Pipes & Wires

Thought leadership of critical energy & infrastructure matters
Issue 232 – June 2025

From the editor's desk…

Welcome to Pipes & Wires #232 …. this issue starts with a look at the emerging Lithium-Sulfur battery technology, and then considers 3 regulatory determinations. We then examine the regulatory approval of a merger in NZ, followed by a look at how Germany's energy policy has shifted as the coalition government has formed.

We then finish this issue with a look at nuclear power and coal-fired closures in Australia. So … until next time, happy reading…

Subscribe to Pipes & Wires

If you're receiving this second-hand, pick this link to subscribe.

Recent client projects

Recent client projects include…

Transaction advisory ($12b and counting)

- Forecasting AugEx, RepEx and OpEx, advising on likely revenue cap implications.
- Forecasting AugEx, RepEx and OpEx, identifying strategic, commercial and regulatory red-flags.
- Assessing procurement models and major CapEx delivery strategies.

Asset strategy and asset management practices

- Assessing the strength of an EDB's organizational culture, work process and asset management practices.
- Compiling a road map to guide an EDB on its asset management improvement journey.
- Identifying a range of structural and service delivery models for an electric company.
- Identifying best customer engagement practices on behalf of an Australian distributor.
- Providing an independent assessment of network condition and spend adequacy.
- Providing an independent review of asset condition and spend forecasts for a distribution company

Decarbonisation and energy transition

- Estimating the costs of DERMS (distributed energy resource management system) penetration for distribution feeders for a large US electric company.
- Identifying leading practices in behind-the-meter activities (eg. batteries, solar, smart data, VPP's etc) for a large US electric company.
- Identifying best Australian practices in EV charging for a large US electric company.
- Identifying key features of demand management in the Australian NEM for a large US electric company.
- Identifying best practices in grid-scale and community-scale batteries for an Australian distributor.
- Identifying best practices in EV charging on behalf of an Australian distributor.

Global trend and pattern analysis

- Identifying the global and regional trends facing transmission grid operators for a US client.

Climate governance and resilience

- Identifying the governance, strategy and risk

investor.

Regulatory analysis

- Reviewing the AER's recent treatment of network transformation expenditure.
- Advising on the regulatory implications of an aging timber transmission pole fleet.
- Identifying the learnings from the RIIO – ED1 reset on behalf of an Australian distributor.

programs required to align with TCFD.

- Compiling a client resilience framework for an electric distribution company.

Cool multimedia stuff

This 8 minute video examines the development of different types of steel transmission towers in the UK, and why they were labelled as pylons. The first few minutes show some brilliant historical photos.

Engineering and technology

Global – Lithium–Sulfur batteries

Introduction

New battery chemistries seem to be emerging all the time, but perhaps a more important feature is the reduced timescale over which new battery chemistries go from laboratory curiosity to workable prototype to commercially realistic. This article examines the emergence of the Lithium-Sulfur battery chemistry in early 2025.

Overview of the Lithium-Sulfur battery chemistry

The following table describes the Lithium-Sulfur battery, with comparisons to other common battery types…

	Lithium-Sulfur	Lithium-Ion	Lead acid
Anode	Lithium	Graphite	Lead
Electrolyte	Often based on cyclic ethers.	Conductive liquid, typically Lithium salts dissolved in an organic solvent.	Dilute sulfuric acid, typically 35% acid.
Cathode	Sulfur	Often a Lithium oxide metal.	Lead dioxide

Key features of the Lithium-Sulfur battery chemistry

Key features of the Lithium-Sulfur battery, again compared to Lithium-ion and Lead acid, are…

	Lithium-Sulfur	Lithium-Ion	Lead acid
Energy density	About 2.5 kWh/kg.	About 0.25 kWh/kg.	About 0.085 kWh/kg.
Cycle life	Possibly 25,000 cycles (retains 80% of charge capability)	Between 2,000 and 3,000 cycles.	Between 200 to 1,500 cycles.
Cost	Possibly as low as $65 per kWh, due to low cost of Sulfur and high energy density.	About $130 per kWh.	Typically $50 to $100 per kWh.
Coulombic efficiency	Ranges from 81% to 94%.	Observed to be between 80% and 90%.	Observed to be between 80% and 90%.
Safety	Some safety concerns around thermal runaway, but expected to be safer than Lithium-Ion.	Observed safety concerns, due to flammable electrolyte and thermal runaway.	Significant safety concerns, due to acid electrolyte and emission of Hydrogen gas during charging.

So it would seem that Lithium-Sulfur is a promising chemistry. Pipes & Wires will continue to examine new battery chemistries as they emerge.

Further reading

Readers may be interested in the following articles…

- Pipes & Wires #202 – Global competing battery chemistries.
- Pipes & Wires #197 – Global declining battery prices and emerging chemistries.

- Pipes & Wires #166 – Global declining battery costs and disruption.

Network regulatory decisions

Aus – the South Australia electricity distribution revenue reset

Introduction

SA Power Networks has recently submitted its Revised Proposal as part of the 5 yearly revenue reset process. This article follows on from Pipes & Wires #225 by examining that Revised Proposal to set further context for the AER's Final Decision.

Regulatory framework

The regulatory framework is based on the National Electricity (South Australia) Act 1996, which provides for the making of the National Electricity Rules (version 200 at the time of writing). Electricity distribution determinations are principally made pursuant to Chapter 6 of the Rules.

Key features of the process to date

Key features of the process to date include…

Parameter	Draft Plan	Proposal	Draft Determination	Revised Proposal	Final Determination
CapEx	$2,452m	$2,446m	$2,135m	$2,338m	$2,257m
OpEx	$1,943m	$2,044m	$1,984m	$2,023m	$2,036m
Nominal WACC	5.83%	6.18%	6.02%	6.11%	6.12%
Depreciation	$1,186m	$1,293m	$1,201m	$1,237m	$1,262m
Smoothed revenue	$4,695m	$5,164m	$5,144m	$5,168m	$5,207m

This concludes Pipes & Wires analysis of the SA electricity distribution reset.

Britain – the RIIO – ED3 revenue control

Introduction

Britain's 14 electricity distribution licenses are currently subject to the RIIO – ED2 price control which expires on 31st March 2028. This article examines energy regulator Ofgem's proposed framework for the RIIO – ED3 price control that will commence on 1st April 2028, which Ofgem recently consulted on.

The proposed framework

Ofgem released its proposed framework for consultation in November 2024. Key features of the proposed framework include…

- Recognition that the decline in annual energy consumption during ED2 is likely to reverse during ED3 to about 330,000 GWh by 2030, due to electrification of transport, industrial heat and residential heat.
- Corresponding grid peak demand is likely to increase from about 58,000 MW to about 63,000 MW by 2030.
- An observed significant headroom for residential heat pump installation.
- The need for more flexible operation of distribution networks (the DSO transformation).
- Recognition that supply chain constraints increase the construction time for new connections.
- Examining the features of various regulatory models that may be included in ED3.

Next steps

Following consultation and publication of the framework in mid-2025, Ofgem notes the following next steps…

- Q4 of 2026 - distribution companies submit business plans.
- Q2 of 2027 - Ofgem publishes draft determinations.
- Q4 of 2027 - Ofgem publishes final determinations.
- Q2 of 2028 - ED3 starts.

Further reading

Readers may be interested in the following articles…

- Pipes & Wires #218 – the RIIO – ED2 final determinations.
- Pipes & Wires #142 – reporting back on the first year of RIIO – T1.

Aus – the Jemena gas distribution revenue reset

Introduction

Jemena Gas Networks recently submitted its Access Arrangement Proposal to the Australian Energy Regulator (AER) for the 5 year regulatory period commencing on 1st July 2025. This article examines that Revised Proposal to provide context for the AER's Final Decisions.

A bit about Jemena Gas Networks

Jemena Gas Networks distributes gas to 1,500,000 customers throughout the Sydney, Newcastle, Wollongong and regional centers through 25,000km of pipelines. Annual revenue is about $600m and EBITDA is about $370m.

The regulatory framework

Key elements of the regulatory framework include…

- The National Gas (South Australia) Act 2008.
- The National Gas Objectives.
- The National Gas Rules.

Key features of the process to date

Key features of the process to date in nominal $$$ include…

Parameter	Initial Proposal	Draft Decision	Revised Proposal	Final Decision
Total OpEx	$1,155m	$1,162m	$1,149m	$1,145m
Total nett CapEx	$816m	$654m	$855m	$717m
Opening RAB	$3,870m	$3,863m	$3,853m	$3,847m
Nominal vanilla WACC	5.21%	5.81%	6.11%	6.06%
Regulatory depreciation	$717m	542m	$583m	$518m
Total revenue	$3,132m	$3,083m	$2,983m	$3,107m

This concludes Pipes & Wires coverage of Jemena Gas Networks.

Industry reshuffling and capital allocation

NZ – Contact receives approval to acquire Manawa

Introduction

Pipes & Wires #229 examined the Scheme Implementation Agreement that Contact Energy had entered into to acquire 100% of the shares in Manawa Energy. This article examines the features of the Scheme and the Commerce Commission's approval of the proposed acquisition.

Recapping Contact's original bid

Contact proposed to pay Manawa's shareholders the equivalent of $5.95 for each Manawa share, comprising a mix of cash and Contact shares. Contact also proposed to pay off about $400m of Manawa's debt. This implied an enterprise value of $2.3b for Manawa.

Key features of the Scheme

Key features of the Scheme include…

- Manawa shareholders will receive $1.12 cash plus 0.5830 new Contact shares for each Manawa share owned on the Scheme record date.
- Based on the value of Contact shares, the offer values Manawa shares at $6.37.

- The independent advisors report values Manawa shares in the range of $5.35 to $6.17. The implied value of Contact's offer is therefore above the independent advisors' valuation range.
- Manawa's directors recommend that shareholders vote in favor of the Scheme in the absence of a superior offer.

Readers may also be interested in the independent advisors report.

Key features of the Commerce Commission's approval

In early May 2025, the Commerce Commission approved the proposed acquisition under Part 5 of the Commerce Act 1986, noting that it is satisfied the proposed acquisition would not be likely to have the effect of substantially lessening competition in any relevant market in New Zealand. Key features of the approval in regard to specific markets include…

Market	Decision	Commentary
Supply of shaped hedges.	Approved.	The Commission's examination of Manawa's business strategy, expected forward development CapEx, balance sheet gearing (ie. low appetite for volatile revenue) and recent decisions to decline the future supply of shaped hedges suggests that the counter-factual of Manawa remaining as a stand-alone generator would result in a decline in Manawa offering shaped hedges anyway. Hence the counter-factual would be little different to a factual of a merged Contact-Manawa ceasing to supply shaped hedges.
Supply of physical electricity.	Approved.	The Commission's observation that both Contact and Manawa have strong preferences for long-term contracts (and hence minimal spot-market exposure) indicates that the factual of a merged Contact-Manawa being able to manipulate market prices has a low probability.
		The Commission's analysis concluded that although the factual of a merged Contact-Manawa would have additional flexible generation (and hence an arguable ability to withhold generation), the likely additional profit would be low hence the incentive would be weak.
		The Commission's analysis is that coordinated behavior of all generators to drive up spot prices would be complex multi-dimensional issue, and that the factual of a Contact-Manawa merger would not give an enlarged Contact any materially increased ability to control prices or volumes at an increased number of nodes.

Further reading

Readers may find the following of interest…

- Pipes & Wires #229 – Contact Energy's bid for Manawa Energy.
- Pipes & Wires #207 – Mercury enters binding agreement to acquire Trustpower's retail business.

Energy policy

Germany – post-election energy policy – part #2

Introduction

Pipes & Wires #231 examined the climate and energy policies of CDU/CSU against the former governments' policies. This second part of a two-part article examines how the CDU/CSU policies have shifted as part of the final coalition agreement with the SPD (without the Greens).

Policy positions

Policy positions are as follows…

Issue	SPD policy (before the election)	CDU/CSU policy (after the election)	Coalition (CDU/CSU and SPD) policy
Nett-zero	Nett-zero by 2045, with nett-negative after 2050.	Initial observations are that although nett-zero by 2045 still remains an aspirational goal, the vigorous climate action of the former government is likely to be balanced against the need for economic growth, restoring Germany's dwindling productivity, and restoring Germany's economic competitiveness through lower energy prices.	The coalition agreement has reaffirmed the legally binding target of neutrality (nett-zero) by 2045, and has endorsed the EU's proposed interim target of 90% reduction by 2040. Several components of the agreement suggest a preference for renewables and storage to be funded by market mechanisms rather than subsidies.

Nuclear	Remains committed to the nuclear phase-out.	Pre-election commentary suggested that reinstating nuclear was definitely open for discussion, highlighted by Germany's difficulties in relying on Russian gas.	The coalition agreement is silent on nuclear energy, suggesting a lack of political appetite for nuclear that is instead likely to focus renewable energy supplemented by 20,000 MW of new generation.
Imported gas	Strong preference for not accepting LNG from Russia.	Inference from other policy positions suggests that the CDU/CSU wants to reduce dependence on imported gas.	Not clear, but the possible reinstatement of the Nordstream #1 and #2 pipeline implies at least some appetite for importing Russian gas.
Gas use	Only renewable gasses to be used from 2045.	Incentivise construction of 20,000 MW of new gas-fired electricity generation by 2030.	The coalition agreement affirms the CDU/CSU policy of incentivising 20,000 MW through a technology-indifferent tender process (although that is likely to be gas-fired).
Coal	Phase out coal-fired electricity by 2038.	Probable re-think on coal phase-out.	The coalition government has reaffirmed the coal phase-out date of 2038.
Electric vehicles	Goal of 15,000,000 EV's by 2030, supported by purchase grants, tax exemptions and parking privileges.	Initially expected to support Germany's ailing car manufacturing sector, revoke the 2035 ban on gasoline cars, and allowing personal choice to dominate mobility choices.	The coalition agreement doesn't mention the 2035 ban on gasoline vehicles, but does include a few electric mobility measures such as social leasing of EV's for low income families, tax incentives and road toll exemptions for electric trucks.

Further reading

Readers might be interested in the following back articles…

- Pipes & Wires #231 – Germany post-election energy policy.
- Pipes & Wires #225 – Germany returning coal-fired generation.
- Pipes & Wires #220 – Germany closing the last 3 nuclear stations.
- Pipes & Wires #213 – Germany the new Government's energy and climate priorities.
- Pipes & Wires #210 – Germany phasing out nuclear.
- Pipes & Wires #209 – Germany phasing out coal.

Energy mix and grid security

Aus – thinking about nuclear power

Introduction

As of mid-March 2025 (ie. before the 2025 Federal election), the debate around whether Australia should build a fleet of nuclear power stations seemed likely to dominate the Federal election. This article examines the then Federal Opposition's plans for a nuclear renaissance.

The nuclear renaissance

Nuclear power has had an uneasy ride beset with politics since its inception in the mid-1950's, when the British government were keen to use nuclear power to counter the power of the coal miners unions. Nuclear power seemed to go into decline around the 1980's as the high construction costs became very apparent, but more recently nuclear power seems to be hitting a renaissance in the United States.

Current regulatory framework

Broadly speaking, most segments of the nuclear fuel cycle (including power generation) are either heavily restricted or totally prohibited in Australia by both Federal and State statutes.

The Liberal's proposed nuclear program

Key features of the Liberal's proposed nuclear program include…

- Construction of 7 nuclear power stations at existing coal-fired sites at Tarong, Callide, Liddell, Mount Piper, Port Augusta, Loy Yang and Muja to capture advantages of cooling water and transmission connections.

- It is expected that the Federal government would fund the stations in conjunction with experienced nuclear operators.
- The first station is proposed to be operational between 2035 and 2037.
- The likely technology will be small modular reactors (SMR).

Select committee interim report

Key features of the Select Committee On Nuclear Energy interim report include…

- A likely timeframe of at least 12 years and more likely 15 years to construct a nuclear power station, in addition to the time required to pass legislation.
- Various cost estimates derived from recent construction projects are presented by the interim report, ranging from A$4,300 per kW to A$20,800 per kW with an industry mean of about A$8,600 per kW. Of note is the analysis of cost overruns at Olkiluoto, Flamanville #3, Vogtle and Hinkley Point C.

The final report will undoubtedly make for interesting reading…

Further reading

Readers may be interested in the following…

- Pipes & Wires #231 Britain – progress on Hinkley Point C
- Pipes & Wires #228 Britain – planning the third nuclear station.
- Pipes & Wires #227 Netherlands – the coalition's nuclear policy.
- Pipes & Wires #227 Aus – restarting the nuclear debate.
- Pipes & Wires #220 Germany – closing the last three nuclear stations.
- Pipes & Wires #213 – France proposed new nuclear stations.

Aus – keeping thermal plant in the market ?

Introduction

Removing thermal generation from markets is proving to be a contentious issue, so it's not surprising that recent media claims that the Yallourn W coal-fired station in the Australian state of Victoria might remain open for "four more years" prompted a swift response.

A bit about Yallourn and its planned closure

Yallourn W is a 4 x 350 MW brown-coal fired steam turbine station in the Latrobe Valley, about 130km east of Melbourne. Currently owned by EnergyAustralia, Yallourn began generating in 1974. In March 2021, EnergyAustralia announced that Yallourn's previously announced closure date of 2032 would be advanced to mid-2028, due to Yallourn's rising operating costs (it is over 50 years old) and low wholesale prices.

Recent public statements

An article published in *The Australian* in March 2025 claimed that Yallourn W would stay open for "four more years", noting this to be an "extraordinary reversal for the state Labour government's renewable energy-only blueprint". The Victorian government promptly responded that the claim of talks between EnergyAustralia, the Department of Energy Environment & Climate Action (DEECA) and the AEMO was false, and that no such talks had been held. So it would appear that Yallourn W remains scheduled for closure in mid-2028.

Further reading

Readers may be interested in the following articles…

- Pipes & Wires #223 – Aus delaying the coal closures.
- Pipes & Wires #220 – Aus keeping Eraring open
- Pipes & Wires #220 – Aus Liddell finally closes
- Pipes & Wires #218 – Aus AGL to complete coal exit by 2035.

General stuff

Guide to NZ electricity laws

I've compiled a "wall chart" setting out the relationship between various past and present electricity Acts, Regulations, Codes etc in sort of a chronological progression. To request your free copy, pick here. It looks really cool printed in color as an A2 or A1 size.

A bit of light-hearted humor

What if price control had been around in the 1920's and 1930's ? A collection of classic historical photo's with humorous captions looks at some of the salient features of price control. Pick here to download.

Extending the above, a second collection of classic historical photo's with humorous captions looks at some topical issues of regulating emerging technologies. Pick here to download.

A potted history of electricity transmission

I've recently compiled a potted history of electricity transmission. Pick here to download.

Wanted – old electricity history books

Now that I seem to have scrounged pretty much every book on the history of electricity in New Zealand, I'm keen to obtain historical book, journals and pamphlets from other countries. So if anyone has any unwanted documents, please email me.

House-keeping stuff

Opt out from Pipes & Wires

Pick this link to opt out from Pipes & Wires. Please ensure that you send from the email address we send Pipes & Wires to.

Disclaimer

These articles are of a general nature, they do not constitute specific legal, consulting or investment advice, and are correct at the time of writing. In particular Pipes & Wires may make forward looking or speculative statements, projections or estimates of such matters as industry structural changes, merger outcomes or regulatory determinations. These articles also summarise lengthy documents, and it is important that readers refer to those documents in forming opinions or taking action.

Utility Consultants Ltd accepts no liability for action or inaction based on the contents of Pipes & Wires including any loss, damage or exposure to offensive material from linking to any websites contained herein, or from any republishing by a third-party whether authorised or not, nor from any comments posted on Linked In, Face Book or similar by other parties.