[redacted]
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13 October 2023

The Inquiry Secretary
Legislative Council
Parliament House
Hobart, Tas, 7000
epr@parliament.tas.gov.au

INQUIRY INTO ENERGY PRICES IN TASMANIA

Dear Sir/Madam

Please find attached a submission for the Inquiry into Energy Prices in Tasmania.

My interest in this area is related to importance of the long-term asset management and financial management practices and outcomes of the Tasmanian Energy industry.

The Tasmanian energy industry is asset intensive and requires current asset management plans setting out how the industry will delivery energy to meet customer's needs, is affordable and sustainable. Moving from annual budgeting to long-term financial planning can help in minimising price increases for customers, while maintaining financial sustainability for the industry.

I have been involved in asset management and financial management of infrastructure for many years and hope that my experiences can assist in the Inquiry. These experiences include:

- Chair Institute of Public Works Engineering Australasia (IPWEA) Steering Committee for the National Asset Management Manual published in 1994 – updated to the International Infrastructure Management Manual (IIMM), 6th edition 2022
- Infrastructure asset management consultant 2002 – 2023
- Project manager for the IPWEA National Asset Management Strategy (NAMS) group 2003-2014
- Project manager and author IPWEA NAMS.PLUS, templates and modelling to assist users develop asset management plans 2007 (now updated to NAMS+)
- Author IPWEA Professional Certificate in Asset Management Planning on-line course 2014
- Project manager and principal author for the IPWEA Australian Infrastructure Financial Management Guidelines 2009 – updated to the Australian Infrastructure Financial Management Manual (AIFMM) 2015
- Joint author IPWEA International Infrastructure Financial Management Manual (IIFMM) 2020.

I am available to answer any questions or provide any further information that the Inquiry may require.

Yours faithfully

Reginald John Howard
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INQUIRY INTO ENERGY PRICES IN TASMANIA

SUBMISSION

1. Introduction

The Tasmanian Legislative Council Government Administration Committee "A" has established an inquiry into energy prices in Tasmania.

The terms of reference are:

1. Factors that impact energy prices for Tasmanian household and small and medium business customers, with particular reference to energy generation, distribution and retail costs;
2. Opportunities and challenges for the State of Tasmania as owners of power generation and transmission infrastructure; and
3. Any other matters incidental thereto.

Recent newspaper articles have identified several issues for the inquiry, e.g.

> Peoples' power bills are going up and people want to know why. Since 1 July 2022, electricity prices in Tasmania have increased 22.5 per cent, far exceeding the increase in the Consumer Price Index and wages growth over the same period, which have risen by 5.5 per cent and 3.9 per cent respectively.[1]
>
> Our renewable energy supply has reached crisis proportions causing business investment to drop.[2]

The Tasmanian Economic Regulator has approved a price increase of 9.5% for Aurora Energy's customers for 2023-2024.[3]

Challenges for Tasmania's power supply can be summarised as:

- Providing energy supply to customers with a level of service that is appropriate, reliable, affordable and sustainable; and
- Acquiring new energy sources to meet increased customer demand that have a 'social licence', minimise environmental impact and optimise life-cycle cost over the life of the new assets.

2. Are Tasmanians being Overcharged for Energy?

The Hydro Tasmania Annual Report for 2022 reported a 12.9% drop in revenue for 2022 from 2021 for sales of electricity and gas as shown in Table 1.

[1] The Advocate, 28 August 2023,
[2] The Advocate, 3 September 2023,
[3] The Advocate, 22 June 2023.

Table 1: Hydro Tasmania Energy Sales Revenue 2021-2022

Revenue Items	2022	2021	% change
Sale of electricity			
Residential	$198.7M	$217.9M	-8.8%
Business	$539.6M	$579.9M	-7.0%
Wholesale	$554.9M	$685.9M	-19.1%
Total	$1,293.2M	$1,483.7M	-12.8%
Sale of gas			
Residential	$95.1M	$90.6M	4.9%
Business	$13.7M	$12.4M	9.7%
Wholesale	$17.8M	$42.6M	-58.2%
Total	$126.6	$145.8M	-13.2%
TOTAL	$1,419.8M	$1,629.5M	-12.9%

Source: Hydro Tasmania, Annual Report 2022, Note 2, p 39.

Tas Networks reported a 9.8% increase in revenue from 2021 to 2022.

Table 2: Tas Networks Total Revenue 2021-2022

Revenue	2022	2021	% change
Total Revenue	$501.2M	$456.2M	9.8%

Source: Tas Networks Annual Report 2022, Consolidated Statement of Profit or Loss, Revenue, excluding grant revenue, p 73.

Table 3 shows the total revenues for Hydro energy sales and Tas Networks declined by 7.9% between 2021 and 2022.

Table 3: Hydro Energy Sales and Tas Networks Total Revenue 2021-2022

Revenue Items	2022	2021	% change
Total Revenue	$1,921.0M	$2,085.8M	-7.9%

Finding

Tasmania's energy providers had a 7.9% decrease in revenue over the period 2021-2022. The decrease in revenue indicates that customers paid less in energy charges or used less energy in 2022 than in 2021.

3. Have energy prices increased?

A comparison of residential energy prices in Aurora energy invoices from an example constant energy consumption indicates some changes in energy prices over the period from 2019 to 2024.

The changes range from +2% (2019-2020), -1% (2020-2021), -7% (2021-2022), +12% (2022-2023) and +9.5% for 2023-24. The price change from 2019-2024 was +14% or approx. a 2.8% increase on average over the 5 year period. The analysis is shown in Table 4.

Table 4: Residential Energy Prices Analysis Jun 2019 - Jun 2024

Tariff	Energy Charges for period						Analysis Example Data		Cost for period					
	Jun 19	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24	Usage	Unit	Jun 19	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24
T31 Residential														
Daily Charge	0.94636	0.96528	0.95193	0.88427	0.98932	1.133772	92	Days	$87.07	$88.81	$87.58	$81.35	$91.02	$104.31
Energy Charge	0.26431	0.2696	0.26587	0.24697	0.27631	0.29947	1,500	kWh	$396.47	$404.40	$398.81	$370.46	$414.47	$449.21
T41 Heating														
Daily Charge	0.17646	0.17999	0.1775	0.16488	0.18447	0.21214	92	Days	$16.23	$16.56	$16.33	$15.17	$16.97	$19.52
Energy Charge	0.17164	0.17507	0.17265	0.16038	0.17943	0.19447	2,000	kWh	$343.28	$350.14	$345.30	$320.76	$358.86	$338.94
T61 Off Peak														
Daily Charge	0.21808	0.22245	0.21937	0.20378	0.227979	0.22618	92	Days	$20.06	$20.47	$20.18	$18.75	$20.97	$24.12
Energy Charge	0.13819	0.14095	0.139	0.12912	0.14446	0.15657	800	kWh	$110.55	$112.76	$111.20	$103.30	$115.57	$125.267
TOTAL									**$973.66**	**$993.13**	**$979.39**	**$909.78**	**$1,017.86**	**$1,111.35**
Index change per period									100	102	99	93	112	109
Index change from Jun 19									100	102	101	93	105	114

Finding

An analysis of residential energy charges for the June quarter period from 2019 to 2024 using example usage data indicates that energy prices have increased by 14% from 2019 to 2024. The changes are shown in Figure 1.

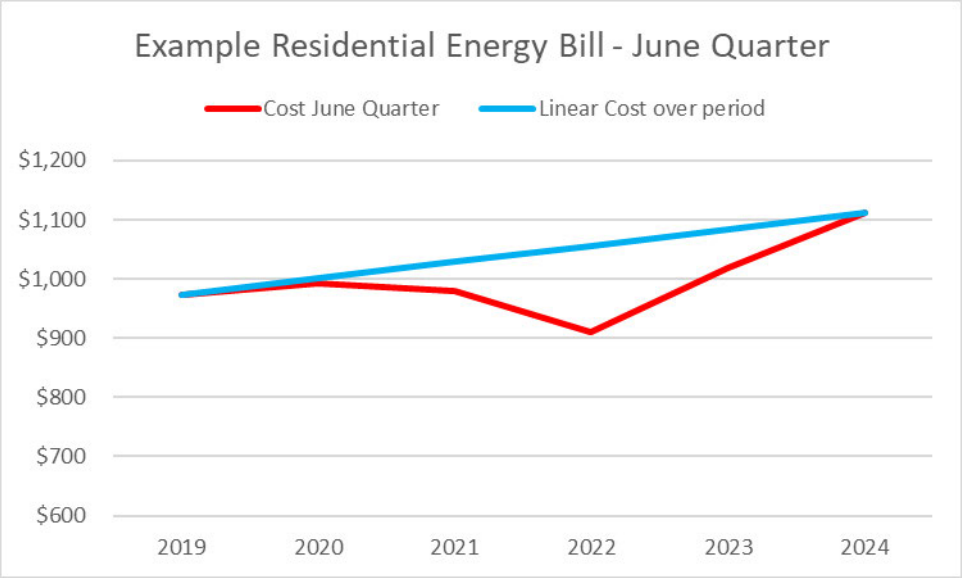

Figure 1: Example Changes in Residential Energy Charges

The total increase for the period from June 2019 to June 2023 is 14%, which equates to an annual energy price increase of approx. 2.8% per annum over the five year period.

4. Energy Entries are Asset Intensive

Tasmania's energy organisations are asset intensive. The reported carrying value of property, plant and equipment assets as at 30 June 2022 is shown in Table 5.

Table 5: Tasmania's Energy Asset Values 2022

Organisation	PPE (Income approach)	PPE (Historical Cost)	Revenue – (Electricity & Gas)	PPE/Revenue
Hydro Generating Assets	$3.615B	$3.975B	$1.419B	2.55
Tas Networks – Network & Communication Assets	$3.155B		$0.501B	6.30
Total	**$6.771B**		**$1.921B**	**3.52**

Source: Hydro Tasmania, Annual Report 2022, pp 39, 47 Tas Networks, Annual Report 2022, pp 73, 91.

The ratio of property, plant and equipment assets to annual revenue for the generation and transmission organisations is 3.52.

This asset/revenue ratio is higher than a typical commercial organisation's ratio of about or less than 1.[4] [5] The asset intensity of Tasmania's energy organisations highlights the risk of financially devastating asset and energy blackouts. Therefore, organisations such as Hydro Tasmania and Tas

[4] Coles Group Limited, Annual Report, 2023, asset/revenue ratio 0.12 (Revenue $40.500M PPE, $4,985M)
[5] Westfarmers, Annual Report, 2023, asset/revenue ratio 0.12 (Revenue $43,500M, PPE $5.365M)

Networks require good asset management and financial management planning to maintain required levels of service at an affordable price.

The generation and transmission assets are valued using the income approach. This values the infrastructure assets base on the ability of the organisation to generate revenue from the assets.

The value of Hydro Tasmania's generation assets using the income approach of $3.615B is very similar to the reported valuation using historical cost of $3.975B.[6]

By comparison, valuation using the replacement values, in today's dollars would result in a much higher valuation, possibly double the historical cost valuation due to the age of the generating assets.

This has implications for under reporting of asset consumption (i.e., depreciation) and therefore infrastructure organisations that do not recover the true operating cost of infrastructure (based on generating revenue to offset operating costs including depreciation based on asset values determined on a replacement cost basis) face reduced capacity to renew assets to maintain existing service levels when they reach the end of their useful life and invest in new and upgrade of existing assets to increase service levels.

5. Factors that affect Energy Prices

It costs money to provide energy services to Tasmanian customers.

Energy organisations are asset intensive industries.

There are several factors affecting energy prices for asset intensive organisations including:

- Acquisition – investment in new assets to provide new services and upgrade existing services
- Operations – activities to provide the service from infrastructure including staffing, services (power, communications, cleaning, etc)
- Maintenance – reactive and planned works on the infrastructure assets to ensure the assets reach their useful life
- Renewal – works to replace existing assets or facilities with assets of equivalent capacity or performance capability
- Disposal – actions necessary to dispose of decommissioned assets at end of life.

These factors should be fully detailed in an Asset Management Plan.

6. An Asset Management Plan

Hydro Tasmania's 2016 Asset Management Plan follows the requirements of the Corporation's Asset Management Policy to achieve *cost effective enhancement and optimisation of the value creation capability of the hydro asset portfolio.* Its strategy is to **maximise production opportunities and reduce business risks** for the **minimum cost.**[7]

Business risks from ageing assets are summarised in the asset management plan.

> "The normal mid-life for a well maintained hydro generator in its efficient operating range is circa 40 years … . In terms of the age related production risks, around 63% of annual

[6] Hydro Tasmania Annual Report 2022, Financial Report, Note 9, p 47.
[7] Hydro Tasmania, 10 year Asset Management Plan 2016, Summary, Section 3, p 7.

production is generated from production lines that are over 40 years old and approximately 20% are older than 60 years.

In terms of age-related condition and performance asset risk, 42 production lines (Poatina, Trevallyn, Mersey-Forth and Derwent) are greater than 40 years old. Those in the upper Derwent, with extensive civil and water conveyance infrastructure, are older than 60 years.

These simple statistics largely encapsulate the asset management challenges and consequence risk to revenue confronting the corporation."[8]

An Asset Management Plan:

- Provides documented information that specifies the activities, resources and timescales required for an individual asset or grouping of assets, to achieve the organisation's asset management objectives[9]
- Is a long-term plan (usually 10-20 years or more) that outlines the asset activities and programs for each service area and resources applied to provide a defined level of service in the most cost effective way, including a long-term cashflow projections for the activities.[10]

The asset management plan should include a risk management plan for managing the risks associated with managing service from infrastructure. Risks facing the Tasmanian energy providers may include:

- Reduced reliability of energy supply to customers
- Energy blackouts from asset generation and transmission failures
- Increased maintenance costs of increasing age of infrastructure assets
- Loss of energy supply from bushfire and other damage to assets
- The extent of future demand and requirements for carbon neutral energy.

The cashflow projections from the asset management plan must be fully aligned and balanced with the long-term financial plan for on-going financial sustainability.

7. A Long-Term Financial Plan

A long-term financial plan is needed by every organisation with significant long-lived infrastructure. Without one, it is impossible to effectively and equitably manage service levels, asset management and revenue raising decisions and ensure ongoing financial sustainability.[11]

A long-term financial plan:

- Needs to be underpinned by a clear financial strategy with measurable financial targets
- Should be based on an organisation achieving its affordable service level objectives while also maintaining, or where necessary improving its financial sustainability
- Accommodates asset maintenance and asset renewal and replacement activity at levels and at points of time that minimises whole-of-life economic costs relative to required service levels
- Should cover a period of at least 10 years.

[8] Hydro Tasmania, 10 year Asset Management Plan 2016, Summary, Section 4.1, p 20
[9] Based on ISO 55000.
[10] IPWEA, 2020, International Infrastructure Financial Management Manual, Glossary, p 6|43.
[11] IPWEA, 2012, Long-term Financial Planning Practice Note 6, p4.

8. Alignment with the Long-Term Financial Plan

The asset management plan sets out the cashflow projections to provide a defined service level to customers and how the organisation intends to manage service delivery risks.

An asset management plan is prepared from a technical view to provide energy services at a defined service level at the optimum life-cycle cost. It may not align with the projected outlays in the organisation's long-term financial plan.

For affordability of the energy to customers and financial sustainability of the energy supply organisation, the asset management plan cashflow forecasts must be balanced with a financially sustainable position in the long-term financial plan.

Balancing the asset management plan cashflow projections with the projected outlays in the long-term financial plan can involve:

- Identifying and estimating any possible and on-going savings from efficiencies in operation and maintenance activities
- Identifying and estimating low risk capital renewal works that can be deferred for following years
- Identifying and estimating the capital outlays and associated on-going operating expenses of any works to acquire new assets and upgrade existing assets that may be deferred to following years
- Identifying the service and risk consequences associated with each of the above cashflow saving activities
- Making a decision considering the balancing of service performance, risk and cost to achieve on-going service delivery and financial sustainability over the period of the long-term financial plan, while **accepting the service and risk consequences**.

9. Recognising Acquisition Life-Cycle Costs

Acquisition of new assets and upgrading of existing assets to provide a new service or enhance existing services required financing of two stages:

- Financing of acquisition costs – may be from cash reserves, grants and/or borrowings, and
- Financing of the associated on-going operating expenses of operations, maintenance and depreciation required to provide the additional services from the new and upgraded assets.

The life-cycle costs are illustrated in Annual Service Cost (ASC) example for a public barbeque[12] in Table 6. The public barbeque has a capital acquisition cost of $10,000, estimated useful life of 10 years and annual operating costs of $10,000.

[12] IPWEA, 2020, Section 2.3, p 2|5.

Table 6: Annual Service Cost of a new Barbeque

Item	$/annum	Comment
Operations	$8,000	Daily cleaning & power
Maintenance	$1,000	
Depreciation	$1,000	$10.000 / 10 years
Less Revenue	- $0	
Annual Operating Cost (AOC)	**$10,000**	
Opportunity cost of Capital	$500	$10,000 at 5% pa
Demolition/disposal	$100	$1,000 / 10 years
Annual Service Cost (ASC)	**$10,600**	

The Annual Operating Cost (AOC) is the amount required to be included in next year and following years budgets for the life of the asset to ensure that the new barbeque provide the required service level, (e.g., it works and is clean).

An indication of the financial impact of the investment in providing a new barbeque may be shown by expressing the AOC as a percentage of the organisations total revenue.

A large investment may require an increase of 1-2% on revenue to fund the operating expenses of the new asset.

The Annual Service Cost (ASC) expresses the life-cycle cost as an annual amount. It may be used to judge the value of the investment in providing a new barbeque. For example, if it is used twice per day, the cost to the organisation for a free barbecue is $14.50 per use.

Decision makers can then assess whether it is a good return on the investment of $10,000 to provide a new public barbeque that has a cost of $14.50 per use to the organisation.

10. Application of the ASC to the Energy Industry

The ASC may be applied to the energy industry.

As an illustration, a transmission organisation proposes the construction of a new $200 million transmission line.

The project estimates are:

Capital investment	$200 M
Useful life	50 years
Operations	$5 M per annum
Maintenance	$3 M per annum
Disposal	$25 M at end of life

The Annual Service Cost analysis is shown in Table 7.

Table 7: Annual Service Cost of a new Transmission Line

Item	$M/annum	Comment
Operations	$5	
Maintenance	$3	
Depreciation	$4	$200 M / 50 years
Less Revenue	NA	TBA
Annual Operating Cost (AOC)	**$12**	
Opportunity cost of Capital	$10	$200 M at 5% pa
Demolition/disposal	$0.5	$25 M / 50 years
Annual Service Cost (ASC)	**$22.5 M**	

For an organisation with $500M in annual revenue, this investment **will require an increase in revenue of 2.4% per annum** to cover the $12 M Annual Operating Cost. This is in addition to the additional revenue required to cover the expected operating cost increases for items such as wages and salaries, contract services, energy and communications, etc.

For example, if the organisation is facing a cost increase of $20M (4.0%) for its next year's budget, the increase to cover the Annual Operating Cost of the new transmission line will be $32M, an increase of 6.4%, less any projected additional revenue projected for the period.

The Annual Service Cost to the organisation is $22.5M covering the opportunity cost of capital and future demolition and disposal expenses at the asset's end of life.

The annual increase in revenue to cover the Annual Service Cost is 4.5% ($22.5 M / $500 M) per annum. This is additional to expected annual increases in current operating costs.

11. Accounting for Infrastructure Investment

The investment for the new barbeque is recognised as a new property, plant and equipment asset in the organisation's Balance Sheet

Operating expenses for operations, maintenance and depreciation are recognised in the Income Statement, together with revenue generated to cover the operating expense.

Table 8 illustrated the accounting treatment for the barbeque over its life in constant real values.

Table 8: Accounting for the Barbeque Investment

	Income Statement			Balance Sheet		
Year	Income	Expenses		Liabilities	Assets	
		O & M	Depreciation		Cash	PPE
0						$10,000
1	$10,000	$9,000	$1,000		$1,000	$9,000
2	$10,000	$9,000	$1,000		$2,000	$8,000
3	$10,000	$9,000	$1,000		$3,000	$7,000
4	$10,000	$9,000	$1,000		$4,000	$6,000
5	$10,000	$9,000	$1,000		$5,000	$5,000
6	$10,000	$9,000	$1,000		$6,000	$4,000
7	$10,000	$9,000	$1,000		$7,000	$3,000
8	$10,000	$9,000	$1,000		$8,000	$2,000
9	$10,000	$9,000	$1,000		$9,000	$1,000
10	$10,000	$9,000	$1,000		$10,000	$0

The $10,000 cost of acquisition of the barbeque is recognised in year 0 as a new item of property, plant and equipment (PPE) on the Balance Sheet.

The barbeque asset is depreciated at $1,000 per annum over its 10 year design (useful) life.

Depreciation and other operating expenses (operations and maintenance) are recognised as an expense in the Income Statement.

The organisation sets its price structure to raise revenue of $10,000 per annum to cover operating expenses and with a zero operating surplus ratio (OSR).

As the asset is depreciated over its life, the PPE asset value decreased from $10,000 to $0 and cash/financial asset values increases from $0 to $10,000.

At the end of useful life, the organisation can replace the barbeque and thus maintained the value of its PPE assets (at $10,000)

The organisation has the decision to make whether to renew the asset at end of life. It can:

- Renew the asset at the same service level ($10,000)
- Renew the asset at a higher service level ($10,000 + say $10,000 in new borrowings)
- Renew the asset at a lower service level (say $5,000 with $5,000 available for other initiatives)
- Continue the barbeque service with declining service levels and increasing maintenance costs
- End the barbeque service and dispose of the asset ($1,000 with $9,000 available for other initiatives).

In this manner, the organisation has operated its barbeque service in a financially sustainable manner, has maintained the value of PPE assets and has the capacity to make a decision on whether to maintain, modify or end the barbeque service and use the resources for other activities.

Where the organisation does not manage its infrastructure services in this manner, it may only have the option to continue to provide a lower and more expensive service or end the service.

Ensuring organisations have reliable and current asset management plans that are aligned and balanced with the long-term financial plan will allow infrastructure assets to be renewed at end of life, existing service levels maintained and costs to customers minimised over the longer-term.

12. Opportunities and Challenges for Future Energy

It costs more money to provide additional energy supply.

Tasmania has good resources for new solar and wind generation opportunities.

Tasmania also has existing energy transmission systems serving existing generation locations.

Opportunities for new energy generation should consider the economic, environmental and social implication of generation and transmission locations and maximise use of existing transmission assets.

New generation and transmission projects generally generate community opposition. ***We support new energy generation and transmission opportunities but not near me*.**

An opportunity for the Inquiry is to change the community response for new developments from:

You can't do that to ***Yes, we can***

One way to increase community support is for the Government to undertake strategic planning with detailed project scoping and investigation for possible sites to identify potential new generation sites together with required transmission connections with details of:

- Financial business case and viability
- Environment impact, and
- Community support

Generation site and transmission project options with details can then be listed and ranked in priority of lifecycle cost to the organisations and increase in prices to customers for engagement with customers and the Tasmanian communities.

At the conclusion of the engagement process, the Government can prioritise options and commence the acquisition process using the private sector.

Government investing in the strategic planning, project scoping and investigating stages can return the following benefits:

- Proposals for new energy and associated transmission resources can be invited based on priority of best return to the State and customers
- New energy generation and transmission resources can be acquired at the optimum life-cycle cost and energy cost to customers
- Minimising of time for development and delivery of new energy resources
- Minimising project delays from community concerns, planning objections and appeals to the Planning Appeal Tribunal
- Minimise development and project costs for private investors as most of the project development tasks have been completed
- A reduced timeline of new proposals from development to delivery
- Minimising energy price increases for customers
- Tasmania seen as a leader in renewable energy supply.

Government investment in the strategic planning stage can result in improved investment return, greater community acceptance, more efficient delivery of new energy sources and minimise price increases for customers.

13. Conclusions

- There is evidence that energy revenue has in fact decreased
- There is evidence that actual usage charges have only modestly increased over the last 5 years
- This, combined with the asset intensive nature of energy provider balance sheets (the revenue to asset value ratio) indicates a high risk of failure without the revenue to invest in renewals and maintenance
- Now, more than ever, energy companies need to prepare accurate and detailed asset management plans to highlight the consequences and risks of underinvestment. Likewise, these need to inform detailed long term financial plans showing the required revenues to be sustainable.
- Energy companies need to be cautious when undertaking new acquisitions as they will put further pressure on revenue needs (and therefore energy prices).
- Government should take the opportunity to take a leadership role in identifying, project scoping and investigation of potential new generation sites and required transmission connections.

14. References

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