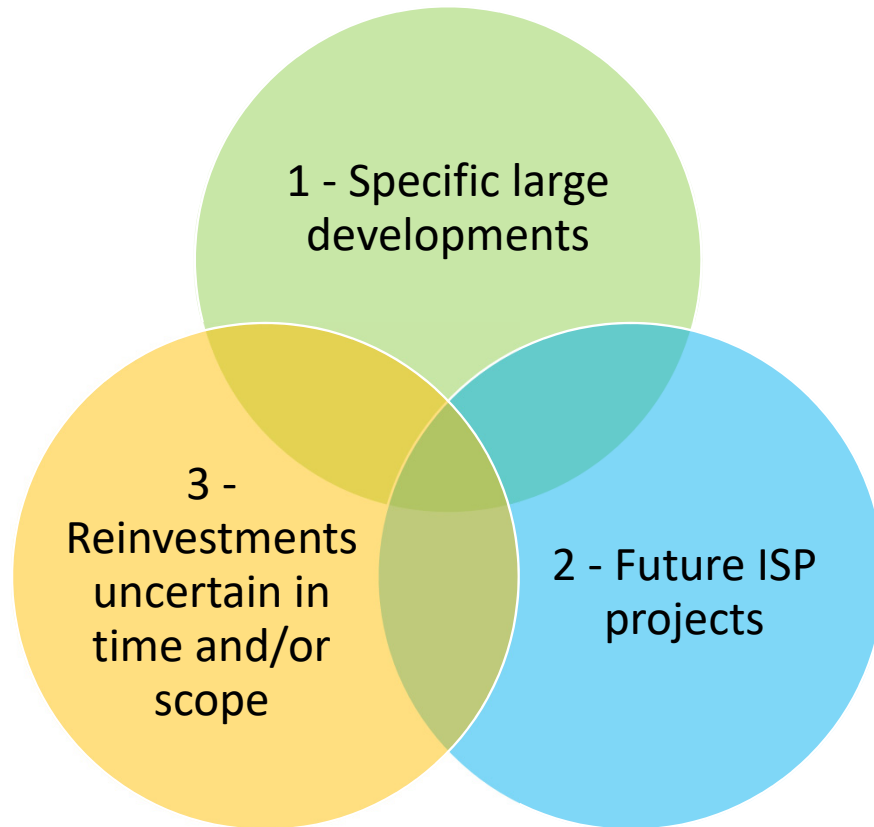
Synergies with asset reinvestments

- Reinvestment triggered by asset condition could provide the opportunity to deliver the future additional capacity identified by the ISP at lower overall cost (e.g. rebuild to higher capacity instead of life extend existing capacity).
- Augmentation to provide additional capacity identified by the ISP could be delivered by advancing reinvestments that provide incremental additional capacity at lower overall cost.

Further consideration of non-network alternatives

- Draft ISP recommends that QNI medium upgrade is “actionable” and Powerlink and TransGrid progress the RIT-T to PADR stage by 10 December 2021.
- AEMO considered an option of 600 MW battery energy storage system (BESS) at an indicative cost of \$700 - \$1,300 million, but this was not the preferred solution.
- Recent QNI minor PADR revealed lower BESS costs for smaller systems. 200 MW at \$250 - \$300 million.
- Final ISP should consider whether such systems can economically defer larger investments.

Three, potentially overlapping, streams of contingent projects



1. Specific large load or generation shifts i.e. “traditional” contingent projects;
2. Future ISP projects, which could be related to 1 above; and
3. Reinvestments where the timing to invest is still uncertain at this time, or the likely solution will be influenced by 1 or 2 above. Contingent reinvestments are being proposed by Powerlink as a potential regulatory sandbox concept.

Potential contingent projects – as at January 2020



Potential contingent projects listed below are an early and indicative only view. A larger version of the table below will be provided as a handout at the RPRG meeting on 31 January 2020.

Project name	Stream	Driver	Description of potential project works	Indicative timing	Indicative cost (\$m)
Bowen Basin coal mining area	1	New CSG/mining load of up to 80MW.	Install new transformer/s and undertake switching works at Strathmore.	No specific timing – load driven	~55 (based on 18-22 Revenue Proposal)
Bowen industrial estate	1	New load of up to 100MW in the Abbott Point State Development Area.	Install a second 132kV circuit between Strathmore-Bowen, second transformer at Bowen North and Strathmore and undertake switching works.	No specific timing – load driven	~43 (based on 18-22 Revenue Proposal)
Galilee Basin coal mining area	1	New coal mining load of up to 400MW.	Install a third 275kV circuit between Broadsound-Lilyvale and capacitor banks at Lilyvale.	No specific timing – load driven	~117 (based on 18-22 Revenue Proposal)
CQ-NQ grid section	1	Combination of above loads of up to 580MW.	String second side of the Stanwell-Broadsound 275kV transmission line.	No specific timing – load driven	~55 (based on 18-22 Revenue Proposal)
Surat Basin North West area	1	New CSG/mining loads of up to 300MW.	Install a third 275kV circuit between Western Downs-Columboola and Wandoan South, and installation of dynamic reactive power compensation.	No specific timing – load driven	~147 (based on 18-22 Revenue Proposal)
QNI Medium (ISP)	2	Increased renewable generation in NSW and Darling Downs REZs	Single 500kV circuit between Western Downs-Wollar with 330kV connections to Armidale and Dumaresq.	2026 – 2028	1,040-1,925 (total) 285-530 (Qld only)
QNI Large (ISP)	2	Per QNI Medium.	Additional 500kV circuit following QNI Medium.	2030's	675-1,250 (total) 170-310 (Qld only)
Far North Queensland REZ (ISP)	2	Increased wind generation in Far North Queensland.	Rebuild Ross-Chalumin 275kV double circuit transmission line to higher capacity, plus add single circuit Ross-Chalumin line. Uprate the Strathmore-Ross circuit.	2026 – 2036	405-695
Gladstone Reinforcement (ISP)	2	Retirement of Gladstone Power Station. Renewable growth in North Queensland.	Install a 275kV double circuit transmission line between Calvale-Larcom Creek, plus a third transformer at Calliope River. Rebuild the Bouldercombe-Calliope River 275kV single circuit to a higher capacity.	2025 – 2035	175-325
CQ-SQ Reinforcement (ISP)	2	Increase in renewable generation in Central and/or North Queensland.	Install a 275kV double circuit transmission line between Calvale to Wandoan South.	2024 – 2036	226-420
Calliope River to South Pine Reinvestment	3	Asset condition.	Progressive refit (life extension) of the existing 275kV single circuit lines between Gladstone and Brisbane or rebuild existing single circuits as double circuit.	2024 - 2029	226 (total)
Bouldercombe to Calliope River Reinvestment	3	Asset condition.	Refit (life extension) of the existing Bouldercombe to Calliope River 275kV single circuit lines.	2026	~34
Ross to Chalumin Reinvestment	3	Asset condition.	Refit (life extension) of the existing Ross to Chalumin 275kV double circuit line.	2026	85 - 165
Bouldercombe to Nebo Reinvestment	3	Asset condition.	Refit (life extension) of the existing Bouldercombe to Nebo 275kV single circuit line.	2028	80

Potential contingent projects – inter-relationships



- The table below indicates how potential contingent projects may interact with each other.
- Powerlink is also working to produce a map of these projects for reference.

Indicative timing	Stream 1 New load / generation retirement	Stream 2 Draft ISP projects	Stream 3 Potential asset reinvestment project	Explanation of relationship
2026 – 2028		QNI Medium		N/A
Mid 2020's – Mid 2030's		Central to Southern Qld Reinforcement	Calliope River to South Pine 275kV single circuits	Rebuild of existing single circuits to high capacity double circuit could meet some or all of Draft ISP need
		Gladstone Reinforcement	Bouldercombe to Calliope River 275kV single circuits	As above
	CQ–NQ Grid Section (including Bowen Basin coal mining/CSG, Galilee Basin coal mining, Bowen industrial estate)		Bouldercombe to Nebo 275kV single circuits	As above
		Far North Queensland REZ	Ross to Chalumbin 275kV double circuit	Rebuild of existing low capacity double circuits to higher capacity could meet some or all of Draft ISP need
2030's	Surat Basin North West area	QNI Large		Significant additional load could impact preferred option or staging of developments

How can Powerlink ensure customer interests are appropriately reflected when developing contingent projects for the Revenue Proposal?

Discussion on how to progress the concept of reinvestment projects being included within the contingent project framework (e.g. through regulatory sandbox arrangements).

A large, light gray circular graphic containing a map of Australia. The map shows the outline of the continent and a network of white lines representing power lines or infrastructure, with several small circles at key nodes. The text "Business narrative" and "Gerard Reilly" is overlaid on the map.

Business narrative

Gerard Reilly

No slides accompany this discussion – please refer to the draft business narrative handout. Powerlink will also be sending the draft Business Narrative to the wider Customer Panel and feedback will be sought by 14 February 2020 on this document.

What are your views on the draft business narrative (topics covered, detail provided, readability)?

What improvements should we consider?

A large, light gray circular graphic containing a map of New South Wales, Australia. The map shows the state's outline and a network of white lines representing power lines or transmission routes, primarily concentrated in the eastern coastal and inland regions.

Proposed STPIS Review

Alastair Andrews

- What is STPIS and what are the components of STPIS?
- Powerlink's request to review Version 5 of STPIS
- Discussion on the Market Impact Component of STPIS
- Discussion on the Service Component of STPIS
- What a review could mean and potential options to progress a review

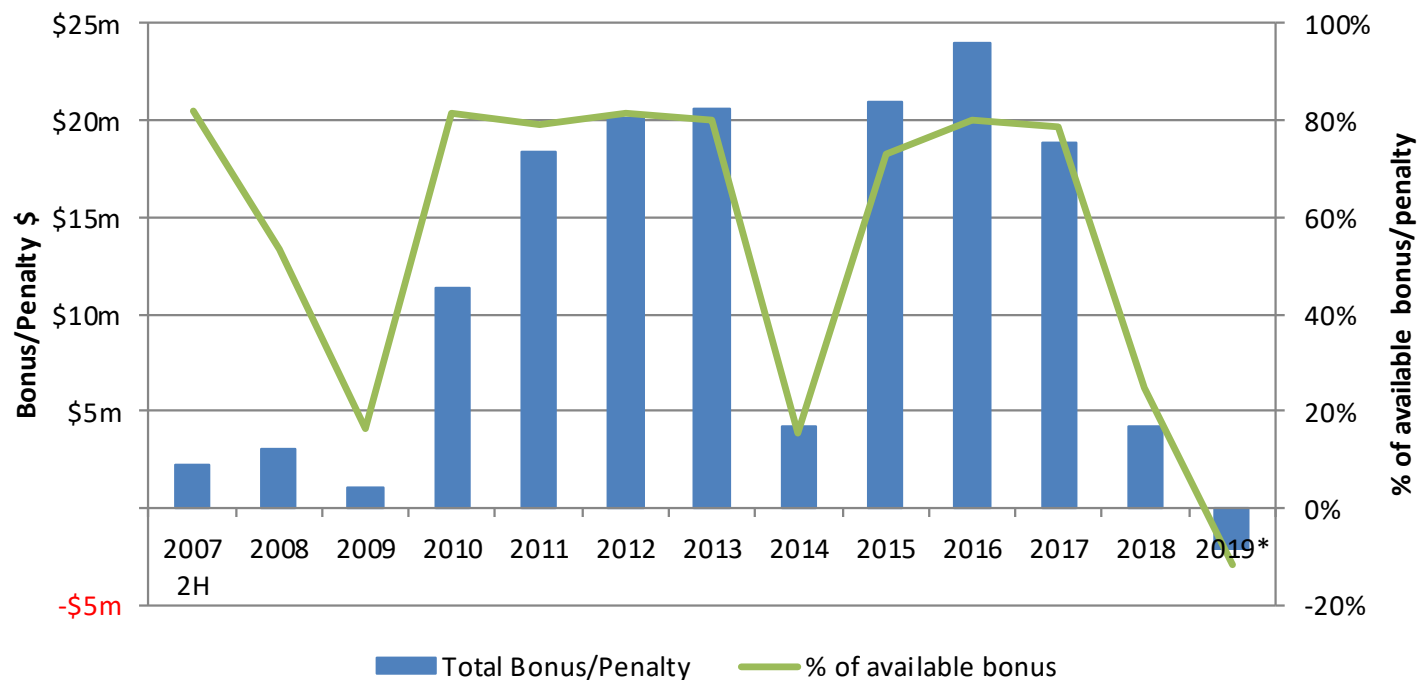
- The Service Target Performance Incentive Scheme (STPIS) is designed to provide performance incentives for TNSPs to improve or maintain a high level of service for the benefit of participants in the National Electricity Market and end users of electricity.
- The AER develops and publishes this scheme in accordance with the National Electricity Rules.
- Powerlink commenced its participation in the scheme in 2007 and has performed strongly up until 2019.
- Scheme has been progressively expanded and revised.
- Version 5, published in October 2015, applies to Powerlink from 1 July 2017 to 30 June 2022.

STPIS Version 5 Components



STPIS Component	Description	Revenue at risk
Market Impact Component (MIC)	Aims to improve network availability at times of most importance to the market. Measured in Dispatch Intervals (DIs).	± 1% of MAR, approx. \$7.5-8m annually within current period.
Service Component (SC)	Measures network reliability in system minutes.	± 1.25% of MAR, approx. \$9.5-10m annually within current period.
Network Capability Component (NCC)	<p>Designed to deliver improved capability from existing network assets to benefit customers and wholesale market outcomes.</p> <p>Requires Powerlink to submit a Network Capability Incentive Parameter Action Plan (NCIPAP), which consists of a set of projects designed to improve network limitations.</p> <p>Powerlink has one approved project within the current period.</p>	<p>Network Capability Incentive Parameter Action Plan (NCIPAP) projects – pro-rata based allowance up to 1% of MAR each year.</p> <p>Incentive of 1.5 times average annual project cost.</p> <p>Penalty clawback arrangement up to 3.5% final year MAR.</p>

Powerlink STPIS Performance History



- Powerlink recognises it has performed well under the STPIS until 2019.
- These results are due to concerted effort on Powerlink's part, through activities such as:
 - changing our work practices around outage planning
 - aligning with major generators during overhauls
 - managing urgent outages into lower constraint times where possible
 - developing and applying fault management processes to return equipment to service in shortest time; and
 - undertaking rigorous summer readiness preparations.
- These actions have ensured less disruption for generators and customers.

*2019 result is indicative only until the AER's confirmation in April 2020.

MIC commenced from 2nd half of 2010.

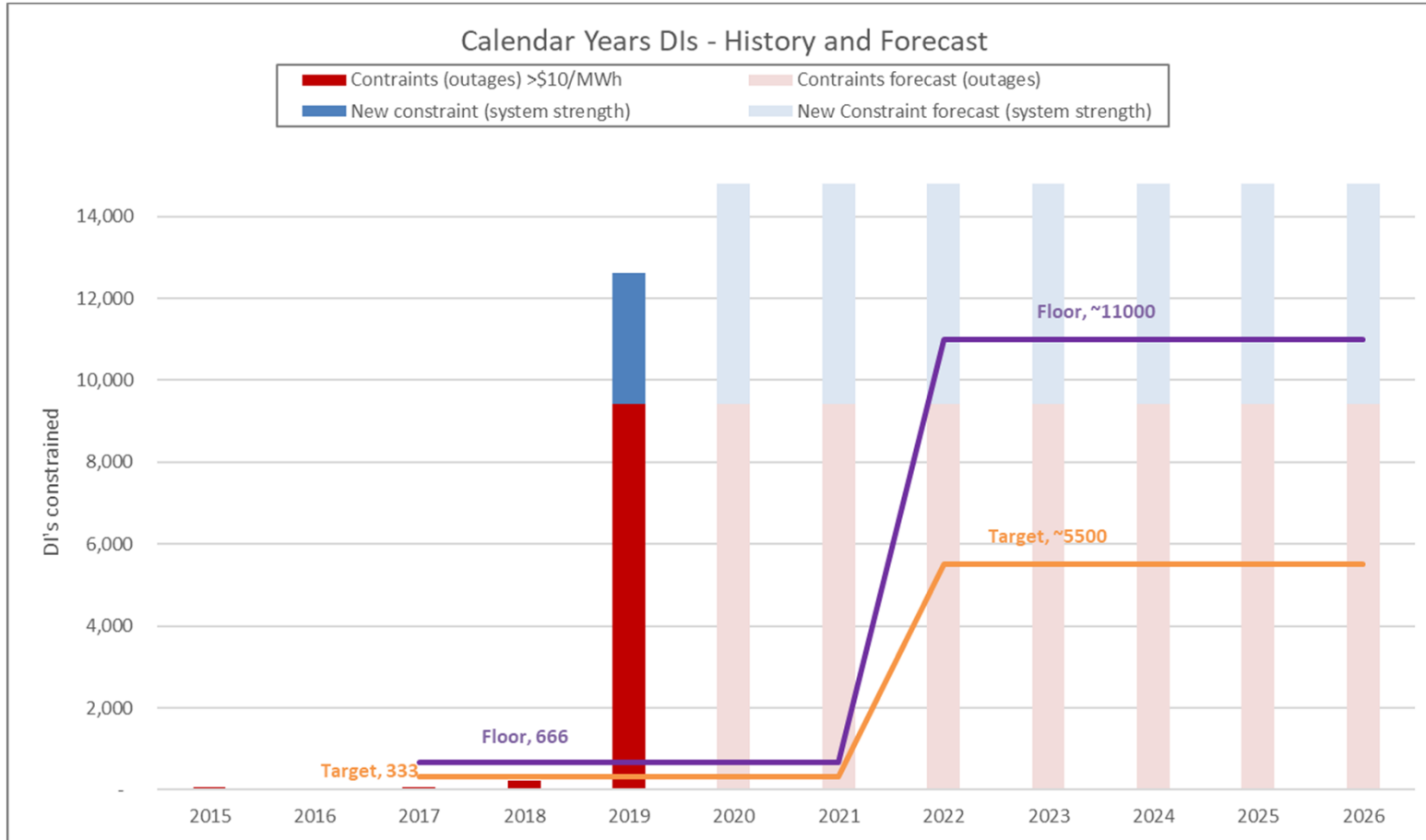
NCC commenced from 2nd half of 2017.

- As part of its Framework and Approach (F&A) Initiation Letter in October 2019, Powerlink requested the AER to review Version 5 of the STPIS for our next regulatory period starting 1 July 2022.
- Powerlink is concerned the current scheme is not fit-for-purpose in the current operating environment and needs to be adjusted. These concerns relate to the MIC and SC target setting arrangements.
- AER view is not to review the scheme at this point in time, as a review of the scheme is likely to occur as part of the Coordination of Generation and Transmission Investment (COGATI) reforms.
- In our initial conversations with other TNSPs, they have also expressed some concerns with the current scheme, particularly regarding the MIC.

Market Impact Component (MIC)

- The current scheme (v5) uses the median five year average of past seven years' performance as the target for the next five year period.
- MIC target setting arrangements are set within the scheme itself, meaning the target setting arrangements cannot be changed without a review of the scheme itself.
- Significant step changes have occurred in generation diversity (system strength) and location (different network topology) with impacts on system utilisation and constraints since 2015, when the scheme was introduced.
- These largely external factors, outside of Powerlink's control, have changed how our network operates.
- Our view is that the current target setting methodology based on history no longer provides a meaningful future performance benchmark.

Powerlink network performance – MIC

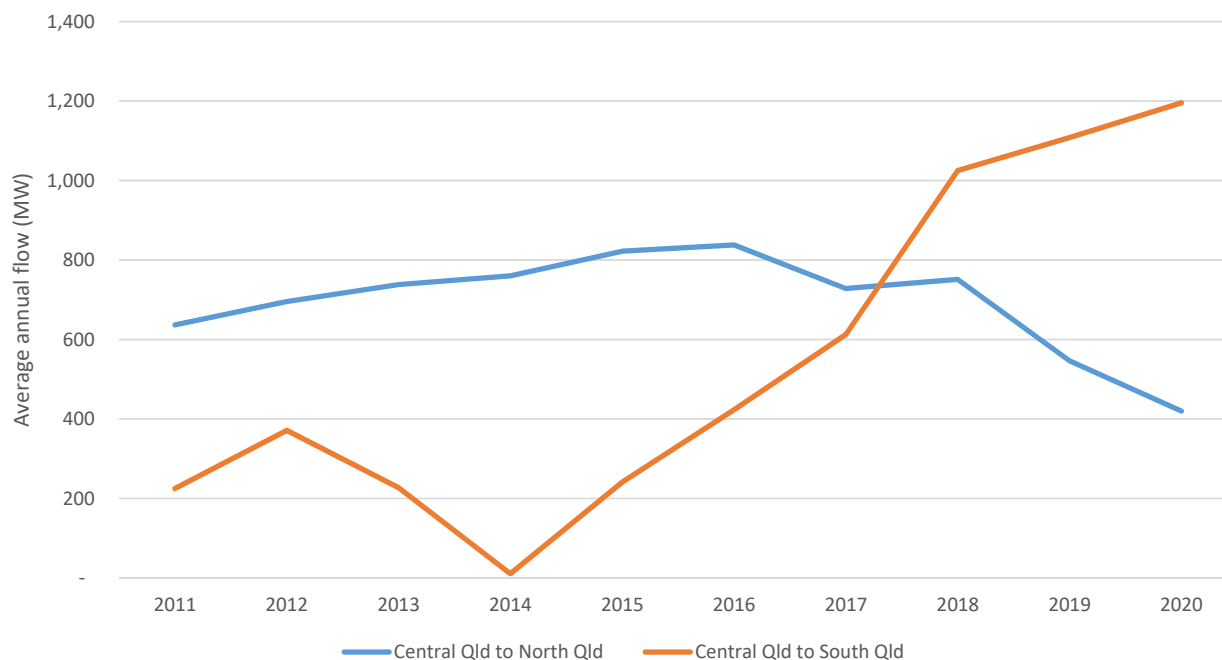


Notes:

- Shows DIs since introduction of current Version 5 STPIS in 2015. Version 5 was applied to our current regulatory period (2017 onwards).
- Target = neutral (0% bonus or penalty). Floor = 100% penalty.
- 2019 “new” constraint amount only reflects 8 months of system strength constraints occurring. 2020 onwards is forecast for the full 12 months.

- Changes in power flow from CQ-SQ is a significant contributor to the DI performance in 2019 and going forward. This is a 'new norm' for Powerlink.
- Flows have changed over the period due to new generation built in the northern part of the network.
- This network topology change has limited our ability to access outages within less disruptive periods (Autumn and Spring), resulting in significantly higher constraint DIs.

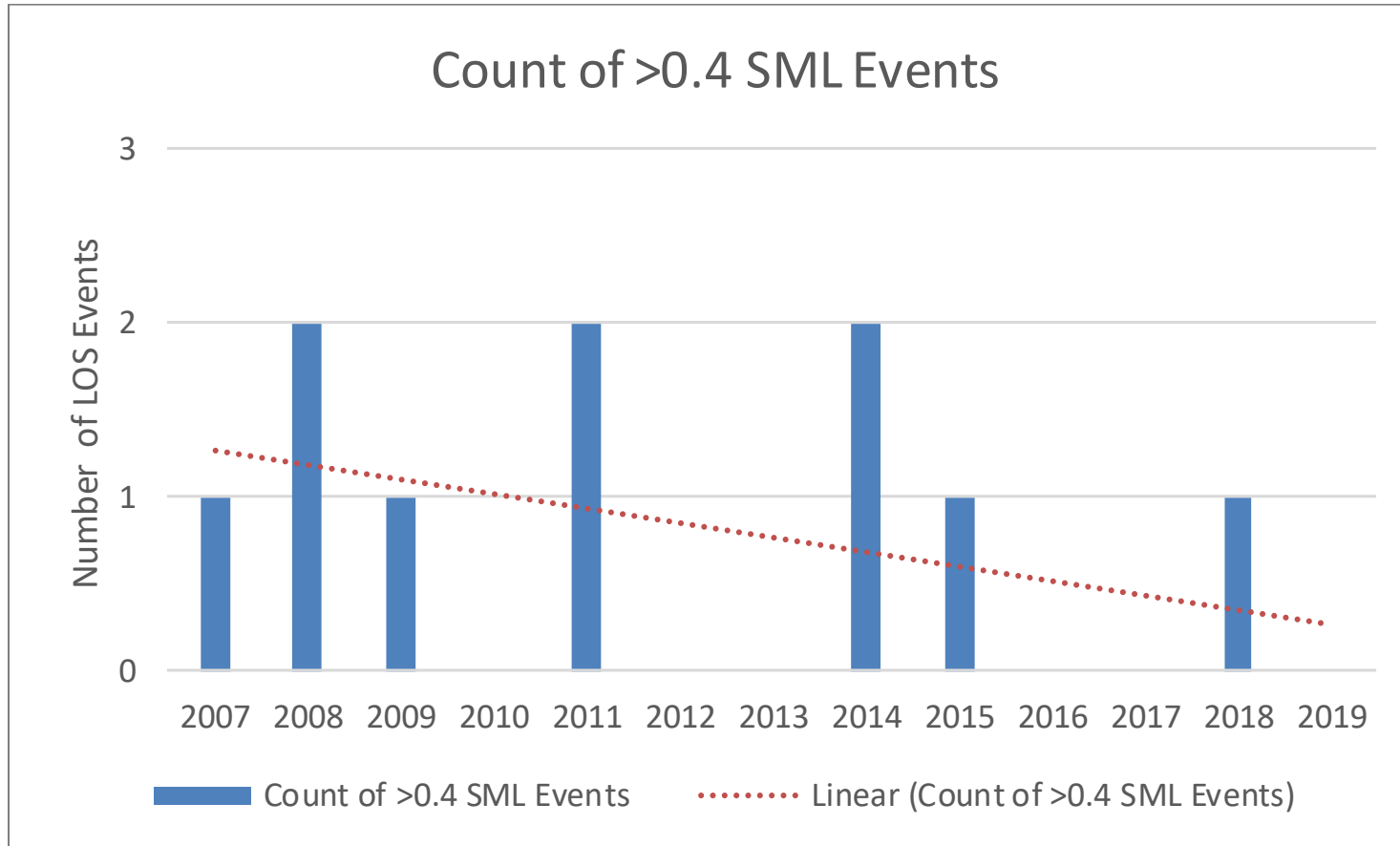
Central Queensland – Southern Queensland power flow



Service Component (SC)

- As a result of improvements in managing customer loss of supply (LOS) events, Powerlink faces a potential for the existing “large” threshold target for the LOS event frequency measure to be set at zero for the next regulatory period.
- A zero threshold essentially results in a penalty-only arrangement being applied for “large” LOS events.
- This would be contrary to the intent of the scheme, which aims to incentivise Powerlink to provide service-level improvement and benefit to customers.
- Powerlink will consider requesting the AER to have its SC threshold adjusted to be set at ‘1’, rather than zero, as part of the SC target setting arrangements.

“Large” LOS events – Historical Performance



What might a review mean for customers?



- An opportunity to be part of developing a case to amend the STPIS to:
 - reflect current and future network operating environment;
 - ensure the scheme remains fit-for-purpose to incentivise improvements in network performance; and
 - ensure that network reliability drivers are relevant to benefit market participants and customers.

- Progress changes to target setting/measurement of performance methods to enable TNSPs to influence operational work and timeframes and provide benefits to customers. This option may consider and bring forward potential changes considered within COGATI.
- Expand the suite of STPIS exclusions to reflect current circumstances e.g. a specific exclusion for impact due to new generation and closure of thermal generators. This exclusion could be applied to the actual performance while historical data builds up to enable sensible future target generation.
- Re-define the marginal value of $> \$10/\text{MWh}$ to better reflect current market trends.
- Consider applying the “alternative target setting methodology” clauses that are currently available for the SC to also be available for the MIC, and enable TNSPs to propose alternative target setting arrangements which are reflective of the current operating environment.

Do you support a review of STPIS? Why/why not?

If a review occurred, what should be considered to ensure appropriate targets and incentives that reflect a rapidly changing network environment?

