MarinusLink Consumer Benefits

Project Marinus: Analysis of NEM consumer benefits

8 July 2025

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Executive summary

Contents

Background and key findings

Background and context

- Marinus Link ("Project Marinus") is a proposed interconnector between Tasmania and Victoria being developed by Marinus Link, which is jointly owned by the Commonwealth, Victorian and Tasmanian governments.
- It is proposed to be composed of either one or two High Voltage Direct Current ("HVDC") links with capacities of 750 MW each. For the purposes of modelling, the first stage is targeted to be in operation in calendar year 2030 with the second stage assumed to be in operation by the end of calendar year 2032.
- It would be the second interconnector (after Basslink) developed between Tasmania and Victoria.
- Parallel to the introduction of Project Marinus, Tasmania is expected to develop a combination of dispatchable and variable renewable energy ("VRE") generation capacity. This includes the development of new pumped hydro storage and upgrades to existing hydro capacity (jointly the 'Battery of the Nation') and high-capacity factor wind.
- FTI Consulting ("FTI") has been engaged by Marinus Link to assess the benefits of Project Marinus for consumers in Australia's National Electricity Market ("NEM") resulting from expected changes in wholesale electricity prices and interconnector residues, relative to the costs of the project.
- This report presents our findings and is an update to previous iterations our work for TasNetworks and Marinus Link across 2020-2024, which also assessed the benefits of Project Marinus to consumers in the NEM.[1] This iteration is updated to align with the latest assumptions from AEMO in its Draft 2025 IASR. [2]
- AEMO's 2024 Integrated System Plan ("ISP") continues to identify both stages of Project Marinus as a single actionable project.[3]

Key findings

Project Marinus is expected to generate up to $35bn of consumer benefits from lower wholesale electricity prices across the NEM, significantly exceeding the costs of construction[4]

- From 2031 to 2050, Project Marinus and the additional Tasmanian generation capacity it facilitates are expected to deliver **$26bn to $35bn** in consumer benefits (for two Marinus Link cables) across the NEM in net present value terms [5], before taking into account the costs of construction and operation and changes in interconnector residues.[6] For one Marinus Link cable, consumer benefits are estimated to be **$16bn to $23bn**.
- The expected reduction in wholesale prices is driven by **increased access to high-quality wind resources in Tasmania,** as well as to the existing Tasmanian hydroelectric fleet and high-quality new entrant pumped hydro energy storage**.** The electricity generated by this capacity is expected to be exported to the NEM, leading to **reduced dispatch of gas generation and, consequently, lower wholesale electricity prices.**
- This compares to the expected costs of Project Marinus across the same period of **$3.0bn** for one cable **and $4.3bn** for two cables in present value terms, including associated costs of the North-West Transmission Developments ("NWTD") Project.[7]

These benefits arise from expected reductions in wholesale electricity prices that consumers across the states in NEM should see in their energy bills[8]

- For two cables, average wholesale electricity prices are estimated to fall by **$25 per MWh for Tasmania** and **$28 per MWh for Victoria.** For one cable, the fall in electricity prices is expected to be **$15 per MWh for Tasmania** and **$17 per MWh in Victoria.**
- The effect of the reduction in wholesale electricity prices is expected to equate to an annual **$183** reduction in energy bills in Tasmania for two cables. This falls to **$113** for one cable. For Victorian consumers, this is expected to be $**112** for two cables and **$68** for one cable.
- Consumers in other states in the NEM are also expected to see reductions to their bills.

Our assessment indicates Project Marinus can be expected to generate net benefits of up to $31bn for consumers in the NEM

- We estimate the **net impact** on NEM consumers by also accounting for the impact on interconnector residues[9] and costs of Project Marinus in net present value terms. We estimate the net benefits to be **$22bn to $31bn** for two cables and **$13bn to $20bn** for one cable.

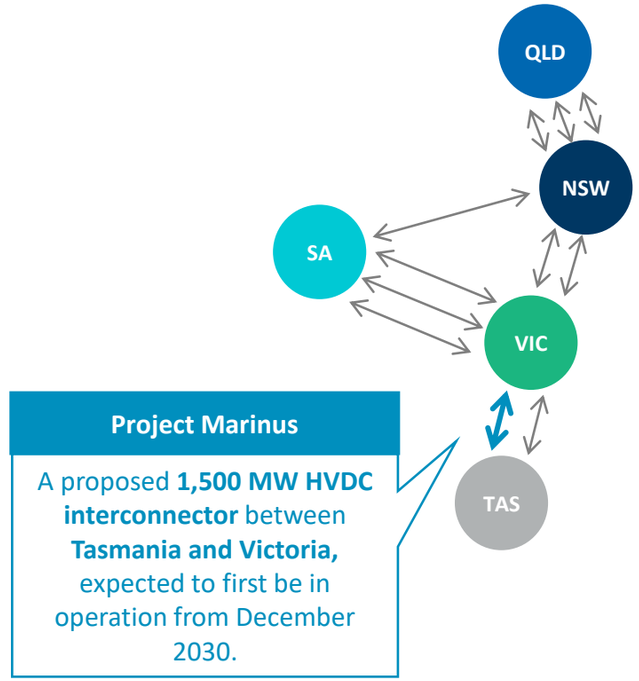
(1) FTI Consulting, *Assessing the benefits of Project Marinus – Final Report, August 2020, Project Marinus: Analysis of NEM consumer benefits, December 2023 & November 2024.* (2) AEMO, *Draft 2025 Inputs, Assumptions and Scenarios Report December 2024* (link) (3) AEMO, *2024 Integrated System Plan – Appendix 6. Cost Benefit Analysis* (link), page 64. (4) Range reflects our assessment across different scenarios. (5) With costs and benefits discounted at a 7% discount rate. (6) See page 17 for an explanation of interconnector residues. (7) NWTD is being undertaken by TasNetworks to upgrade transmission network infrastructure in Tasmania (link). See page 17 for more details on Project Marinus costs. (8) Average load-weighted prices across modelled period of 2031-50. (9) All reported effects on wholesale prices and energy bills reflect a simple average between scenarios that we have modelled.

Background and context

Background and context

About Marinus Link

- Marinus Link ("Project Marinus") is a proposed 1,500 MW High Voltage Direct Current ("HVDC") interconnector between Tasmania and Victoria, composed of two cables of 750 MW each. It would be the second interconnector (after Basslink) developed between Tasmania and Victoria.
- The Australian Energy Market Operator's ("AEMO") 2024 Integrated System Plan ("ISP") continues to identify both stages of Project Marinus as a single actionable project.[1]
- For the purposes of modelling, the first stage is targeted to be in operation in calendar year 2030 with the second stage assumed to be in operation in 2032. The timing for operation of the second stage is under review and continuing to be informed by AEMO's 2024 ISP and subsequent ISPs.
- AEMO expects that Project Marinus will provide greater access to Tasmania's dispatchable and variable renewable energy ("VRE") generation capacity, providing resource diversity and reducing the need for additional capacity on the mainland.[2] Specifically, this includes the development of new pumped hydro storage and upgrades to existing hydro capacity (together known as the 'Battery of the Nation') and high capacity factor wind.[3]



Context of this report

- FTI Consulting ("FTI") has been engaged by Marinus Link to produce an updated assessment of the benefits of Project Marinus to consumers in the NEM.
- FTI has previously carried out analysis of Project Marinus from 2020-2024. Over time, changes have occurred in the NEM which have highlighted the need to refresh the analysis of the benefits of Project Marinus on NEM consumers, including:
  - Forecasts of future electricity demand.[4]
  - Changes in expectations around the scale and the role of hydrogen in the NEM.[5]
  - Evolving expectations around the build costs of various types of generation and storage assets.[6]
  - Expectations around fuel costs (including both gas and coal).[7]
  - The estimated costs of Project Marinus and the timing of when each of the two stages are expected to become operational.[8]
- In this report, we therefore update our previous analysis to take account of the latest forecasts and information used by AEMO, namely within AEMO's Draft 2025 Inputs, Assumptions and Scenarios Report ("IASR") and Electricity Statement of Opportunities ("ESOO").
- The report is intended to complement existing analysis on Project Marinus, such as FTI's previous work from 2020-2024 and any existing or updated RIT-T analysis. It presents a consumer-focused welfare analysis, focusing on the benefits of Project Marinus in terms of its impact on wholesale electricity prices across the NEM.

(1) AEMO, *2024 Integrated System Plan – Appendix 6. Cost Benefit Analysis* (link), page 64. (2) AEMO, *2024 Integrated System Plan – Appendix 5*, June 2022 (link), page 36. (3) For example, AEMO identify wind opportunities of over 3.2 GW. AEMO, *2024 Integrated System Plan*, June 2024 (link), page 54. (4) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 2*, February 2025 (link), page 52. (5) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 2*, February 2025 (link), page 72. (6) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 2*, February 2025 (link), page 130 (7) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 2*, February 2025 (link), page 144 (8) Source: Marinus Link

The NEM is undergoing a rapid transition away from thermal generation capacity towards renewable power sources including wind and solar

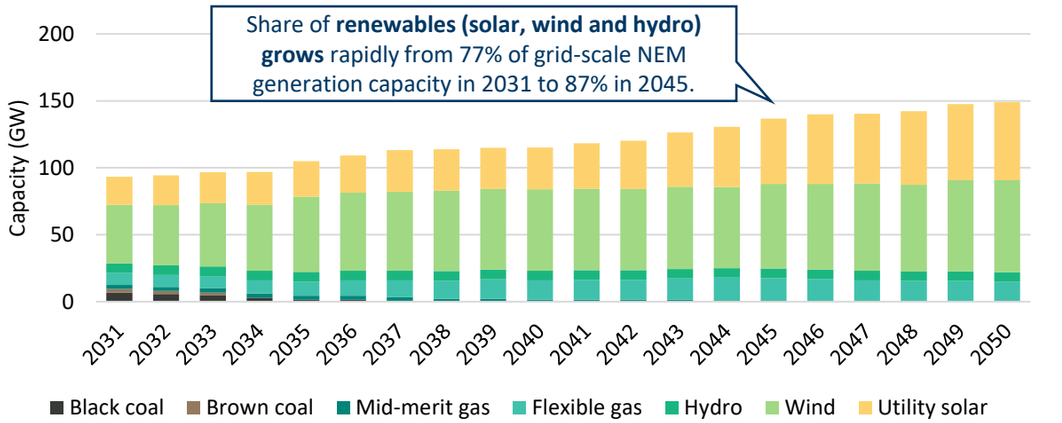
The NEM is transitioning rapidly to renewables and since 2020, the move away from coal has accelerated

- The **NEM is currently undergoing a period of rapid transition**, driven by government policy and net zero ambitions. Examples of such policies include:
  - Tasmanian Renewable Energy Target ("TRET"): Increase Tasmania's renewable energy output to 200% of 2020's renewable energy figures by 2040.[1]
  - Victorian Renewable Energy Target ("VRET"): The Victorian Government has announced an intention to legislate updated targets for the proportion of electricity generated by renewable energy to 65% by 2030 and 95% by 2035.[2]
  - Capacity Investment Scheme ("CIS"): The Federal Government has developed a national framework to target 9 GW of clean dispatch capacity and 23 GW of variable capacity nationally.[3]
- Both the way electricity is generated and how it is consumed is evolving:
  - **Generation is shifting away from thermal generation, most notably coal, towards renewables** sources such as wind, solar and hydro.
  - **Coal generation capacity is projected to be rapidly** phased out. AEMO's modelled outcomes suggest that by 2031, 56% of the NEM's total coal capacity in 2025[4] will be retired.
  - Meanwhile, AEMO also projects **wind and solar generation capacity to grow** from 22.5 GW in 2025, to 83 GW by 2040 and 118 GW by 2050.[5]
  - **Net demand for electricity from the grid is also developing**, as technologies including residential solar, batteries, and electric vehicles grow in prevalence and impact the flexibility and profile of consumers' net demand.
- AEMO notes that Project Marinus is considered "nationally strategic" and listed Project Marinus as an **actionable project** in the 2022 and 2024 ISPs.[6]

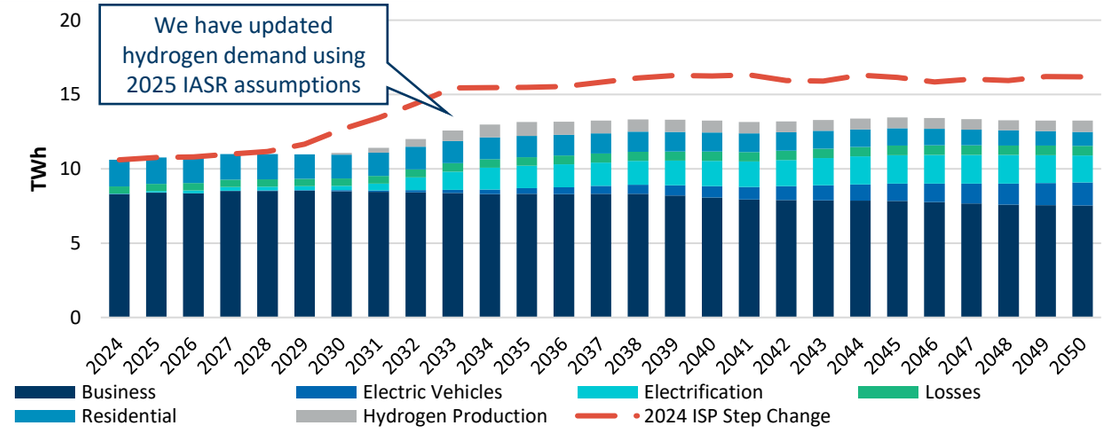
Within Tasmania, expectations for hydrogen consumption has decreased significantly in recent assumptions

- The Step Change scenario set out in AEMO's 2025 IASR has not yet provided a full demand forecast, but hydrogen production expectations have fallen significantly from the 2024 ISP.[7]
  - By 2031 there is forecast to be **2 TWh less demand from hydrogen** per year compared to the 2024 ISP. This difference grows **to 3 TWh** by 2050.
- Such a significant change in the expectations regarding hydrogen in the NEM is likely to have material impacts on expected outcomes, as reflected in our modelling (see page 11 and 12 for more detail).

NEM Installed Capacity, 2024 ISP Step change scenario[8,9]



Tasmania Electricity Consumption, 2025 IASR Step Change scenario[10]



(1) Department of State Growth, Tasmanian Government, *Tasmanian Renewable Energy Action Plan,* December 2020 (link) (2) Department of Energy, Environment and Climate Action, *Victorian renewable energy and storage targets*, February 2023 (link) (3) Department of Climate Change, Energy, the Environment and Water, *Capacity Investment Scheme* (link) (4) AEMO, *2024 Integrated System Plan*, June 2024 (link) (5) AEMO, *2024 Integrated System Plan*, June 2024 (link) (6) AEMO, *2024 Integrated System Plan*, June 2024 (link), pages 14, 57. (7) AEMO, Draft Stage 1 *2025 Inputs and Assumptions Workbook*, December 2024 (link) (8) AEMO, *2024 Integrated System Plan*, June 2024 (link) (9) Throughout the report, all dates in charts show financial year ending unless otherwise stated (10) 2024 ISP Step Change demand assumption with 2025 IASR hydrogen demand.

Modelling approach

We assess the benefits of Project Marinus by forecasting and comparing wholesale electricity prices with and without the Marinus cables in the NEM's electricity network

Inputs

Draft IASR (2025)
We have updated inputs and assumptions relevant to MarinusLink in the Step Change and Progressive Change scenarios, to resemble the unreleased AEMO ISP 2026 model.

Capacity Mix

Using our in-house power market model, calibrated using the Draft 2025 IASR, **we estimate the baseline capacity mix for each region** needed to meet capacity requirements while minimising costs.

Dispatch and wholesale electricity prices

We estimate the generation profile and wholesale electricity prices on an hourly basis **using the baseline capacity mix as a starting point.**[2]

Price output

We calculate the impact on wholesale electricity prices as **the difference between the prices observed** in a version of our model without Project Marinus and a version with **either one or two Marinus cables** present in the NEM.

The changes in wholesale price are used to calculate savings for **residential and small business** customers

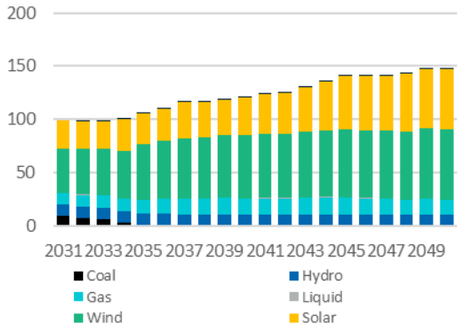
Benefits calculation

We assess overall consumer benefit based on modelled change in **prices and expected consumption profiles**, combined with changes in **network costs**[3] and **Project Marinus' own costs**

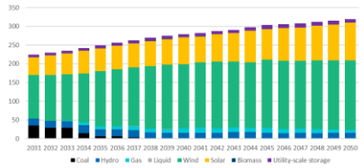
Settlement (IC) residues are also converted into **per customer savings**

Draft 2025 Inputs, Assumptions and Scenarios report[1]

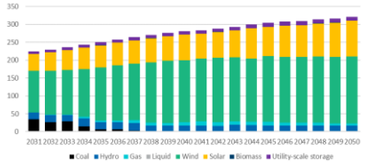
NEM Installed Capacity (GW)



NEM Total Generation (TWh)

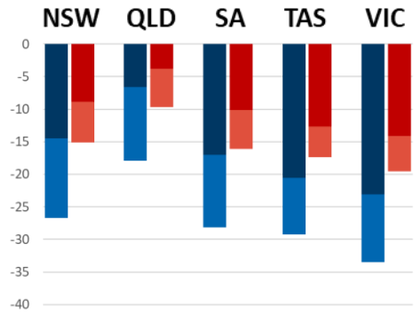


Without Project Marinus

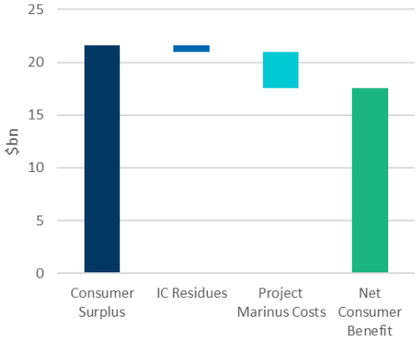


With Project Marinus

Average reduction in wholesale electricity prices ($/MWh)



Consumer benefits calculation ($NPV bn)



(1) Final 2025 IASR expected to published in July 2025, following the completion of these works. (2) See pages 13 & 14 for more details. (3) We assume that any incremental changes in the rents earned by other interconnectors are passed through to consumer bills through network charges.

The Draft IASR 2025 updates a wide range of input assumptions. Of these, we expect the significant reduction in hydrogen demand across the NEM to have the greatest effect

Change in hydrogen demand likely to have the greatest impact on our results

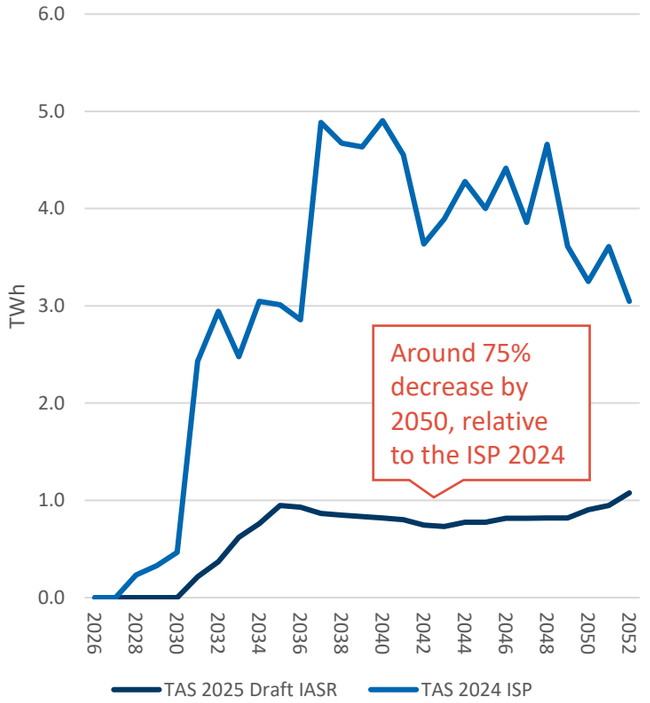
		Input assumption	Change in FTI inputs between IASR 2025 and ISP 2024, Step Change Scenario	Directional impact on Marinus benefits
1	Demand	**Hydrogen demand**	▪ Tasmania hydrogen electrolyser demand by 2050 is more than 75% lower under the IASR 2025, relative to the ISP 2024. ▪ Hydrogen electrolyser demand in the rest of the NEM by 2050 is almost 75% lower under the IASR 2025, relative to the ISP 2024	↑ Reduced demand in TAS allows additional exports of low-cost renewable power to the rest of the NEM
		Other sources of demand	Unchanged from ISP 2024 assumptions – IASR 2025 data does not include complete updated demand information	*N/A*
2	Fuel prices	**Coal prices**	Coal prices across the NEM increased between IASR 2025 and ISP 2024	↑ Greater price impact from Marinus allowing low marginal cost renewable generation from TAS to displace more costly thermal generation in the rest of the NEM
		Gas prices	Gas prices marginally higher between IASR 2025 and ISP 2024	↑
3	Renewable generation and storage capacity	**Wind and solar build costs**	Wind build costs have increased in the short- to medium-term while solar build costs are unchanged	↑↓ Mixed effects on Marinus benefits due to countervailing effects
		Battery build costs	Near-term decrease in battery build costs	↓ Greater storage capacity mitigates price benefits of interconnectors
4	Thermal gen. capacity	**Gas turbine build costs**	Gas turbine build costs are higher	↑↓ Mixed effects on Marinus benefits due to countervailing effects
5	Others	**Financial parameters, Basslink transfer capacity**	Other minor changes to assumed costs of capital of generator types and Basslink maximum transfer capacities	↑↓ Mixed effects on Marinus benefits, but expected to be relatively minor

Under the Draft IASR 2025, demand from hydrogen is forecast to decrease significantly in the mainland NEM regions, and decrease by nearly 75% in Tasmania

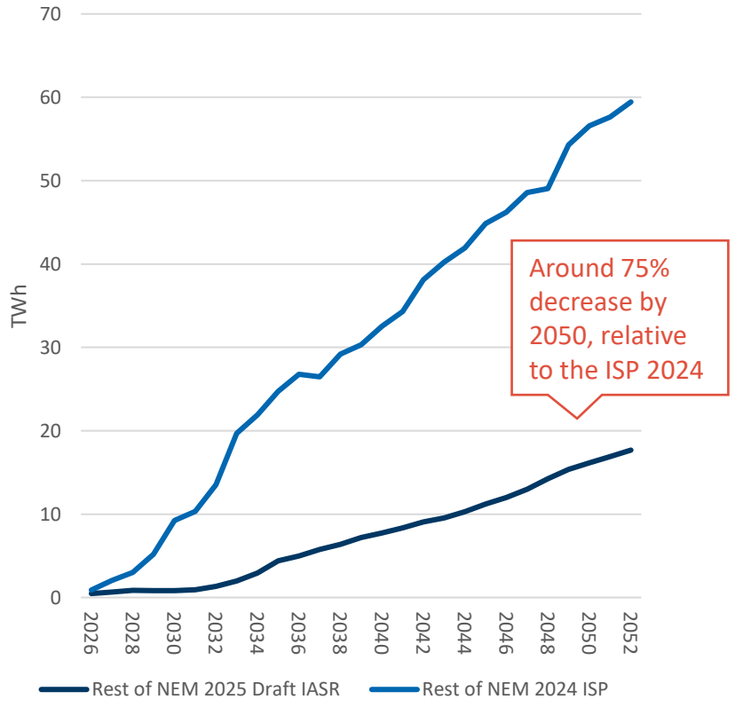
Summary

- Additional electricity demand from hydrogen electrolysers is assumed to be materially smaller in the 2025 Draft IASR across all regions.
- Most domestic hydrogen consumption is for on-road transport – off-road transport (aviation, shipping, etc.) and direct supply to industry represent smaller proportions.
- Less hydrogen is expected to be used in residential and commercial sectors, relative to ISP 2024.
- There is also minimal to no expected production of hydrogen for export purposes in the scenarios that we have modelled.
- This will restrict the additional renewable generation that is required to be built to serve decarbonising industries.
- A reduction in electricity demand from hydrogen electrolysers across the NEM is expected to increase the benefits from Project Marinus. This is because interconnectors (like Marinus) serve as an alternative source of flexibility.

On-grid electricity demand from hydrogen electrolysers, Step Change scenario, TAS, TWh



On-grid electricity demand from hydrogen electrolysers, Step Change scenario, rest of NEM, TWh



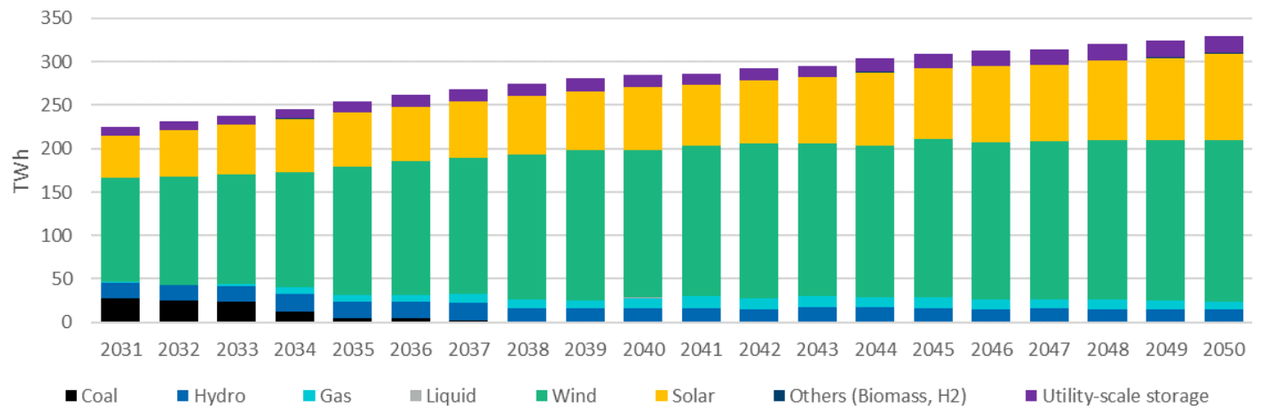
We estimate a baseline capacity mix for the AEMO Step Change scenario, adjusted for the absence of Project Marinus

Baseline NEM generation mix, Step Change Scenario

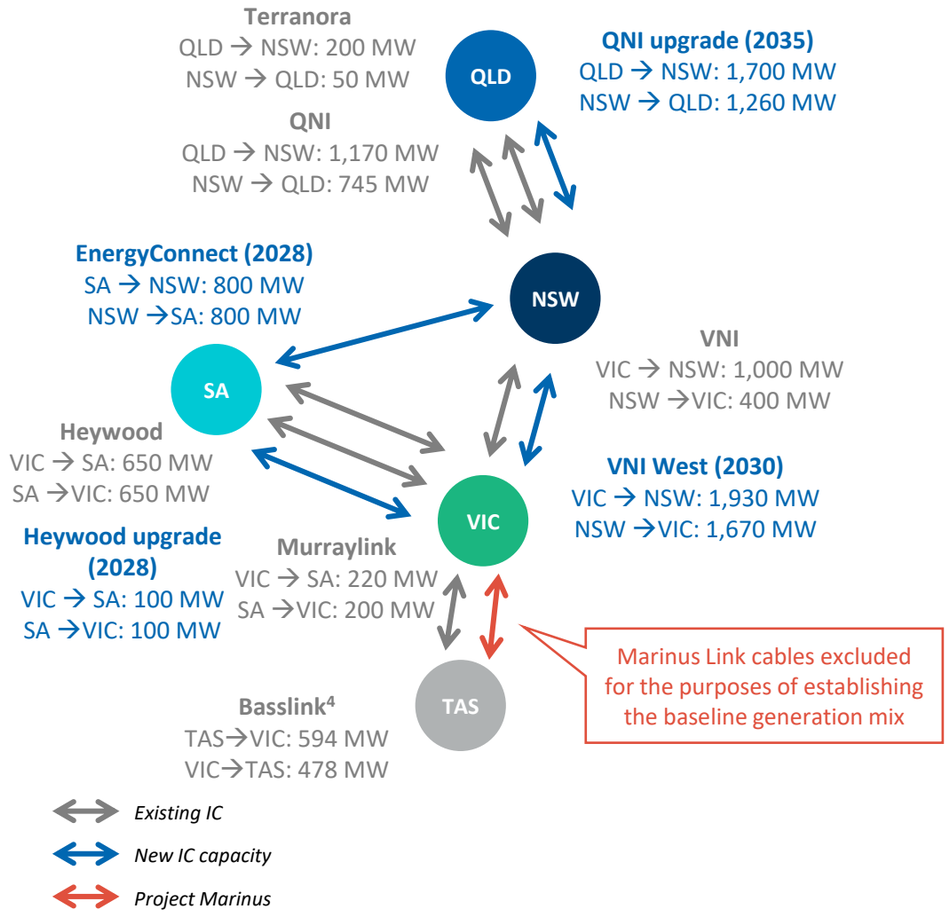
We establish a **baseline generation mix** (see graph below), that reflects the generation profile that we expect to be present in the NEM **in the absence of Project Marinus** (Step Change scenario shown).

To determine this baseline, we calibrate our in-house power market model of the NEM with AEMO's 2025 IASR assumptions, assuming that:

- price regions are connected according to the current and planned system of interconnectors (as shown on the right);
- this topology reflects all committed and anticipated transmission projects in the 2025 IASR, **but with Project Marinus excluded;**
- updating for the 2025 IASR to **also exclude planned Project Marinus-dependent generation investments** (see page 15 for more detail); and
- coal-fired generators are retired in line with AEMO's latest assumptions.



NEM inter-state interconnector capacity[1, 2, 3]



(1) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 1*, Dec 2024 (link), pages 140-148 (2) Figures displayed for IC capacity are for Step Change, Winter Reference. (3) In line with AEMO, our model of the NEM also reflects a sub-regional topology in the states of South Australia, New South Wales and Queensland which is not shown in detail in this diagram. (4) Basslink flows in both directions are limited by a static daily energy throughput limit, in-line with the Draft 2025 IASR.

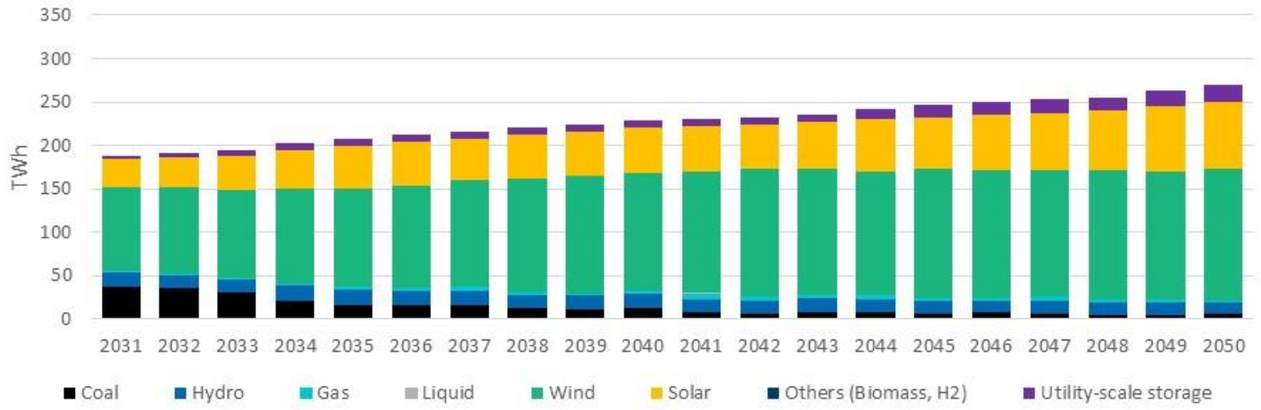
We estimate a different baseline capacity mix for the AEMO Progressive Change scenario to reflect differences in the assumed state of the NEM compared to the Step Change scenario

Baseline NEM generation mix, Progressive Change Scenario

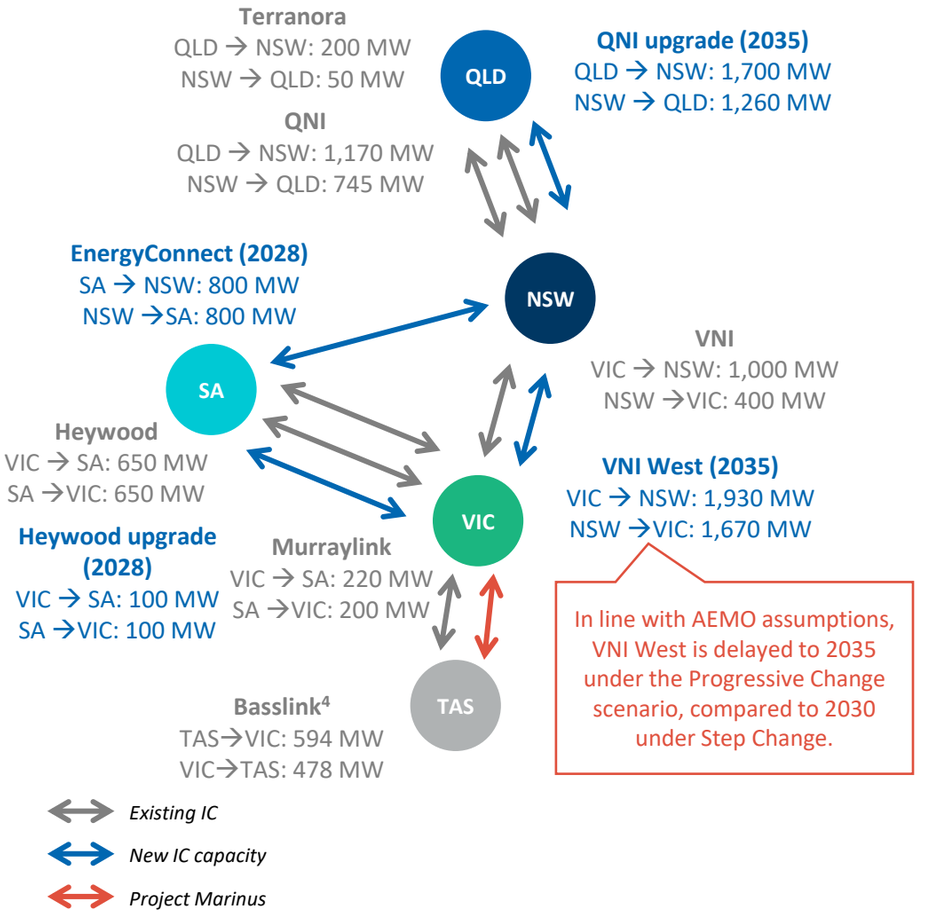
We establish a separate **baseline generation mix** (see graph below), for our modelling of the Progressive Change scenario. Once again, this reflects the generation profile that we expect to be present in the NEM **in the absence of Project Marinus**.

To determine this baseline, we calibrate our in-house power market model of the NEM with AEMO's 2025 IASR assumptions, assuming that:

- price regions are connected according to the current and planned system of interconnectors (as shown on the right);
- this topology reflects all committed and anticipated transmission projects in the 2025 IASR, **but with Project Marinus excluded;**
- updating for the 2025 IASR to **also exclude planned Project Marinus-dependent generation investments** (see page 15 for more detail); and
- coal-fired generators are retired in line with AEMO's latest assumptions.



NEM inter-state interconnector capacity[1, 2, 3]



(1) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 1*, Dec 2024 (link), pages 140-148 (2) Figures displayed for IC capacity are for Progressive Change, Winter Reference. (3) In line with AEMO, our model of the NEM also reflects a sub-regional topology in the states of South Australia, New South Wales and Queensland which is not shown in detail in this diagram. (4) Basslink flows in both directions are limited by a static daily energy throughput limit, in-line with the Draft 2025 IASR.

We add capacity to Tasmania in our modelling runs where Marinus Link is in operation to assess the impact of the renewables that Project Marinus is expected to support

Tasmania Hydro Upgrades

Total Hydro capacity = 390 MW

- West Coast (100 MW)
- Tarraleah (150 MW)
- Gordon (90 MW)
- Non-scheduled (50 MW)

- According to AEMO, Project Marinus is expected to unlock investments to redevelop or upgrade capacity of existing Hydro assets in Tasmania.[1]
- These investments are expected to result in a total of **390 MW** of additional Tasmanian Hydro capacity.
- We assume that these Hydro upgrades are made with **either one or two** Marinus Links operational.

Two Marinus Link Cables

Hydro upgrades (390 MW) | Wind (600 MW) | Pumped Hydro (750 MW)

- With two Marinus Link cables, we assume 600 MW of additional wind capacity in Tasmania by 2040, consistent with our previous work.[2]
- This level of additional wind capacity results in Tasmania largely meeting its renewable energy target (TRET) in our modelling.
  - We estimate **20.3 TWh** of renewable generation in 2040. [3]
  - The shortfall compared to the TRET is, in part, driven by the significant reduction in hydrogen demand in Tasmania.

One Marinus Link Cable

Hydro upgrades (390 MW) | Wind (300 MW)

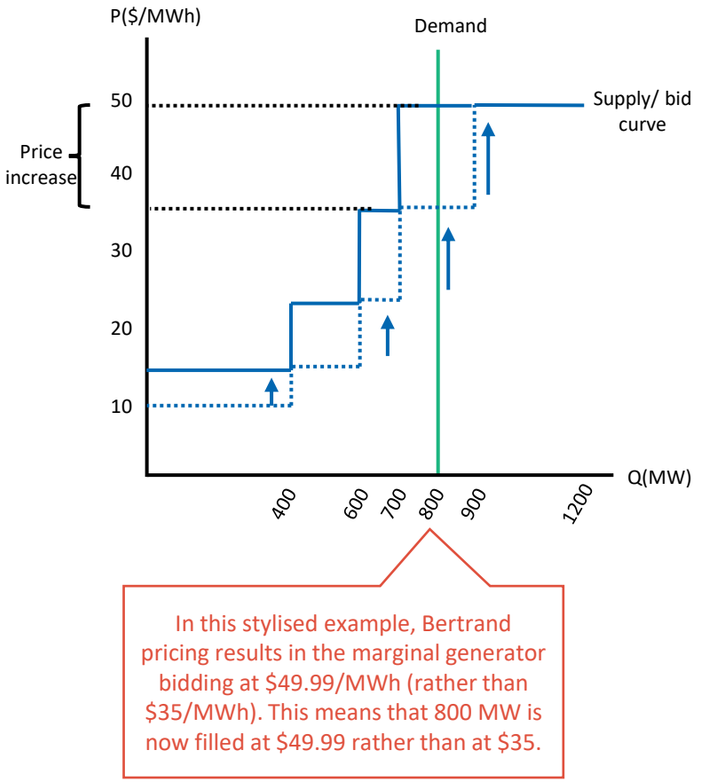
- With only one Marinus Link cable, we assume that additional Tasmanian wind capacity build is 300 MW – half of the capacity built with two cables.
- In addition, we assume that 750 MW of pumped hydro storage under the Battery of the Nation project is not constructed due to the reduced export capacity provided by Project Marinus compared to with two Marinus Link cables.

(1) See Draft 2025 Stage 1 IASR Workbook, notes on Flow Path Augmentation Options sheet: *"For modelling runs where MarinusLink is built, certain generator capacities are adjusted upwards in Tasmania: 100 MW across the west coast, 150 MW for Tarraleah and 90 MW capacity for Gordon."*(2) Relative to AEMO's 2022 ISP Step Change 'counterfactual'. For more information see AEMO, *2024 Integrated System Plan*, June 2024 (link) – *Part B.* (3) TRET aims for generation of 21TWh of renewables by 2040, including both grid-scale and rooftop PV - see Draft 2025 Stage 1 IASR Workbook, Energy Policy Targets sheet.

We use Bertrand pricing and other simplifying assumptions to compute prevailing wholesale electricity prices

Generator bidding behaviour

- For the purposes of our modelling, we assume Bertrand pricing as an approximation for generating bidding behaviour, in line with our previous analyses.
- Bertrand pricing assumes that, over time, all generators have developed an understanding of their position of the merit order and therefore increase their bid to marginally below the marginal cost of the next cheapest generator (rather than bidding at their own marginal cost, as is often assumed).
- Bertrand pricing therefore ensures that the dispatch respects the merit order of generator costs (thereby minimising system costs), while introducing an element of rational profit maximising behaviour from market participants.
- An alternative assumption could be that generators bid according to some measure of their own costs, such as Short Run Marginal Cost ("SRMC"), Long Run Marginal Cost ("LRMC") or other variants.
- Previous FTI analysis has indicated that, while no one assumption fully captures the bidding behaviour of market participants, Bertrand pricing resulted in a closer approximation of historical prices compared to SRMC or LRMC-based approaches.
- Renewables are assumed to not bid in-line with Bertrand Pricing. This is consistent with renewables typically operating under power purchase agreements or subsidy schemes and thus not following such bidding behaviour.

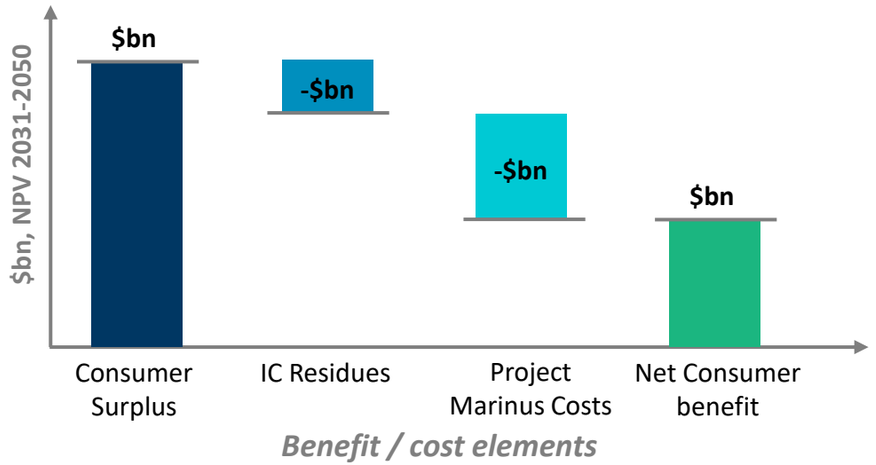


Tasmanian Pricing: Regulatory Instrument

- The prices that consumers pay for electricity in Tasmania are governed by long-term contractual arrangements between retailers and Hydro Tasmania. The methodology for calculating prices is derived from a 'rules-based' methodology outlined in the Wholesale Contract Regulatory Instrument.
- As a result of these arrangements, the price that consumers in Tasmania pay for electricity (the 'Tasmania contract price') would not be accurately reflected by the Tasmania spot price calculated in our power market model (either with or without the assumptions set out to the left).
- Instead, we make a simplifying assumption to estimate the Tasmania contract price:
  - We assume that the Tasmania contract price is equal to the Vic spot price as calculated in our power market model.
  - This is in line with the assumption made in our 2020 modelling, where, based on discussions with both Hydro Tasmania and the Tasmanian Government, it was agreed that the Victoria spot price would be a useful proxy for the Tasmania contract price. We have assumed that this assumption is still reasonable up to 2050.
  - No further adjustments are applied to account for other relevant elements of the Regulatory Instrument that may affect prices. Analysis of data from our 2020 work confirmed that the impact of such adjustments are likely to be immaterial or non-systematic in nature.

In line with the methodology used in our previous reports, our assessment of the net benefits of Project Marinus uses a consumer-focused approach

Cost-benefit analysis: illustration of the methodology



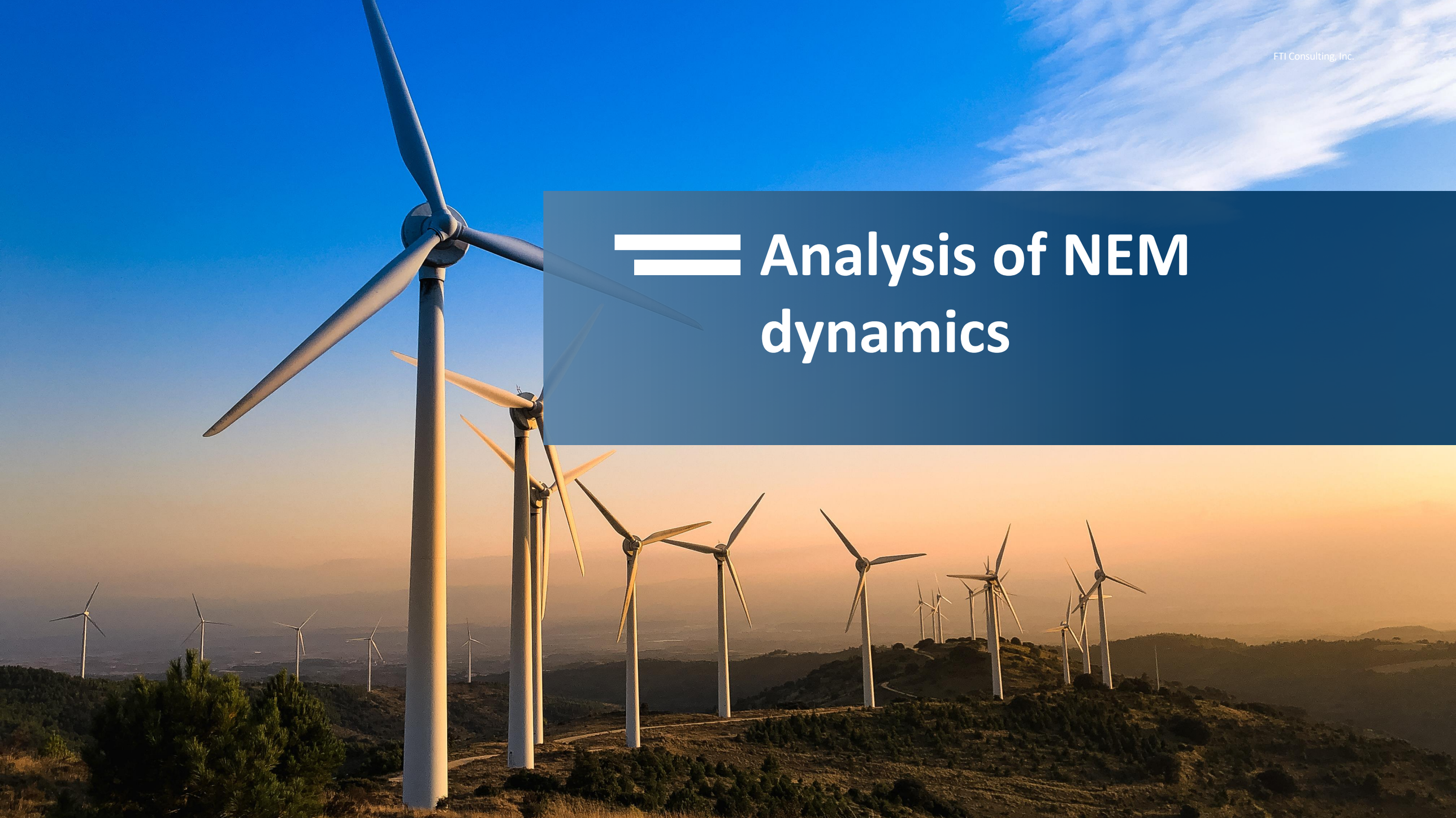
A pure economic approach calls for **total welfare analysis**…
…however, in this analysis we have only considered a more **consumer-focused welfare analysis**.

Specifically, we find the **Net Consumer benefit** of Project Marinus, which (unlike the **Net Societal benefit**) does not consider the impact on producer surplus arising from changes in wholesale electricity prices.

The change in consumer surplus considers the quantum of benefit accruing to consumers from lower wholesale electricity prices. This is then netted off against the change in interconnector residues ("IC residues")[1] and Project Marinus costs, which we assume Transmission Network Service Providers ("TNSPs") pass on to consumers through network charges.

- Our assessment of net consumer benefits follows the same framework as our previous work with updated parameters and assumptions in-line with AEMO's latest methodologies where appropriate.
- We model the period **2031 to 2050** and use a single discount rate of **7.0%** (real, consistent with AEMO's Draft 2025 IASR Central assumption)[2] to calculate the present value of costs and benefits in **2025**.
- IC residues represent the net impact on residues earned by interconnectors. We assume that these residues are allocated to different states on the basis of interconnector flows.[3] They are included because the introduction of Project Marinus is expected to change wholesale prices and flows between each region, which in turn impact the amount of interconnector costs that are recovered from consumers. Estimated losses are an output of the modelling and are based on the loss equations included within the ISP model.[4]
- Project Marinus costs are based on indicative estimates provided by Marinus Link and are current as of **July 2025.** Forecast capex and opex are annualised across our modelling period (2031 to 2050) for both Marinus Link and NWTD Project. For Marinus Link, we assume a 40-year project life.
- Costs incurred and benefits accrued after 2050 are excluded from the analysis.[5]

(1) IC residues refers to the rents earned by interconnectors across the NEM transmission network. (2) AEMO, *2025 Draft Stage 2 Inputs and Assumptions Workbook,* February 2025 (link) (3) In line with methodology set out by AEMO for the Settlements Residue Auctions (link). (4) In our 2020 report, our calculation of IC residues excluded Basslink, which was treated as an unregulated interconnector that did not pass residues back to consumers. We assume that Basslink operates as a regulated interconnector over the modelling period and so we now include it within the calculation of IC Residues. (5) In our analysis, we assume that the costs of the additional Tasmanian generation and pumped hydro capacity facilitated by Project Marinus would be recovered through wholesale prices without any need for further subsidies or other funding mechanisms to be implemented.

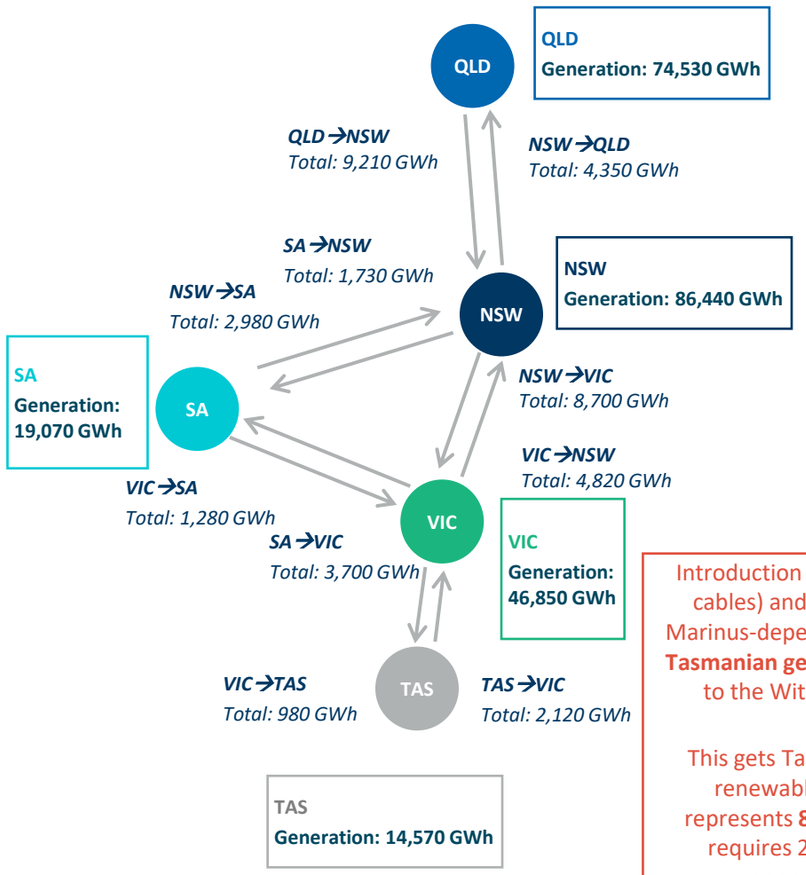


Analysis of NEM dynamics

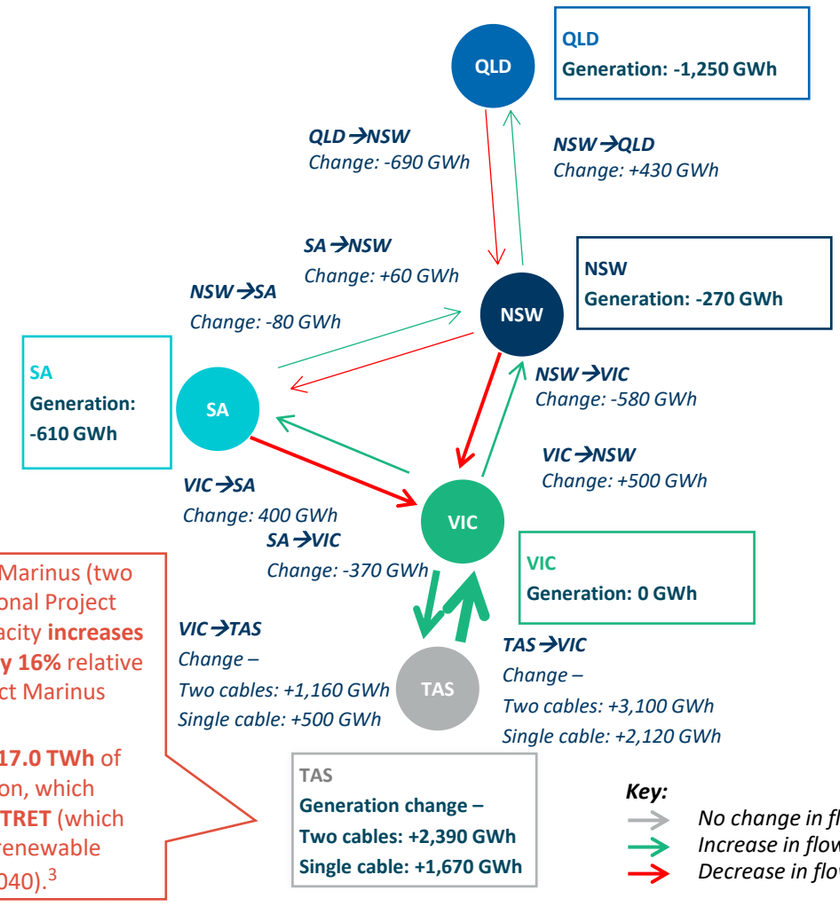
Introducing Project Marinus unlocks large volumes of renewable generation in Tasmania that would otherwise be constrained, which flows to the mainland NEM

- **In the absence of Project Marinus, Basslink**, the sole link between Tasmania and the mainland NEM, **is frequently fully utilised**. Our modelling indicates that Basslink's maximum capacity and daily limit fully constrains exports from Tasmania in 42% of all days modelled[1] from 2031-2050 in the absence of Project Marinus.
- During these periods, **additional Tasmanian capacity, which could help to meet demand on the mainland, is prevented from generating** by this constraint.
- Additionally, in the long run, this constraint on the ability of Tasmanian capacity to generate may potentially **weaken the commercial incentives to invest in new generation capacity in Tasmania**, such as new wind farms or Battery of the Nation. This, in turn, could threaten the ability of Tasmania to meet TRET.
- **Introducing Project Marinus reduces this constraint** which, paired with the Project Marinus-dependent capacity additions, allows large volumes of Tasmanian renewable generation to flow into the mainland NEM. For example, over calendar 2035, we estimate that **Tasmania to Victoria flows increase by 3.1 TWh as a result of a two cable Marinus.**
- In 2035, the Tasmanian renewable generation helps **displace 2.9 TWh** of gas generation.[4]

NEM topology, Without Project Marinus, Step Change, 2035



NEM topology, With Project Marinus, Step Change, 2035[2]



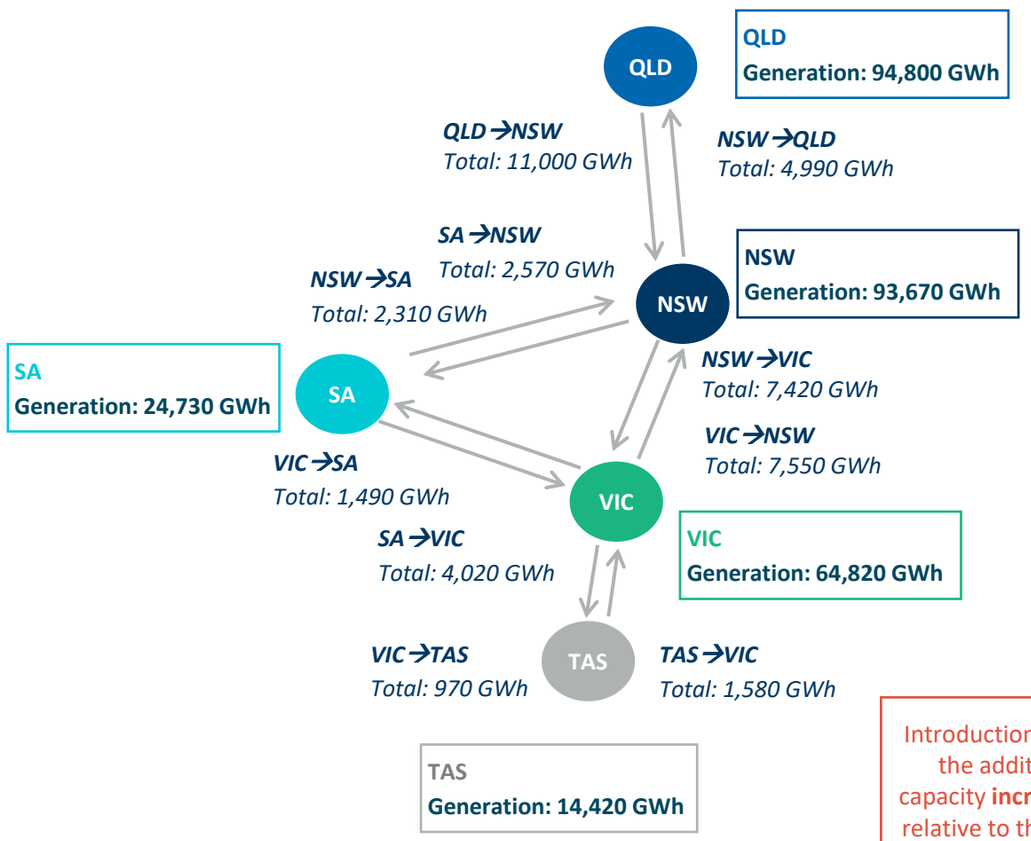
Introduction of Project Marinus (two cables) and the additional Project Marinus-dependent capacity **increases Tasmanian generation by 16%** relative to the Without Project Marinus scenario.

This gets Tasmania to **17.0 TWh** of renewable generation, which represents **81% of the TRET** (which requires 21 TWh of renewable generation by 2040).[3]

(1) We model hourly intervals. (2) All results are for two cables unless otherwise specified. (3) The TRET was announced in 2020 and is a legislated target such that renewables meet 200% of Tasmania's 2022 electricity needs by 2040. This equates to a renewables generation target for Tasmania of 21 TWh in 2040. See *The Draft Tasmanian Renewable Action Plan 2020* (link), page 4. (4) For further detail, see *Change in NEM generation when Project Marinus is introduced* chart on page 25.

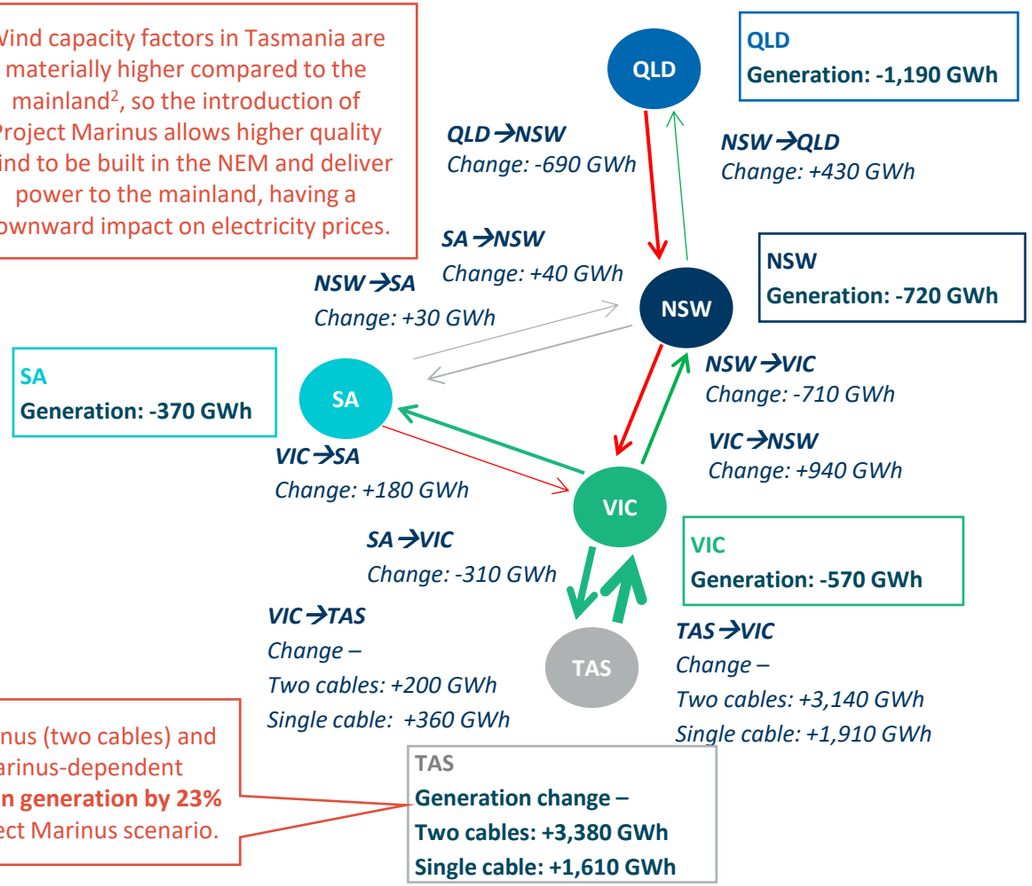
Introducing Project Marinus unlocks large volumes of renewable generation in Tasmania that would otherwise be constrained, which flows to the mainland NEM

NEM topology, Without Project Marinus, Step Change, 2045



NEM topology, With Project Marinus (two cables), Step Change, 2045[1]

Wind capacity factors in Tasmania are materially higher compared to the mainland[2], so the introduction of Project Marinus allows higher quality wind to be built in the NEM and deliver power to the mainland, having a downward impact on electricity prices.



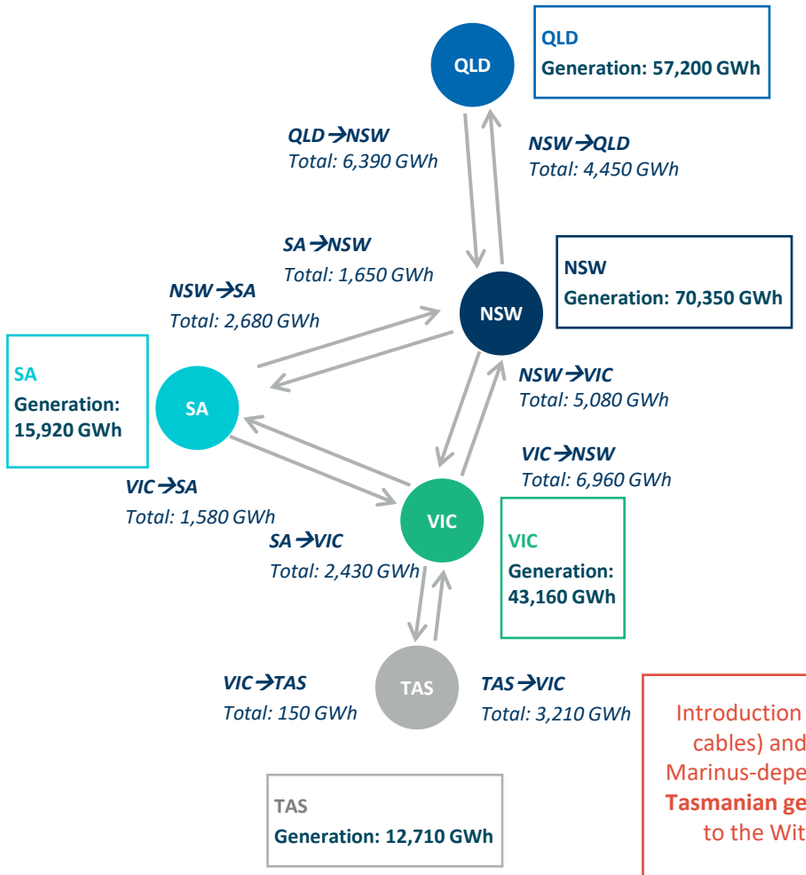
Introduction of Project Marinus (two cables) and the additional Project Marinus-dependent capacity **increases Tasmanian generation by 23%** relative to the Without Project Marinus scenario.

(1) All results are for two cables unless otherwise specified. (2) AEMO, *Draft 2025 Inputs Assumptions and Scenarios Report Stage 2*, February 2025.

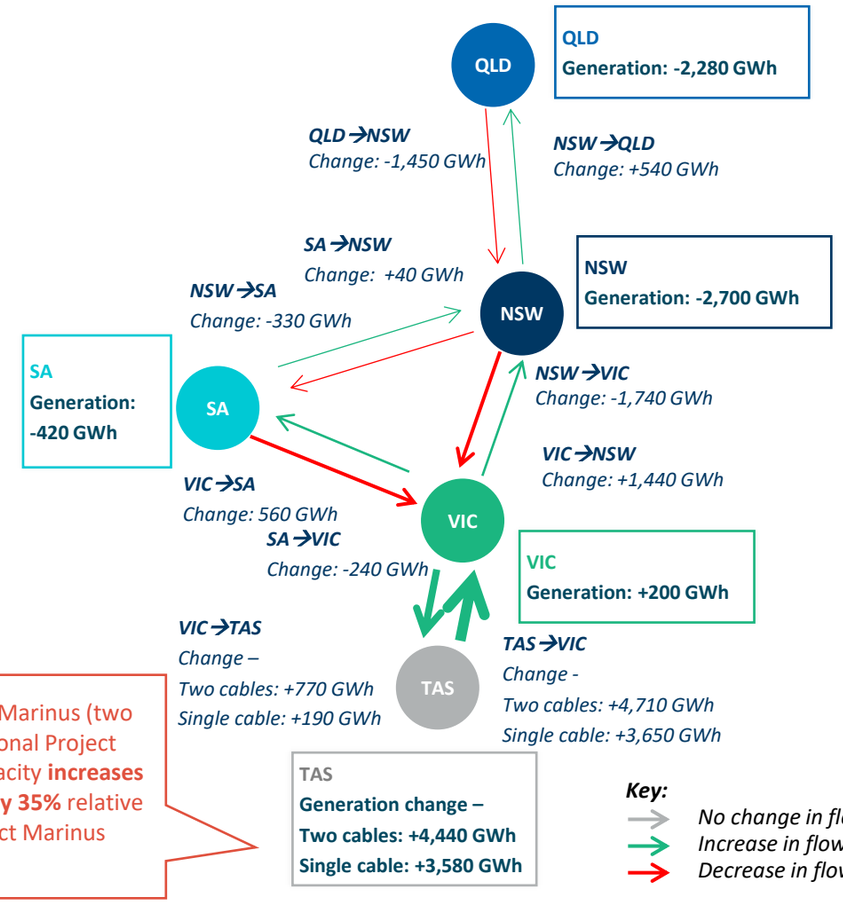
In our modelling of the Progressive Change scenario also, Project Marinus facilitates increased renewable generation in Tasmania and flows to the mainland NEM

- **In the absence of Project Marinus, Basslink**, the sole link between Tasmania and the mainland NEM, **is frequently fully utilised**. Our modelling indicates that Basslink's maximum capacity and daily limit fully constrains exports from Tasmania in 45% of all days modelled[1] from 2031-2050 in the absence of Project Marinus.
- During these periods, **additional Tasmanian capacity, which could help to meet demand on the mainland, is prevented from generating** by this constraint.
- Additionally, in the long run, this constraint on the ability of Tasmanian capacity to generate may potentially **weaken the commercial incentives to invest in new generation capacity in Tasmania**, such as new wind farms or Battery of the Nation. This, in turn, could threaten the ability of Tasmania to meet TRET.
- **Introducing Project Marinus reduces this constraint** which, paired with the Project Marinus-dependent capacity additions, allows large volumes of Tasmanian renewable generation to flow into the mainland NEM. For example, over calendar 2035, we estimate that **Tasmania to Victoria flows increase by 4.7 TWh as a result of a two cable Marinus.**
- In 2035, the Tasmanian renewable generation helps **displace 2.6 TWh** of gas generation.[3]

NEM topology, Without Project Marinus, Progressive Change, 2035



NEM topology, With Project Marinus, Progressive Change, 2035[2]

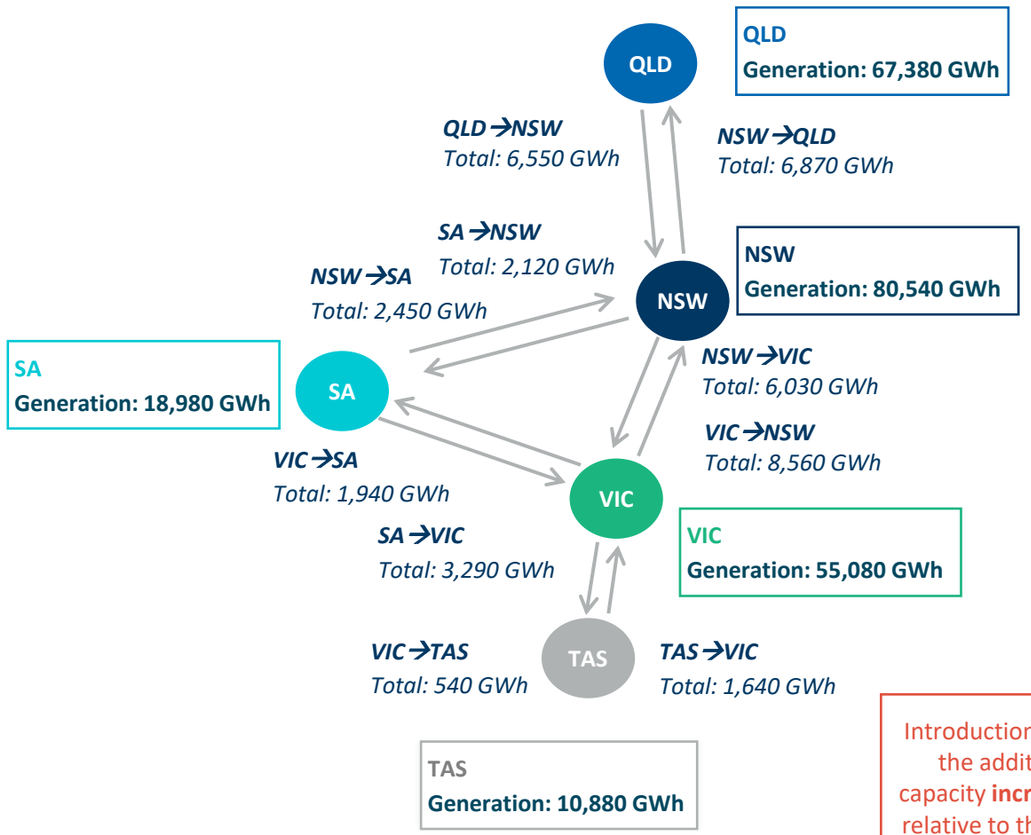


Introduction of Project Marinus (two cables) and the additional Project Marinus-dependent capacity **increases Tasmanian generation by 35%** relative to the Without Project Marinus scenario.

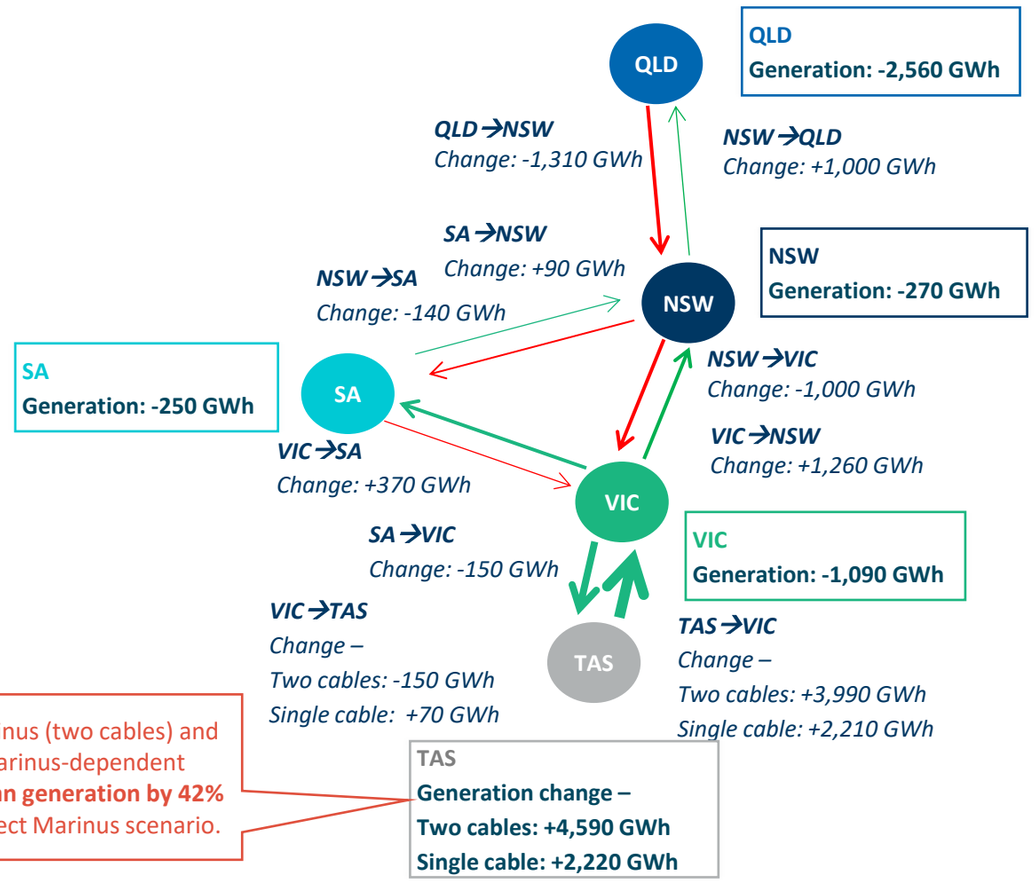
(1) We model hourly intervals. (2) All results are for two cables unless otherwise specified. (3) For further detail, see *Change in NEM generation when Project Marinus is introduced* chart on page 25.

In our modelling of the Progressive Change scenario also, Project Marinus facilitates increased renewable generation in Tasmania and flows to the mainland NEM

NEM topology, Without Project Marinus, Progressive Change, 2045



NEM topology, With Project Marinus (two cables), Progressive Change, 2045[1]

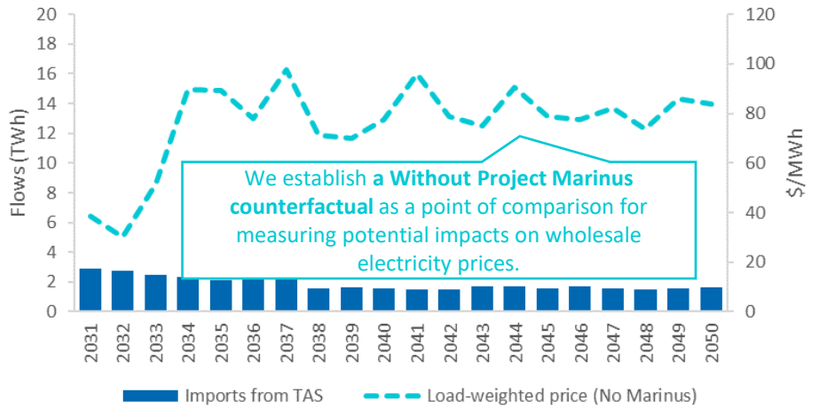


Introduction of Project Marinus (two cables) and the additional Project Marinus-dependent capacity **increases Tasmanian generation by 42%** relative to the Without Project Marinus scenario.

(1) All results are for two cables unless otherwise specified

Project Marinus results in increased flows from Tasmania to Victoria, which aligns with a downward effect on wholesale electricity prices in Victoria

Prices ($/MWh) and Imports from Tasmania to Victoria, Without Project Marinus, Step Change

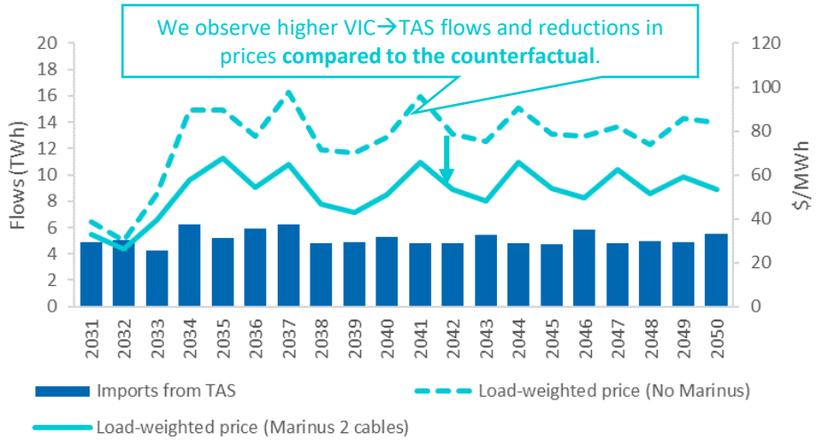


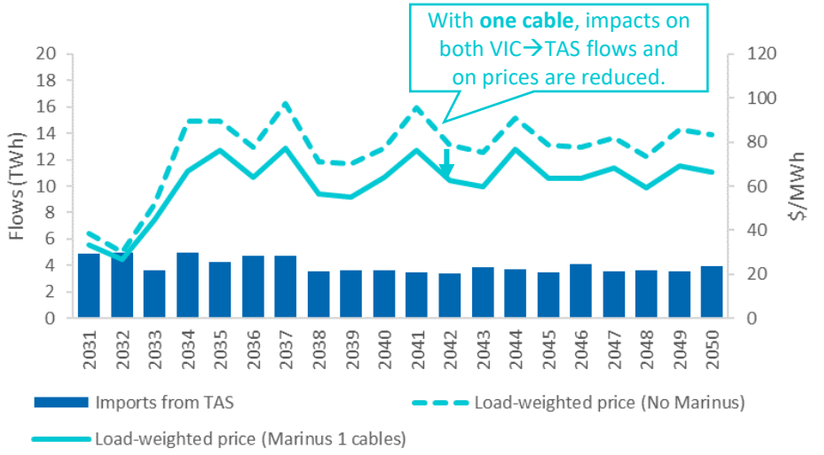
- As mentioned previously, **in the absence of Project Marinus, Basslink** is the sole link between Tasmania and Victoria.
- For Victoria, this means that there is limited capacity to import electricity from Tasmania. Our modelling indicates that **in the absence of Project Marinus**, interconnector flows from Tasmania to Victoria average **1.9 TWh per annum**.
- Over the period 2031 to 2050, our modelling indicates average load-weighted prices in Victoria of **$76/MWh**.
- We note that modelling estimates particularly low prices in the early years of the period (2031-33). [1] These are principally driven by emissions reduction targets (e.g. the 2050 Emissions Budget) and renewable energy policies (such as the extension of QRET to 2035) driving increased renewable generation, while substantial thermal capacity remains in the system.[2]

(1) Much of the generation driving low prices in these years would be receiving government support. (2) Several coal plants continue to operate through the end of FY 2031—such as Bayswater, Gladstone, and Loy Yang B—and others, like Stanwell and Tarong, operate until the end of FY 2032, further contributing to downward pressure on prices during this period.

Prices ($/MWh) and Imports from Tasmania to Victoria, With Project Marinus, Step Change

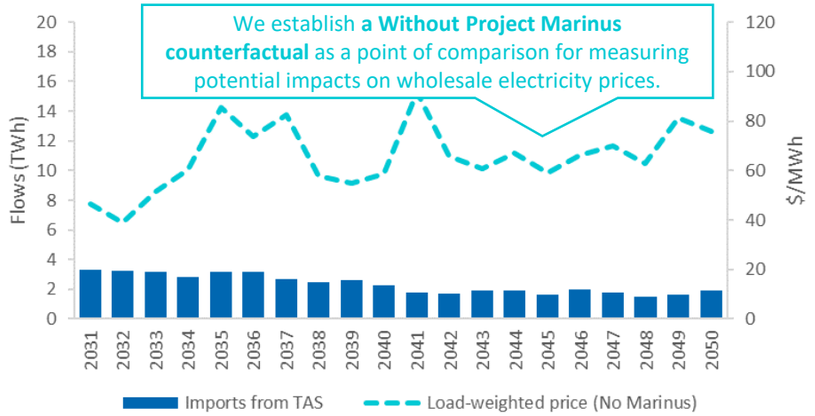
- With the introduction of Project Marinus, the capacity to import electricity from Tasmania to Victoria increases.
- We can observe the effect of this increased capacity in our modelling of the NEM **With Project Marinus (two cables),** where interconnector flows from Tasmania to Victoria average **5.2 TWh per annum.**
- Increased flows from Tasmania to Victoria are aligned with lower average prices in Victoria of **$52/MWh** across the period – a fall in average prices of **$24/MWh compared to the Without Project Marinus counterfactual.**
- For **one cable**, capacity to import from Tasmania to Victoria is reduced compared to **two cables.**
- This impacts the levels of imports we observe in our modelling, with average flows of **4.0 TWh per annum**. This is still a material increase in imports **compared to the Without Project Marinus counterfactual.**
- Consequently, average prices across the period are still expected to fall by around **$14/MWh** compared to the Without Project Marinus counterfactual.





In our modelling of the Progressive Change scenario, introducing Marinus results in increased flows and larger impacts on wholesale electricity prices compared to Step Change

Prices ($/MWh) and Imports from Tasmania to Victoria, Without Project Marinus, Progressive Change

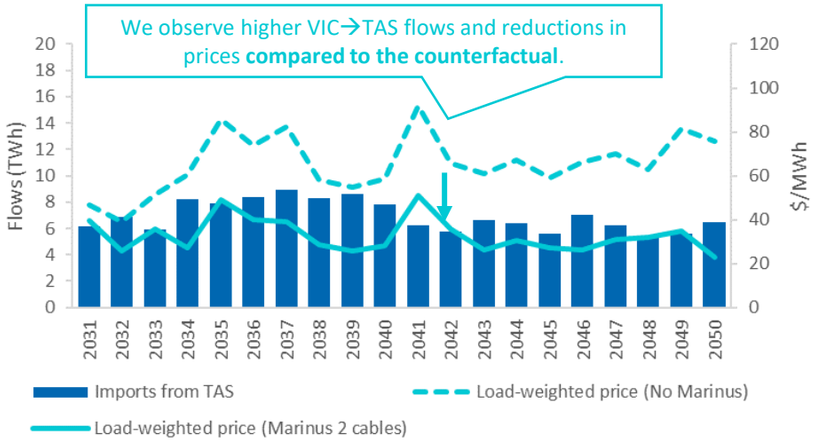


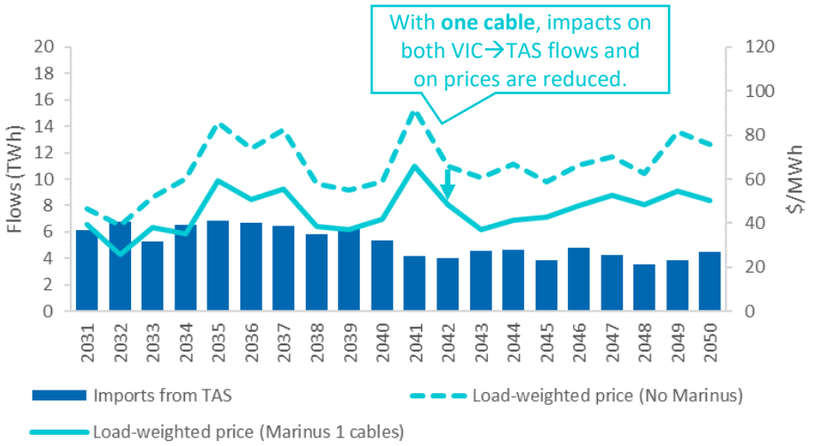
- As mentioned previously, **in the absence of Project Marinus, Basslink** is the sole link between Tasmania and Victoria.
- For Victoria, this means that there is limited capacity to import electricity from Tasmania. Our modelling indicates that **in the absence of Project Marinus**, interconnector flows from Tasmania to Victoria average **2.3 TWh per annum**.
- Over the period 2031 to 2050, our modelling indicates average load-weighted prices in Victoria of **$66/MWh**.
- We note that modelling estimates particularly low prices in the early years of the period (2031-33). These are principally driven by emissions reduction targets (e.g. the 2050 Emissions Budget) and renewable energy policies (such as the extension of QRET to 2035) driving increased renewable generation, while substantial thermal capacity remains in the system.[1]

(1) Several coal plants continue to operate through the end of FY 2031—such as Bayswater, Gladstone, and Loy Yang B—and others, like Stanwell and Tarong, operate until the end of FY 2032, further contributing to downward pressure on prices during this period.

Prices ($/MWh) and Imports from Tasmania to Victoria, With Project Marinus, Progressive Change

- With the introduction of Project Marinus, the capacity to import electricity from Tasmania to Victoria increases.
- We can observe the effect of this increased capacity in our modelling of the NEM **With Project Marinus (two cables),** where interconnector flows from Tasmania to Victoria average **6.9 TWh per annum.**
- Increased flows from Tasmania to Victoria are aligned with lower average prices in Victoria of **$33/MWh** across the period – a fall in average prices of **$33/MWh compared to the Without Project Marinus counterfactual.**
- For **one cable**, capacity to import from Tasmania to Victoria is reduced compared to **two cables.**
- This impacts the levels of imports we observe in our modelling, with average flows of **5.2 TWh per annum**. This is still a material increase in imports **compared to the Without Project Marinus counterfactual.**
- Consequently, average prices across the period are still expected to fall by around **$20/MWh** compared to the Without Project Marinus counterfactual.



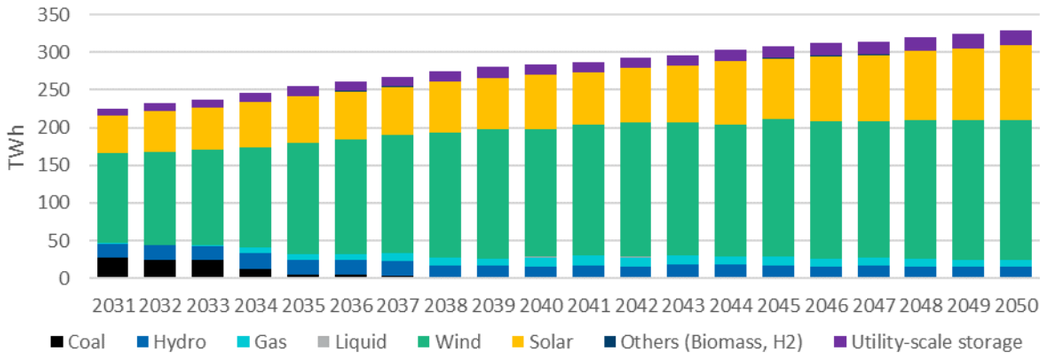


Project Marinus and associated capacity helps firm up supply whilst allowing more displacement of thermal generation with lower cost renewables

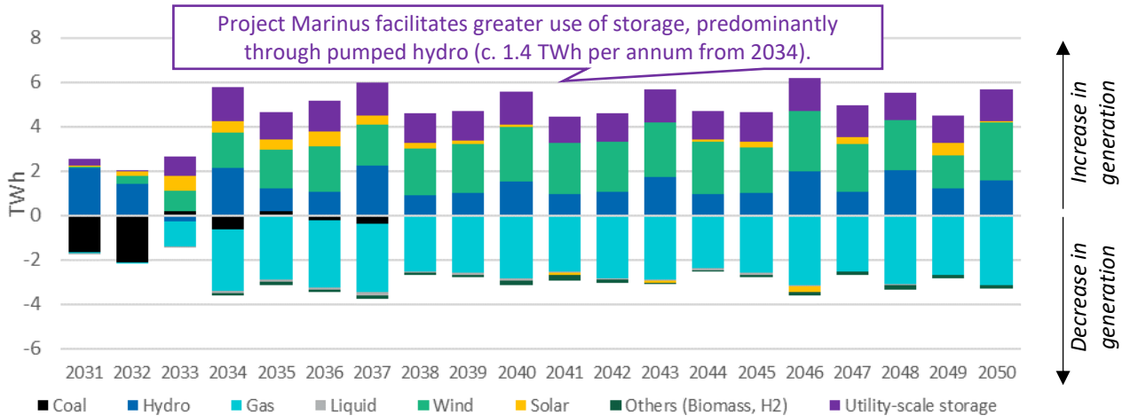
The impact of Project Marinus on NEM generation[1]

- **In the Without Project Marinus counterfactual**, gas generators are increasingly used to cover periods of relatively low renewable generation, as coal plants are retired and NEM-wide demand increases.
  - In these instances, costlier gas generators are increasingly the marginal bidders, increasing electricity prices across NEM regions.
  - Under the AEMO Step Change scenario, annual coal generation reduces from a level of **39 TWh per annum** in 2030, before being retired by the end of 2037. Over the same period, annual gas generation increases from **4.3 TWh** to **10.7 TWh**.
- Project Marinus facilitates the entry of large volumes of Tasmanian generation into the NEM.
  - From 2033 onwards, Project Marinus causes wind generation to increase, on average, by **2.2 TWh** a year, while hydro generation increases by an average of **1.4 TWh** a year, relative to the without Marinus counterfactual.
  - In addition to the Project Marinus-dependent wind capacity, the added export capacity of the Marinus Link cable(s) enables **reduced curtailment in Tasmanian wind** that would have been built even in the absence of Project Marinus to contribute towards the TRET.
- This has a noticeable impact on NEM-wide gas generation, as the additional interconnection capacity, combined with the additional storage capacity of Battery of the Nation, enables lower-cost renewables in Tasmania to cover periods of low renewable generation on the mainland.
  - Tasmanian wind has a high capacity factor relative to mainland wind and solar and is not strongly correlated with mainland wind generation. This complementary profile increases the share of demand that low-cost renewable generation can meet.[2]
  - The marginal gas peaking plants are significantly displaced when both Marinus Link cables are operational, with an annual average **decrease in gas generation of 2.8 TWh** each year from 2033 to 2050 relative to the Without Project Marinus counterfactual.

NEM generation without Project Marinus, Step Change



Change in NEM generation when Project Marinus is introduced, Step Change[3]



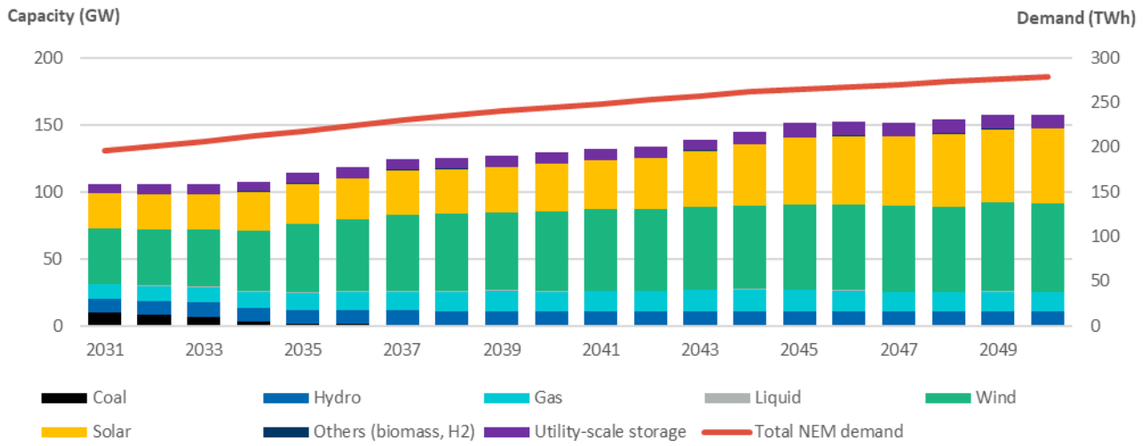
(1) All figures are for two cables unless otherwise specified. (2) Australian Energy Council, *Integrating Renewables: An assessment of Generation Correlation*, 27 September 2019 (link). (3) Utility-scale storage includes both grid-scale batteries and closed-loop pumped hydro (excludes pumped hydro with inflows). The chart presents discharge for storage assets. Charging of storage is excluded from the chart.

Both the Step Change and Progressive Change scenarios meet Australia's Net Zero ambitions – but Step Change reflects greater economic growth, leading to greater electrification

Step Change Scenario

- National decarbonisation targets (43% emissions reduction by 2030, Net Zero by 2050) achieved
- Higher economic growth, leading to greater electrification, higher demand, and greater capacity build-out

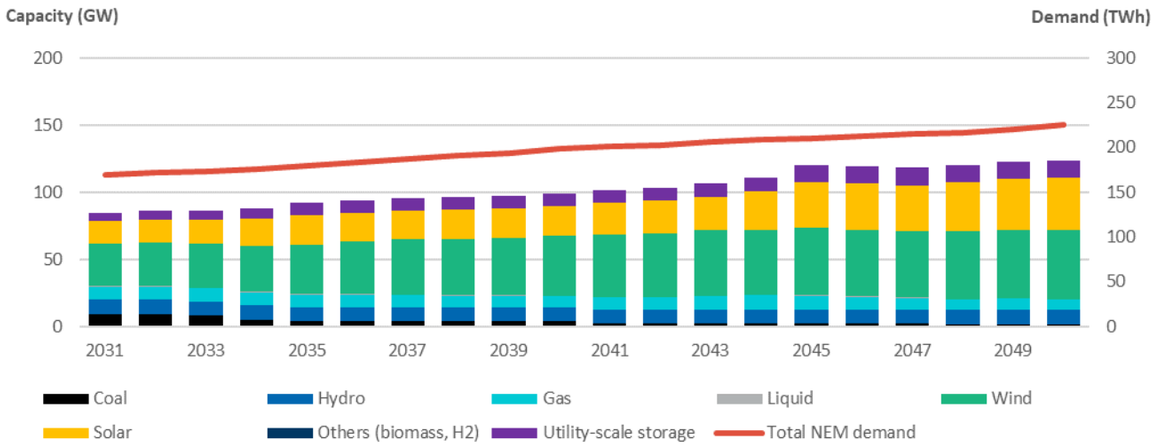
NEM-wide capacity and demand (w/o Marinus), IASR 2025, Step Change (2031 – 2050)



Progressive Change Scenario

- National decarbonisation targets (43% emissions reduction by 2030, Net Zero by 2050) achieved
- Lower economic growth, leading to slower electrification, lower demand, and lower capacity build-out

NEM-wide capacity and demand (w/o Marinus), IASR 2025, Progressive Change (2031 – 2050)

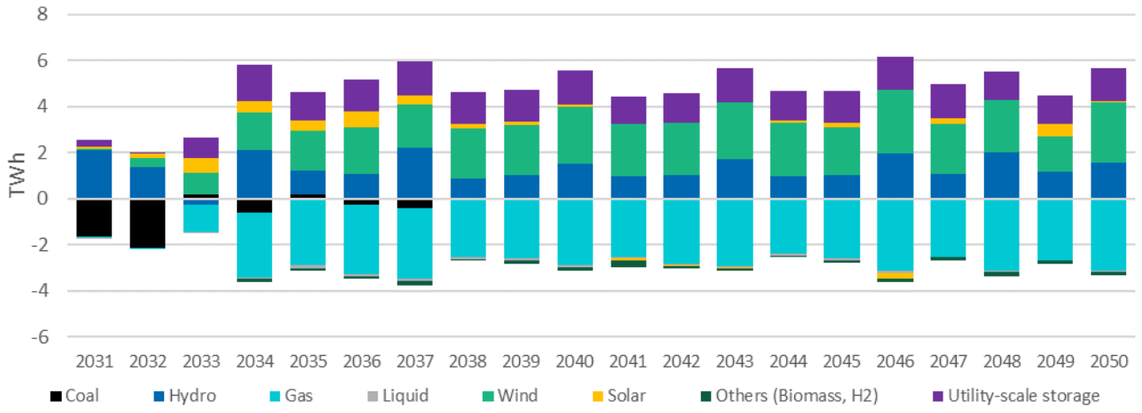


- Renewables penetration is high under both the Step Change and Progressive Change scenarios.
- However, both total generation capacity and electricity demand are greater under the Step Change scenario, relative to the Progressive Change scenario. This reflects the greater economic growth expected under the Step Change scenario.
- Gas capacity remains in the generation mix under both scenarios. This assumes gas generation will transition to running on zero-emissions fuels, such as hydrogen or biogas, or will be offset outside of the sector.

Marinus has a greater impact on total NEM-wide generation under the Progressive Change scenario, relative to the Step Change scenario

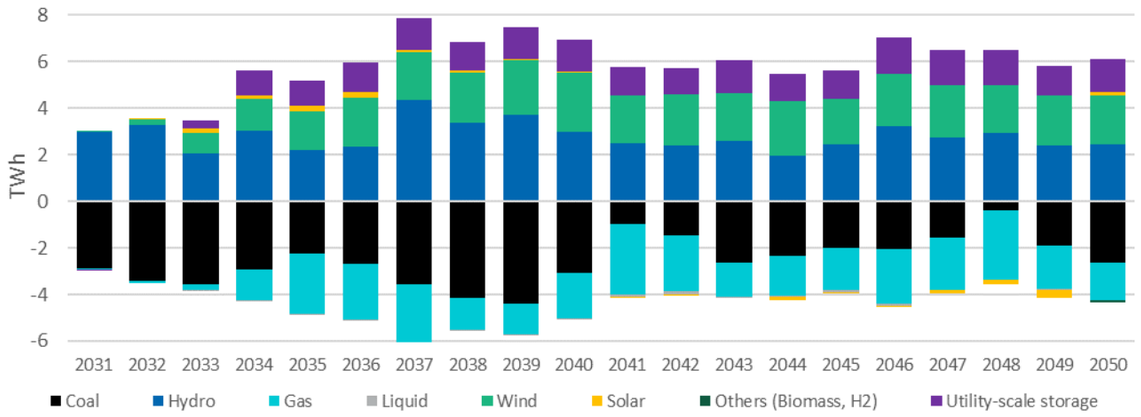
Step Change Scenario

Change in generation due to Marinus (2 cables), IASR 2025, Step Change (2031 – 2050)



Progressive Change Scenario

Change in generation due to Marinus (2 cables), IASR 2025, Progressive Change (2031 – 2050)

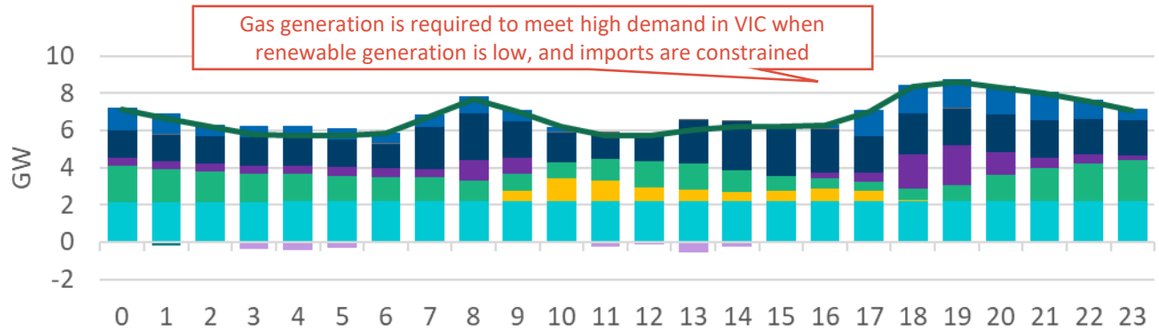


- In both scenarios, Marinus allows lower marginal cost renewable generation (mostly from TAS) to displace higher cost thermal generation in the rest of the NEM.
- The magnitude of this effect is, however, greater under the Progressive Change scenario, compared to the Step Change scenario. This drives a greater (downward) impact on prices under the Progressive Change relative to the Step Change scenario.
- All else being equal, Marinus Link – and the additional wind and hydro capacity it unlocks in Tasmania – could be expected to have a larger downward effect on wholesale electricity prices across the NEM where NEM-wide capacity and demand is lower. This is the case for the Progressive Change scenario when compared to the Step Change scenario.

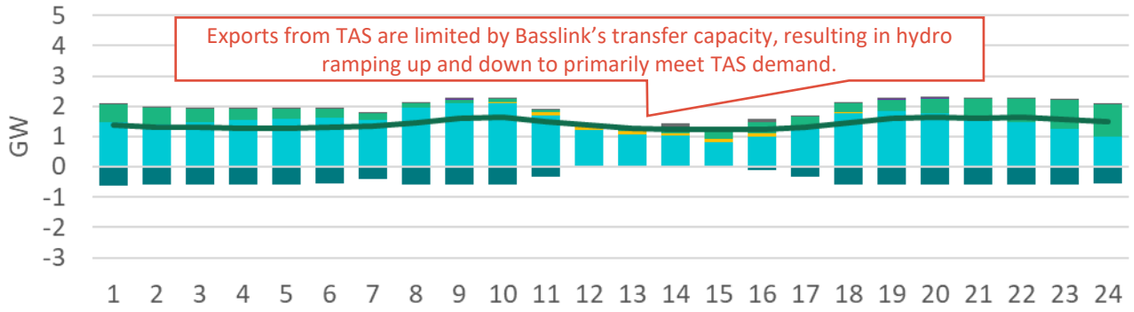
Additional imports into VIC from Project Marinus supports significant displacement of costlier gas generation during periods of high demand

- The impact of Marinus on wholesale electricity prices is likely to be most significant in winter months, where demand is high, and after **coal is retired** (post 2032 in Victoria)**.**
- We illustrate this by comparing the generation profiles in Tasmania (TAS) and Victoria (VIC) **with and without** Project Marinus on a day in winter 2033.

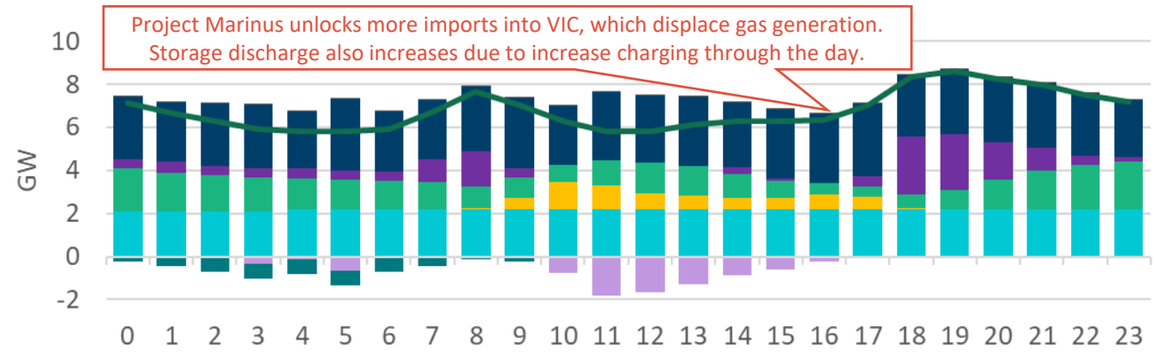
VIC generation and load by hour of day, 19 July 2033, no Project Marinus[1]



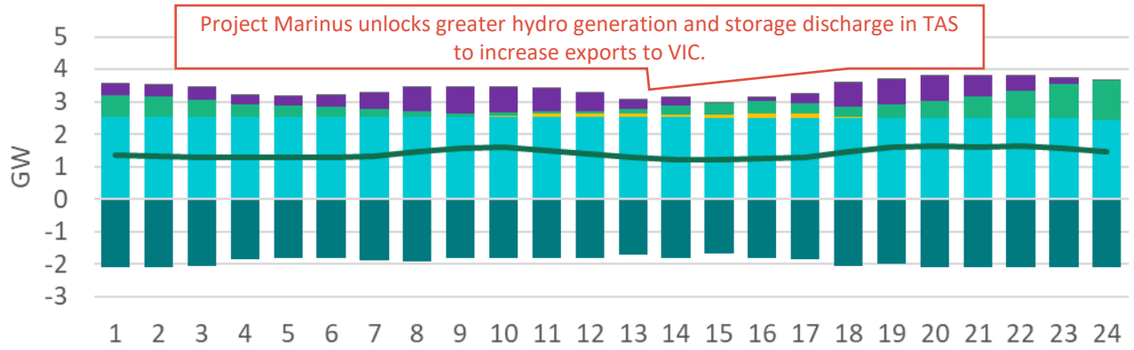
TAS generation and load by hour of day, 19 July 2033, no Project Marinus



VIC generation and load by hour of day, 19 July 2033, Project Marinus (2 cables)



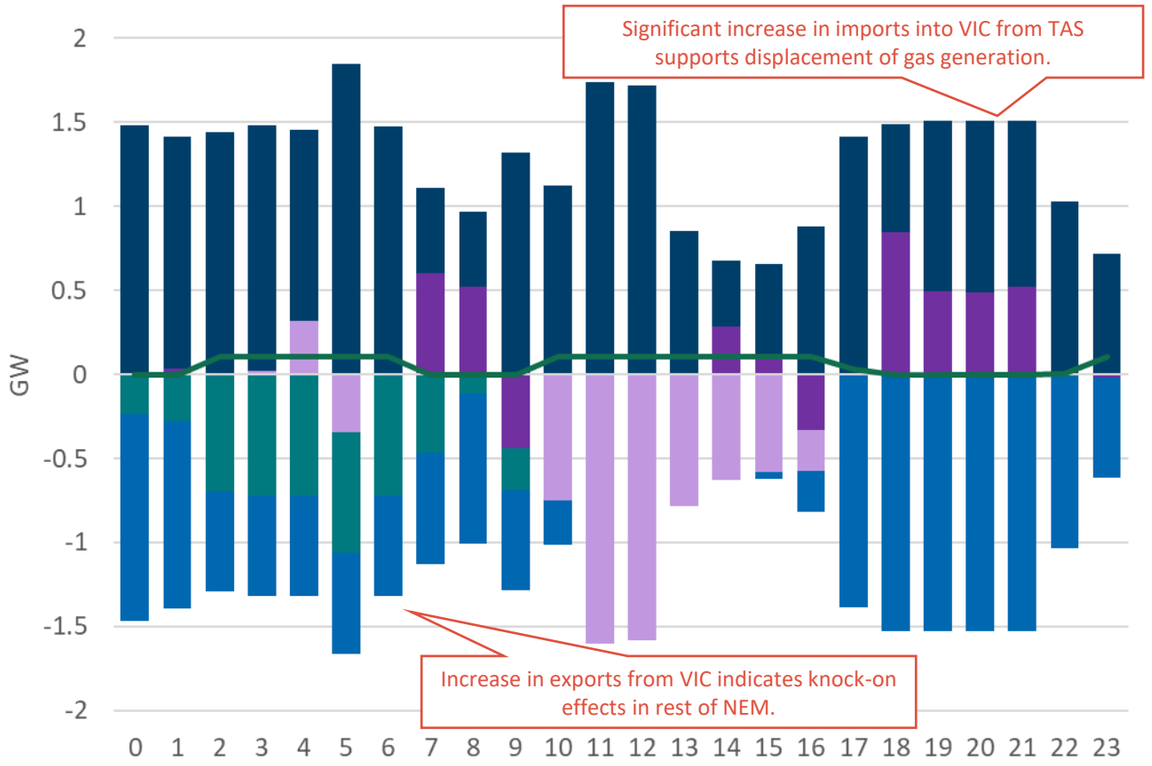
TAS generation and load by hour of day, 19 July 2033, Project Marinus (2 cables)



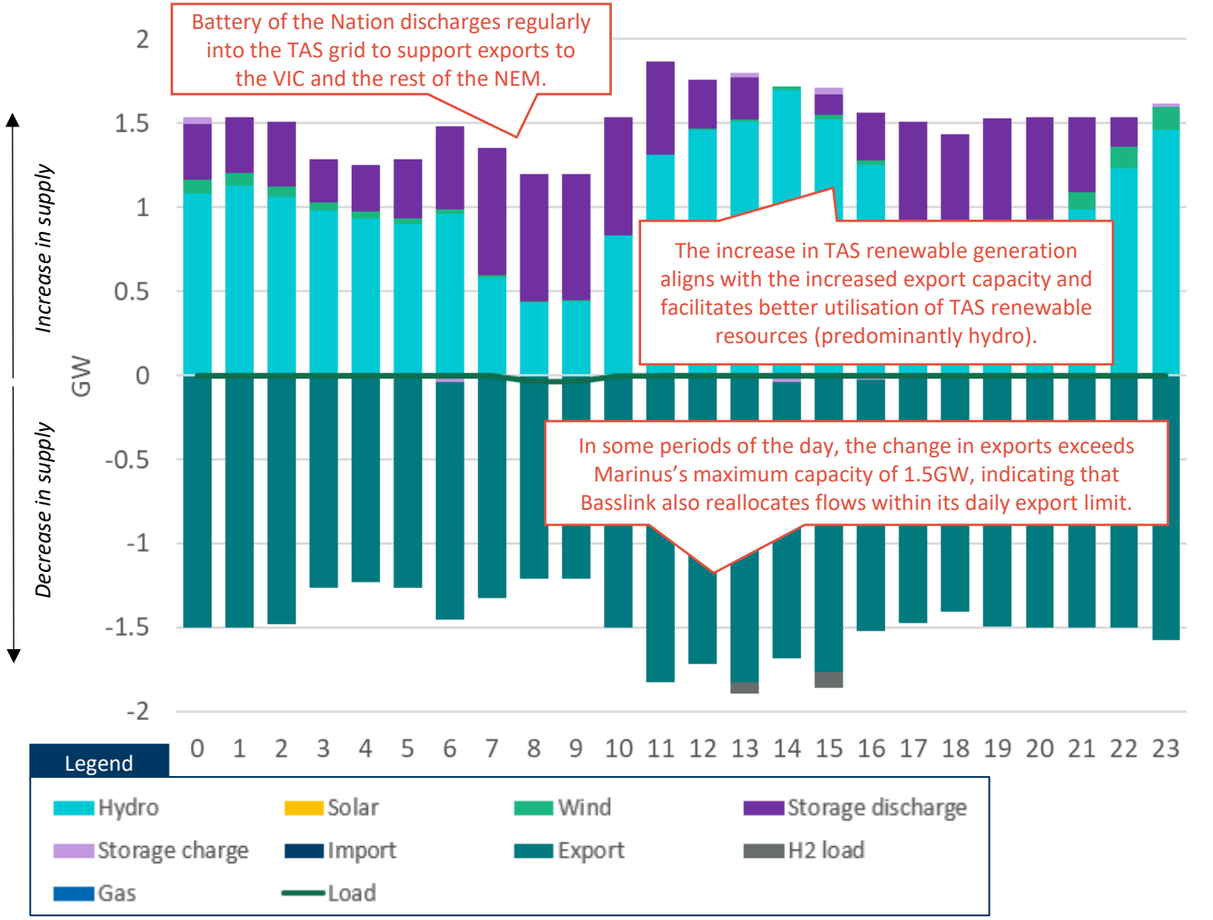
Note: All figures are for the Step Change scenario; (1) Values below 0 for "storage charge" indicates charging of storage assets. (2) Values below 0 for "Export" indicate interconnector flows out of Tasmania.

Comparing the difference in generation demonstrates that Project Marinus has the intended effects on TAS renewable generation and displacement in VIC

Difference in VIC generation and load by hour of day when Project Marinus is introduced, 19 July 2033, Step Change scenario



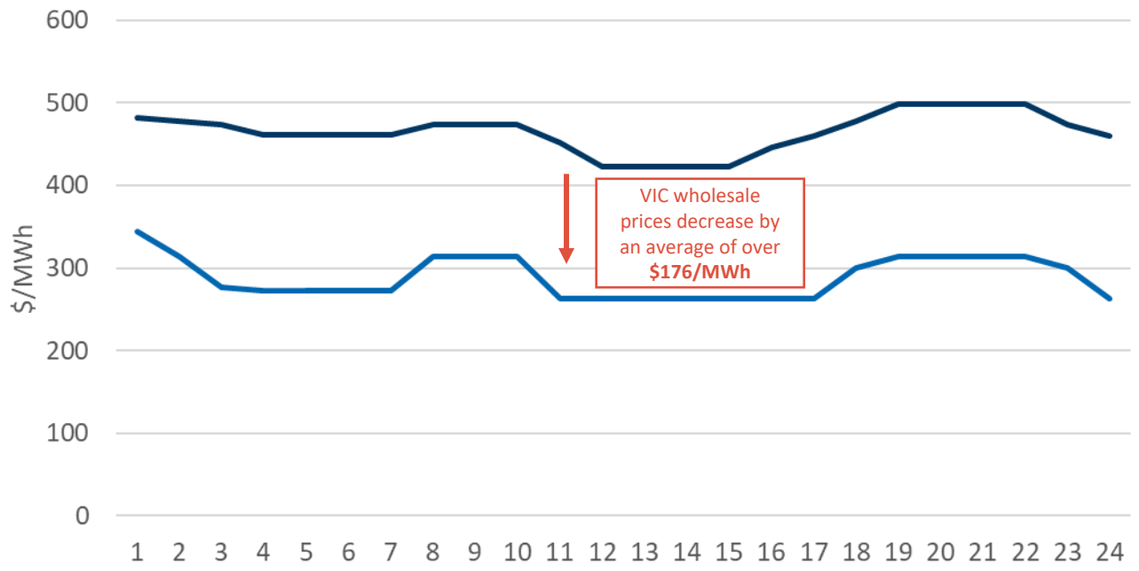
Difference in TAS generation and load by hour of day when Project Marinus is introduced, 19 July 2033, Step Change scenario



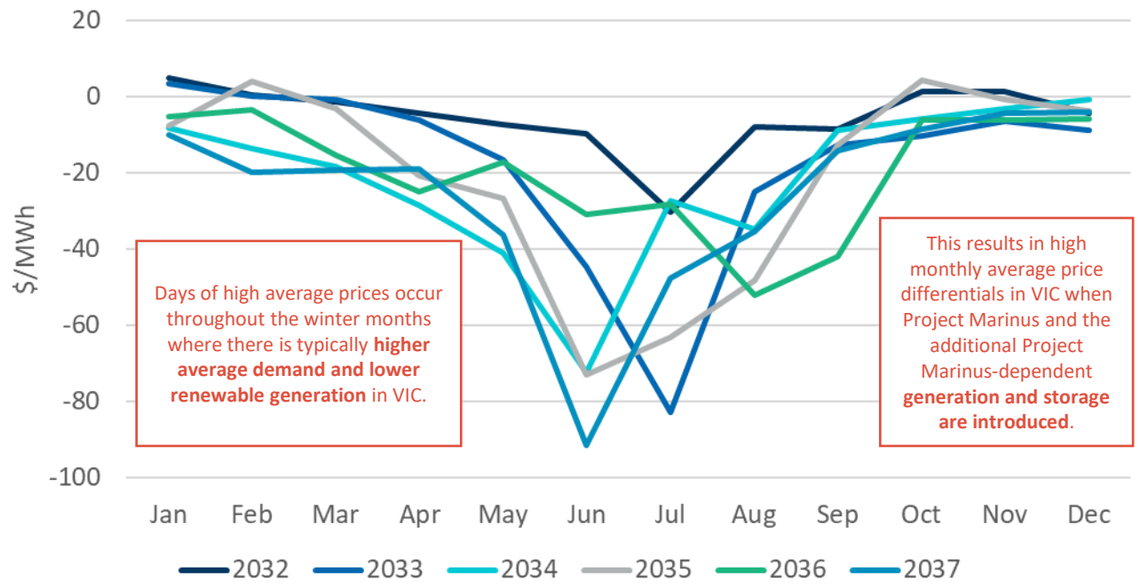
Note: All figures are for the Step Change scenario; (1) Values below 0 for "storage charge" indicates charging of storage assets. (2) Values below 0 for "Export" indicate interconnector flows out of Tasmania.

The dynamic we observe of gas displacement in VIC can result in significant decreases in wholesale electricity prices

VIC wholesale price by hour of day, 19 July 2033, Step Change scenario



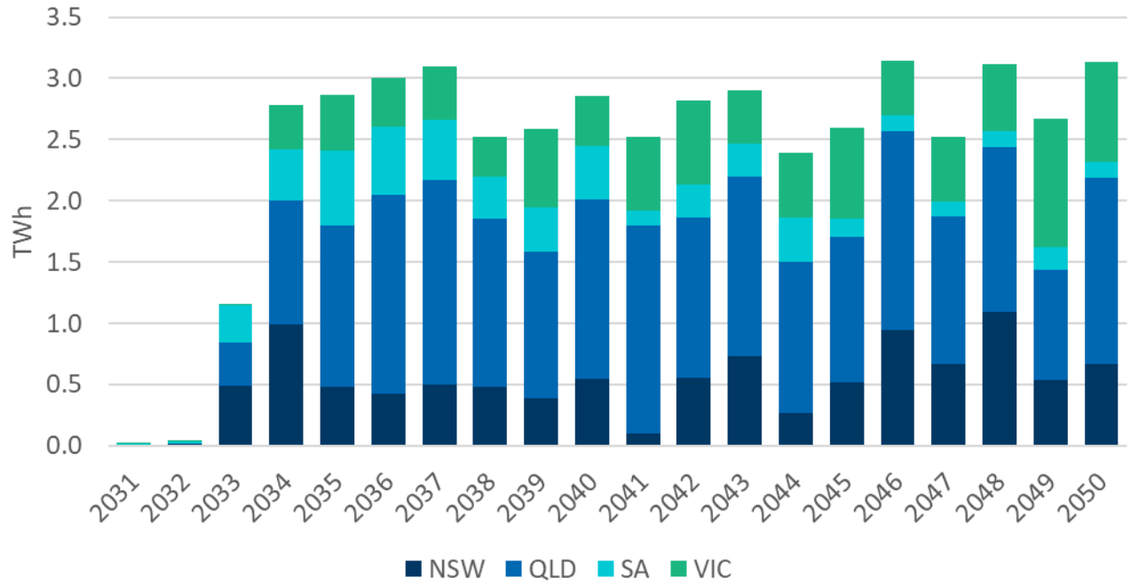
Monthly average difference in price in Victoria due to Project Marinus (2 cables), Step Change scenario



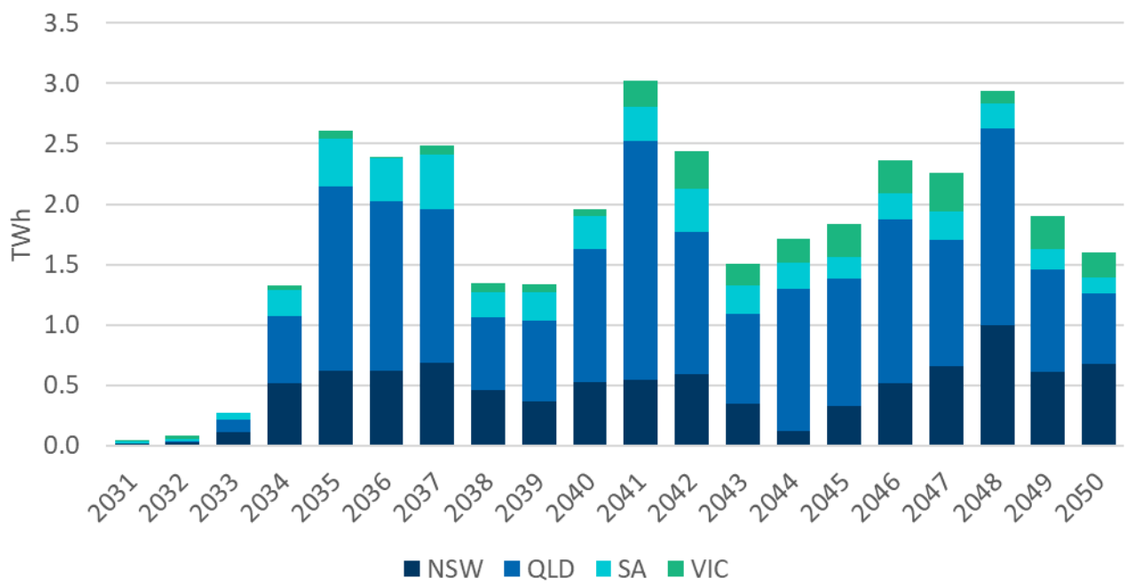
- In the example day shown (19 July 2033), there is low renewable generation and high demand, requiring an hourly average of over **700 MWh** of gas generation across the day in the absence of Project Marinus.
- Introducing Project Marinus increases imports into VIC: an average increase of nearly **1.1 GWh** per hour. This predominantly stems from the Project Marinus-dependent capacity, with TAS hydro generation increasing by an average of over **1.0 GWh** per hour.
- The profile of prices across the day remains relatively flat, reflecting the fact that storage discharge is likely to be setting the wholesale price relatively often and that it is assumed to bid at a price reflecting the opportunity cost of electricity in that day.

More widely, Project Marinus has an impact on displacing gas generation across the NEM, creating downward pressure on electricity prices across all states

Annual avoided gas generation due to Project Marinus (2-cables), Step Change



Annual avoided gas generation due to Project Marinus (2-cables), Progressive Change



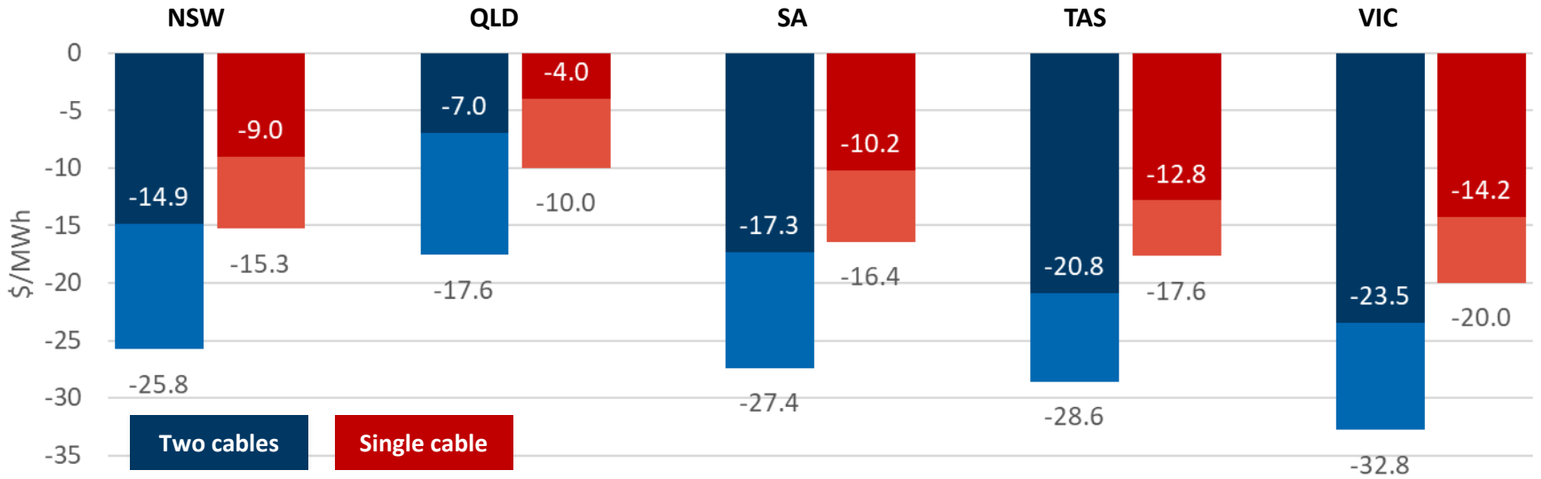
- The increased flexibility provided by the Marinus interconnector and the increased generation capacity from the associated renewables in Tasmania has a similar impact in displacing gas generation in other states, with **impacts on wholesale electricity prices across the NEM**.
- For instance, in QLD, annual gas generation decreases by an average of **1.17 TWh** and **0.94 TWh every year** in the Step Change and Progressive Change scenarios respectively, contributing to the decreases in wholesale prices. NSW and SA experience similar (but smaller) effects on gas generation.
- Whilst avoided gas generation is lower in the Progressive Change scenario, there is additional displacement of coal generation, which is not retired as early as assumed in the Step Change scenario.

Results – Pricing outcomes and cost benefit analysis

Our work again indicates that Project Marinus is expected to lower wholesale electricity prices across the NEM, with significant impacts in Tasmania and Victoria

Average reduction in wholesale prices, 2031-50 (2025 dollars)

Note: Light coloured bars indicate results for Progressive Change Scenario, Dark bars for Step Change Scenario

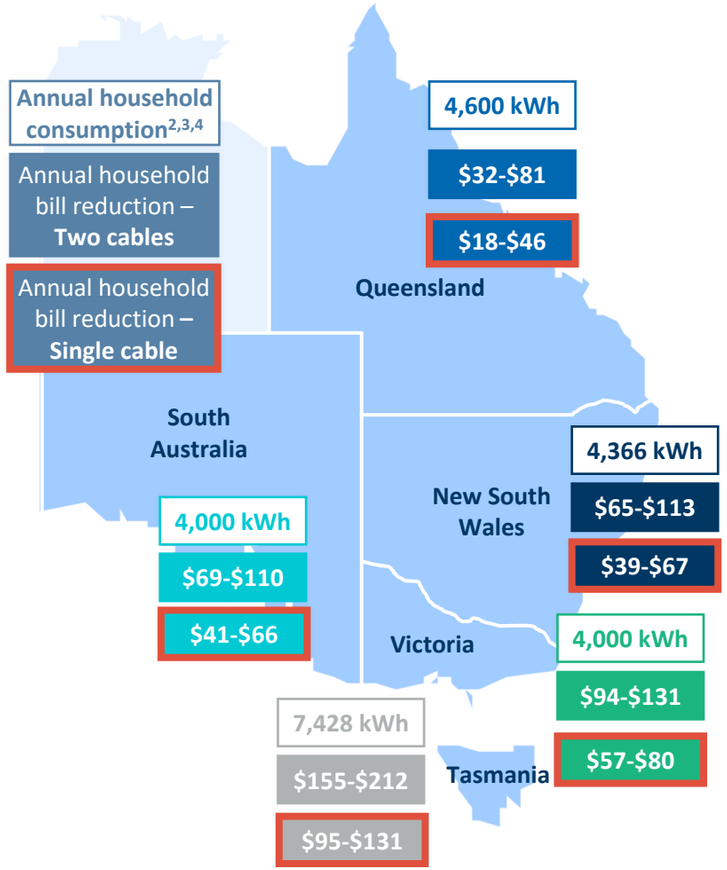


All price effects discussed below reflect a simple average between results for Step Change and Progressive Change scenarios[4]

- The average expected reduction in wholesale prices is **$25/MWh for Tasmania** and **$28/MWh for Victoria**. These price effects reduce to **$15/MWh for Tasmania** and **$17/MWh in Victoria** for a single cable.
- Lower electricity prices feed directly into the wholesale energy element of consumer bills. For two cables:
  - Tasmanian consumers expected to experience the highest savings of **$183** per household per year, driven Tasmania's relatively high level of household consumption and the change in price, falling to **$113** for one cable.
  - Victorian consumers experience a lower household saving of **$112** due to lower levels of average household consumption. This falls to **$68** for one cable.
- In addition, wholesale electricity prices are expected to fall across all states in the NEM, with resulting benefits to consumers.

Household bill impact of reduced electricity prices

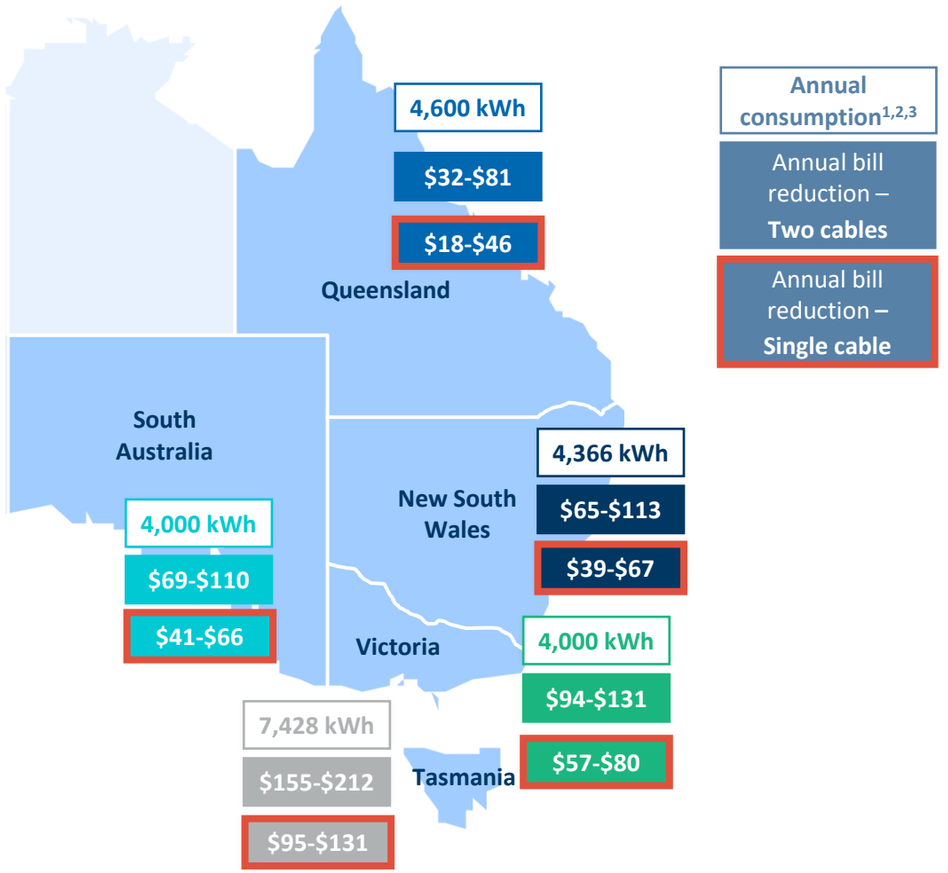
Note: Ranges indicate differences between scenarios



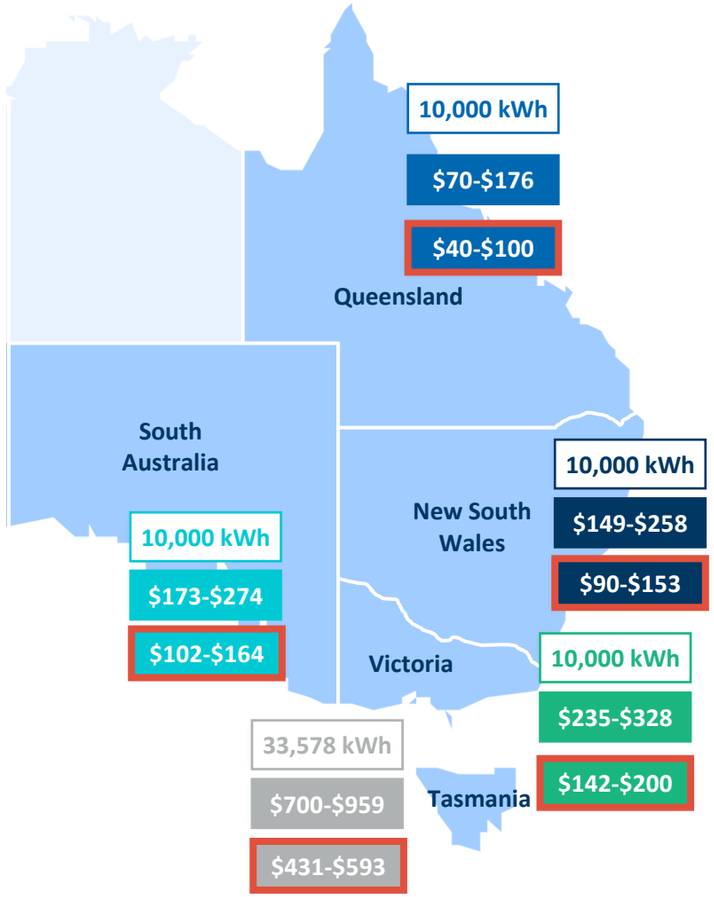
(1) Reflecting the relative weights attached to the two scenarios as estimated by the AEMO Delphi Panel (see). (2) For Queensland, South Australia and NSW: Australian Energy Regulator, *Default market offer prices 2025-26 – Final Determination,* Cost assessment model, May 2025 (link). 'Residential without CL' figures used. Customer-weighted average for NSW companies (3) Essential Services Commission, *Victorian Default Offer 2025-26: Final Decision,* May 2025, page 5 (link) (4) Office of the Tasmania Economic Regulator, *Typical Electricity Customers in Tasmania – 2022*, September 2022, page 2 (link).

Small businesses are likely to experience a larger impact on their electricity bills given higher typical consumption compared to households

Household bill impact of reduced electricity prices



Small business bill impact of reduced electricity prices

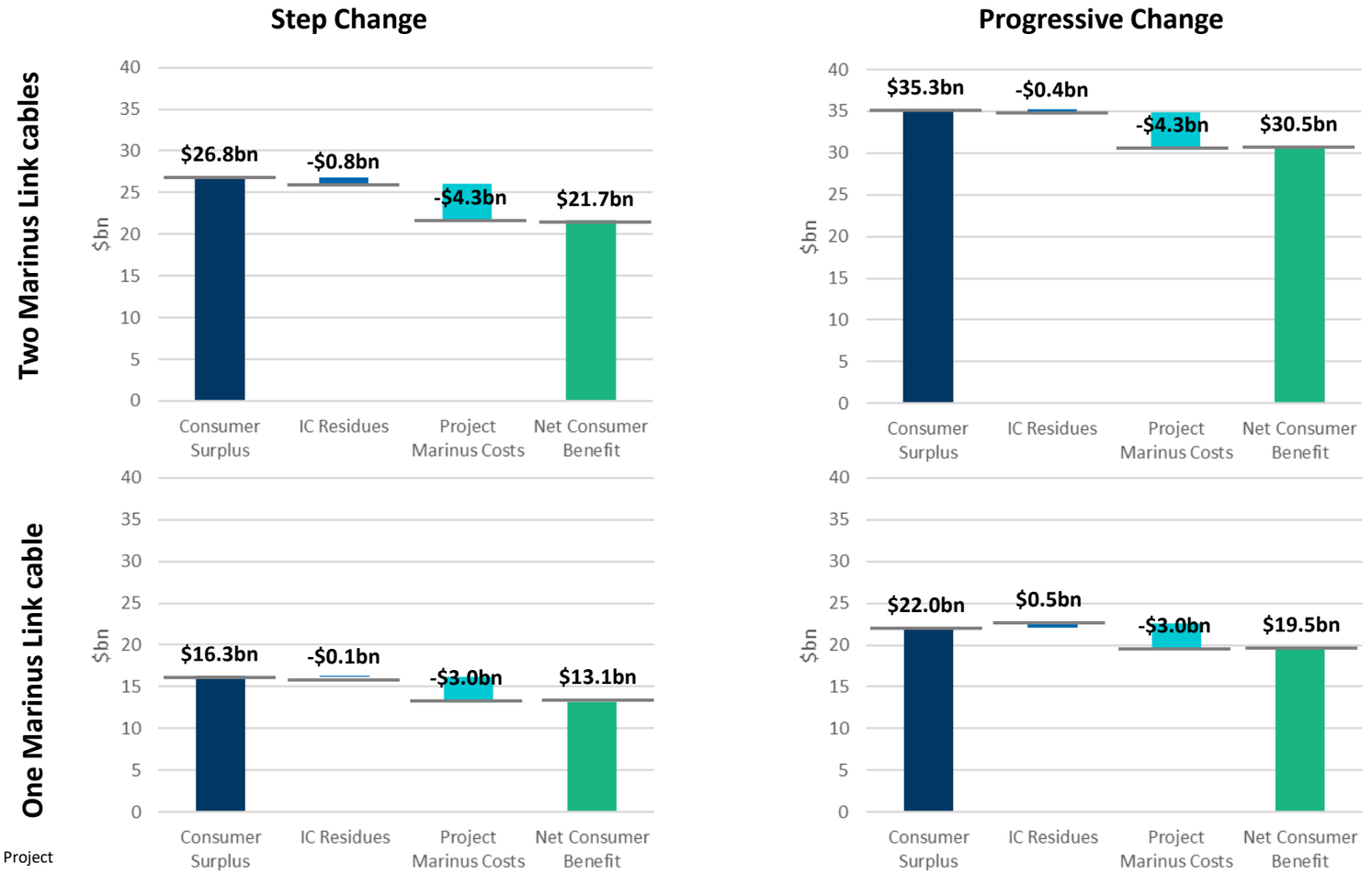


(1) For Queensland, South Australia and NSW: Australian Energy Regulator, *Default market offer prices 2025-26 – Final Determination,* Cost assessment model, May 2025 (link). 'Small business without CL' figures used. Customer-weighted average for NSW companies (2) Essential Services Commission, *Victorian Default Offer 2025-26: Final Decision,* May 2025, page 5 (link) (3) TasNetworks, *Fact Sheet: Small Business Prices for 2024-25*, July 2024, page 3 (link)

Furthermore, our work continues to indicate that the benefits of Project Marinus significantly outweigh the costs, resulting in significant net benefits in the NEM

- Our net benefits analysis indicates that, with **two cables**, Project Marinus is expected to generate **net benefits of $21.7bn to $30.5bn for NEM consumers** in net present value terms, depending on the scenario.
- These net benefits are expected to fall to **$13.1bn to $19.5bn** if only one cable is constructed.
- As set out on pages 26 & 27, there are significant differences in the state of the NEM represented in the Step Change and Progressive Change scenarios. These lead to net benefits being higher under Progressive Change compared to Step Change[1], driven primarily by:
  - the Progressive Change scenario representing a state of the NEM with materially lower electricity demand and capacity build compared to the Step Change scenario; and
  - Project Marinus (along with the additional Tasmanian renewables capacity it facilitates) having a larger impact on displacing NEM-wide thermal generation in the Progressive Change scenario.
- Net benefits are materially higher than in our previous work[2], driven by factors that include:
  - The significant reduction in the expected quantity and nature of hydrogen demand across the NEM.
  - Increases in the expected fuel costs of coal and gas, leading to a greater price reduction effect when thermal generation is displaced by renewables.
  - Our current analysis occurring closer to the modelled period (2031-50), resulting in less discounting to achieve a present value figure.

Net consumer impact of Project Marinus, $bn, Present Value 2031-50, (2025 dollars)



(1) Note that the CBA analysis released with the 2024 ISP found significantly higher net market benefits for an actionable Project Marinus under Progressive Change than under Step Change. (2) Our previous modelling largely followed the same input assumptions as the 2024 ISP, which saw a reduction in benefits associated with Marinus compared to 2022. The 2025 IASR has hydrogen demand assumptions moving closer to the levels forecast in 2022.

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