Pipes & Wires

Thought leadership of critical energy & infrastructure matters
Issue 231 – April 2025

From the editor's desk…

Welcome to Pipes & Wires #231 …. this issue starts with a few regulatory decisions in NZ and Australia, and then begins a two part article on Germany's post-election energy policy. We then examine progress on the Hinkley Point C nuclear power station in Britain, and then we examine two big cable projects in NZ and Australia. We then examine a transmission business sale in the US and the recapitalization of Thames Water in Britain. So … until next time, happy reading…

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Recent client projects

Recent client projects include…

Transaction advisory

- Forecasting AugEx, RepEx and OpEx, advising on likely revenue cap implications.
- Forecasting AugEx, RepEx and OpEx, identifying strategic, commercial and regulatory red-flags.

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 investor.

Regulatory analysis

- Reviewing the AER's recent treatment of network

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.

Climate governance and resilience

- Identifying the governance, strategy and risk programs required to align with TCFD.
- Compiling a client resilience framework for an electric distribution company.

Global trend and pattern analysis

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

Cool multimedia stuff

The Pacific Intertie

This 27 minute video clip examines the development of the Pacific Intertie from Celilo, Oregon to Sylmar, California in the 1960's, accompanied by a lot of banjo music. Key technical features include…

- Length 1,360km.
- Voltage ±500kV.
- Rating 3,100 MW in bipolar mode.

Network regulatory decisions

NZ – resetting the gas pipeline price-quality path

Introduction

Some of New Zealand's gas pipelines are currently regulated by the third default price-quality path (Gas DPP3) that expires on 30th September 2026. This article examines the Commerce Commission's open letter to the gas industry to set some context for examining the Gas DPP4 reset process out to the publication of the Final Decision around May 2026.

Regulatory framework

The regulatory framework for the DPP reset is set out in the Commerce Act 1986 as follows…

- Subpart 6 of Part 4 specifies what a DPP must contain (s53O) and how starting prices, rates of change and quality standards must be set (s53P).
- Subpart 10 of Part 4 which sets out a wider range of requirements specific to gas pipelines.

Key features of the Commission's thinking

The Commission's letter can be considered in two parts…

- A review of the DPP3 context and key features, including the expected decline in gas volumes in response to Nett Zero by 2050 and the review of the Input Methodologies (IM's) in 2023.
- A discussion of the issues likely to effect the Gas DPP4, with the over-arching issue being significant uncertainty of both demand (declining direct gas consumption offset by possibly increasing gas-fired electricity generation) and supply.

Next steps

Next steps include the publication of an Issues Paper in May 2025.

Further reading

Readers may be interested in the following further reading…

- Pipes & Wires #229 – NZ gas under pressure.
- Pipes & Wires #229 – Aus the Jemena gas distribution revenue reset.
- Pipes & Wires #226 – NZ upholding the accelerated depreciation decision.

- Pipes & Wires #225 – NZ appealing the gas pipeline WACC.
- Pipes & Wires #224 – Aus gas under pressure in the West.

Aus – the Directlink electricity transmission revenue proposal

Introduction

Directlink recently submitted its Revised Revenue Proposal to the Australian Energy Regulator (AER) for the 5 year control period commencing on 1st July 2025. This article sets some context for examining the AER's Final decisions.

A bit about the Directlink

Directlink is an 180MW HVDC interconnector stretching 63km between Bungalora and Mullumbimby in the Australian state of New South Wales. Directlink connects to the Queensland 110kV grid (which overlaps into northern NSW) at Bungalora, and to the NSW 132kV grid at Mullumbimby. Directlink is jointly owned by MM Midstream Investments, Osaka Gas Energy Oceania and APA Group.

Directlink began life as an unregulated market service in April 2000, but became a regulated network service in March 2006.

Regulatory framework

The basis of the regulatory framework is Chapter 6a of the National Electricity Rules, which is made pursuant to the National Electricity Law.

Key features of the process to date

Key features of the Directlink process to date include…

Parameter	Proposal	Draft Decision	Revised Proposal	Final Decision
CapEx	$33.8m	$18.8m	$31.5m	
OpEx	$39.5m	$33.5m	$34.2m	
Opening RAB	$164.5	$163.1m	$160.8m	
Depreciation	$37.7m	$34.5m	$32.5m	
Smoothed revenue	$138.4m	$123.8m	$117.4m	

Pipes & Wires will comment further once the AER releases its Final Decision.

Energy policy

Germany – post-election energy policy part #1

Introduction

Most of us will be aware the Germany's recent federal elections resulted in a shift to the right. This two part article firstly compares the various energy and climate policies of the former government and the election winner CDU/CSU party, whilst part 2 will examine the eventual CDU/CSU policy positions once the coalition has been formed.

Election results

Germany's 630 seat Bundestag requires 316 seats for a simple majority. In summary Olaf Scholz ruling SPD party was ousted from power, however the 2025 election did not return a majority party. The party with the most votes is Friedrich Merz' CDU/CSU party with 208 seats, so a coalition will be necessary.

Policy positions

Policy positions and possible shifts in policy are as follows…

Issue	SPD policy (before the election)	CDU/CSU policy (after the election)
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.

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.
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.
Gas use	Only renewable gasses to be used from 2045.	Incentivise construction of 20,000 MW of new gas-fired electricity generation by 2030.
Coal	Phase out coal-fired electricity by 2038.	Probable re-think on coal phase-out.
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.

Part 2 will compare how the CDU/CSU policy positions have shifted as the coalition forms.

Further reading

Readers might be interested in the following back articles…

- 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

Britain – progress on Hinkley Point C

Introduction

Nuclear power seems to be enjoying a renaissance, so it's probably a good time to check progress on Britain's latest nuclear power station at Hinkley Point C. Pipes & Wires has been following Hinkley Point C for 11½ years (and will probably run to 20 years by the time commissioning is complete), and first examined Britain's plans for a new generation of nuclear stations 20 years ago in February 2005.

A bit of a summary of Hinkley Point C

Key features of Hinkley Point C include…

- Two third generation pressurized water reactors, each of 1,600MW capacity, sufficient to supply 3,000,000 houses.
- The location is the Somerset coast, looking across the Bristol Channel towards South Wales.
- An originally expected cost of £16b (2013 prices), which is now expected to be somewhere between £42b and £48b (2024 prices). A key reason for the cost over-runs is the modifications to the initial European Power Reactor to meet British regulations.
- Completion was originally expected during 2025, but is now expected sometime between 2029 and 2031.
- A strike price of £92.50 per MWh, which will fall to £89.50 per MWh if EDF Energy proceeds with its second planned station at Sizewell.
- Up to 11,000 workers who ride to work on 176 buses.

Recent progress

Following delivery of the first of two reactor pressure vessels in early 2023, that pressure vessel was installed in late 2024.

The pressure vessel is a steel canister that contains the nuclear fuel along with the steam that is generated from the coolant by that fuel. Pressure vessels are usually made of either plates or ring forgings welded to hemispherical ends. A key engineering challenge is irradiation embrittlement due to continual neutron irradiation of the steel.

Next steps

The civil works are now largely complete, and attention turns to installing the electrical and mechanical components. Interestingly, the project team have observed learning curve efficiency and productivity gains of between 20% and 30% on the second unit.

Further reading

Readers may be interested in the following…

- Pipes & Wires #228 – Britain planning the third nuclear station.
- Pipes & Wires #220 – Germany closing the last three nuclear stations.
- Pipes & Wires #213 – France proposed new nuclear stations.
- Pipes & Wires #194 – UK progress slows on Hinkley Point C.
- Pipes & wires #172 – Sweden progress on the return to nuclear.
- Pipes & Wires #37 – UK nuclear may have a future after all.

Energy markets and pricing

NZ - Transpower plans replacement HVDC cables

Introduction

Transpower recently announced that it has entered into an agreement to supply and install 4 new HVDC undersea cables between the South Island and the North Island following a global tender process. This article provides a quick overview of the HVDC link, and then takes a deep dive into the cables and the replacement project.

An overview of the HVDC link

The +350kV HVDC link (also commonly called the Cook Strait Cable, although there is much more to it than just the cables across Cook Strait) comprises the following components…

- A converter station at Benmore adjacent to the 220kV AC switchyard, comprising the usual transformers, thyristor valves, harmonic filters and smoothing reactors.
- An overhead steel tower line stretching 534km from Benmore to Fighting Bay.
- Three separate single-core undersea cables stretching 40km from Fighting Bay to Oteranga Bay.
- A further 37km of overhead steel tower line stretching 37km from Oteranga Bay to Haywards.
- A converter station at Haywards adjacent to the 220kV AC switchyard, again comprising the usual transformers, thyristor valves, harmonic filters and smoothing reactors.

The HVDC cables themselves

The link currently includes 3 single-core copper cables rated at 1430A and 350kV that were installed in 1991 to replace the original cables (installed in 1964). These 3 existing cables will reach their expected life of 40 years around 2031, when the replacement is scheduled for.

Global demand for HV cables and the limited number of cable laying ships results in a lead-time of about 7 years from placing an order. Transpower has entered into a Capacity and Reservation Agreement with Prysmian, and expects to place a formal order in late 2025 following Commerce Commission approval to recover the expenditure.

The business case for increasing the HVDC capacity

The planned replacement includes increasing the overall link capacity from 1,200MW to 1,400MW, which is expected to provide a conservatively estimated additional benefit of between $100m to $300m over 40 years. The business case for this increase includes…

- Forecasts that South Island hydro will play an increasingly important role in firming intermittent North Island wind and solar.
- Forecasts that the HVDC will increasingly set the risk and reserve requirements as large thermal generation exits the market.
- The existing cable rating of 1,200MW limits the overall link capacity, which is 1,400MW.

In addition to the increase, the starting point for replacement is based on the expected declining reliability of the cables, with fault repairs likely to take between 6 and 18 months in the best case of a cable repair ship being available in the South Pacific, and 7 to 10 years in the worst case of an unplanned cable replacement.

Further reading

Readers might find the following reading interesting…

- White Diamonds North by Peter Taylor (1990).
- Connecting The country by Helen Reilly (2008) – chapter 8.
- Cook Strait HVDC Submarine Cable Replacement and Enhancement – Project Information and Consultation.
- HVDC Inter-Island (Wikipedia).
- High Voltage Direct Current: A History Of Innovation.
- The history of high voltage direct current transmission.
- HVDC history in New Zealand (Hitachi).

NZ, Aus – the proposed trans-Tasman cable

Introduction

News recently emerged of a planned trans-Tasman HVDC cable. This article briefly examines the engineering and commercial features.

The engineering features

Key engineering features and challenges include…

- An expected length of 2,600km, from south of Auckland to near Newcastle. Currently the longest operating undersea cable is Viking, stretching 757km from Denmark to England, whilst a 900km undersea cable from Cyprus to Greece as part of the Great Sea Interconnector is nearing construction.
- The depth is expected to be 5km, which is acknowledged as much greater than the current 3km depths being planned for.
- The expected cost is $12b (about $4.6m per km for a simple ratio), which compares well enough with Viking ($5.1b per km) and Great Sea ($3m per km).
- The voltage is expected to 640kV which is commercially available.
- The power rating is expected to be between 2,000MW and 3,000MW.

The commercial features

The key commercial feature is the interconnection of the NZ and Australian NEM electricity markets (which have different primary energy mixes), which is expected to provide the following benefits…

- Dry hydro year (NZ) and dunkelflaute (Aus) support, with an independent analysis claiming that an interconnection would've saved NZ electricity customers about $400m during 2024.
- Possible arbitrage of peak demand due to the 2 hour time difference.

Next steps

The promoters are currently raising funds for further technical studies.

Industry reshuffling and capital allocation

US – AEP sells stakes in transmission business

Introduction

Reducing stakes in wind, solar and gas businesses to recycle capital into core electric distribution businesses is now an established pattern. This article examines American Electric Power's recent sale of minority stakes in two of its electric transmission businesses along with some associated themes.

The deal

AEP plans to sell 19.9% of its Ohio and its Indiana & Michigan Transmission Companies to a consortium of KKR and PSP Investments for about $2.8b. This represents about 5% of AEP's transmission regulated asset base, and is expected to be earnings accretive from the deal closure which is expected in the second half of 2025.

The strategies behind the deals

AEP's Ohio and Indiana electric businesses are facing high demand growth, which obviously requires a lot of Growth CapEx (AEP are projecting $54b out to 2029). The original plan was to sell about $5.3b in new stock to fund that CapEx, however the planned stake sales should reduce that to about $2.5b. Analysts have commented favorably on the proposed sale price, which was higher than expectations and optimises AEP's cost of new capital.

The deal also sits well with pension funds, which can capture growth in regulated earnings.

Further reading

Readers maybe in tested in the following articles…

- Pipes & Wires #229 – US Entergy migrates capital from gas to electricity.
- Pipes & Wires #227 – Argentina delaying the Edesur sale.
- Pipes & Wires #222 – US – are regulators signaling a shift in spending priorities ?
- Pipes & Wires #221 – US Duke sells commercial renewables to Brookfield.
- Pipes & Wires #221 – US AEP continues to sell assets.
- Pipes & Wires #220 – US ConEd sells clean energy business.

Britain – Thames Water under pressure

Introduction

Pipes & Wires has previously examined Thames Water's recent financial difficulties up to February 2025. This article catches up on more recent events.

Court ruling on debt restructuring

Court approval had previously been obtained to secure £3b of funding through a debt restructuring. In February 2025 the High Court of Justice sanctioned a plan to extend the maturity of Class A and Class B debt by 2 years, which will provide £3b in emergency funding and give Thames Water time to restructure its debt and attract new investors. In mid-March 2025 the Court Of Appeal dismissed the appeals of secondary creditors, and upheld the High Court's decision.

Ofwat's PR24 Final Decision

Ofwat's PR24 Final Decision provides Thames Water with a spend allowance of £20.5b for the 5 year control period starting on 1st April 2025. This is £4b less than Thames Water sought in its response to Ofwat's Draft Decision.

Credit downgrades

In February 2025, Thames Water's credit ratings were downgraded as follows…

- Thames Water Utility Finance Class A debt was downgraded from CC to D.
- Thames Water Utility Finance Class B debt was downgraded from C to D.
- Thames Water Utilities Ltd loner-term issuer rating was downgraded from CC to D.

Bids for a majority stake

In February 2025, various bids for Thames Water's equity ranging from £4b to £7b were received in a competitive bid process, including bids from Kolberg Kravis Roberts, Cheung Kong Infrastructure, Castle Water and Covalis Capital.

Further reading

Readers may be interested in the following…

- Pipes & Wires #230 UK – Thames Water under pressure.
- Pipes & wires #228 UK – the draft PR24 water revenue decisions.
- Pipes & Wires #228 UK – Thames Water under pressure.
- Pipes & Wires #226 UK – Thames Water under pressure.

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

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