

Open Response from the Heat Pump Suppliers Association of New Zealand (HPSA)

To: Gas Industry Co / Castalia (authors of “Impact of switching off gas distribution network”)

Date: 17th October 2025

In light of Castalia’s report for Gas Industry Co, “*Impact of switching off the gas distribution network*” (September 2025), we, the Heat Pump Suppliers Association of New Zealand (HPSA), wish to offer a response. The HPSA was not invited to contribute to or review this analysis, but given its potential influence on public understanding and policy direction, we believe it is important to provide context and additional evidence.

The HPSA welcomes high-quality analysis of New Zealand’s energy transition; however, we are concerned that several modelling choices and omitted inputs materially change the outcomes and the policy signal this report sends to decision-makers and the public.

Below we summarise key, evidence-based technical and market facts that the analysis either underweights or omits, and why policymakers should be cautious of relying on the report’s headline consumer-cost conclusions. We also recommend that any future modelling or updates to this analysis be rerun with revised assumptions that more accurately reflect current market realities — including direct engagement with MBIE, EECA, the Electricity Authority, Rewiring Aotearoa, and the Heat Pump Suppliers Association — to ensure the findings are robust, credible, and representative of New Zealand’s rapidly evolving energy landscape.

1. **The report omits and underweights real-world trends which materially overestimate the costs of electrification.** The modelling results are highly dependent on assumptions of (a) appliance choice and performance, and (b) the interaction between electrification and the broader electricity system.

This is evident in the Castalia findings:

- The report concludes that “switching off the gas network increases consumer costs by \$1 billion over the 25-year forecast period, a 45% rise compared to BAU,” **when using historical energy prices.**
- The report also highlights that “energy consumption is the largest cost driver for consumers, accounting for 85% and 71% of the total consumer costs in BAU and Switch-off scenarios” — **which makes the outcomes highly sensitive to assumptions about future energy prices and the mix and timing of electrification technologies.**
- Castalia’s sensitivity testing shows that higher adoption of water and space heat pumps reduces Switch-off costs (the modelled “all-households adopt” case reduces total Switch-off consumer costs by 6.6% and reduces net Switch-off consumer costs by 21.4%) — **however, the report treats high uptake as an extreme sensitivity rather than a central plausible pathway.**

2. Key omissions and why they matter

a. Domestic solar and behind-the-meter storage are effectively absent from consumer benefit calculations

The report does not model the widespread adoption of rooftop solar and household batteries as an economic counterfactual for electrified homes. This is a critical omission because:

- **Solar and batteries materially change the lifetime operating cost profile** of electric heating and hot water systems.
- **They increase consumer resilience** by reducing exposure to volatile fossil fuel prices.
- **They reduce net demand on the grid during peak periods**, supporting system stability and deferring costly network upgrades.

Together, these factors significantly lower the true consumer cost of electrification and reshape the scale and timing of required grid investments.

Independent New Zealand analysis — including work by Rewiring Aotearoa (2023, *Electric Homes Report*) — shows that rooftop solar is now one of the cheapest sources of delivered electricity for households, and that uptake of both solar PV and home battery systems is accelerating nationwide.

b. Heat pump adoption is underestimated in the base case, and their performance is powerful in lowering operating costs.

Castalia's own sensitivity test demonstrates that full adoption of water and space heat pumps noticeably narrows the Switch-off vs BAU cost gap. Yet the report's baseline assumes relatively modest heat pump uptake (4% water HPWH and 60% space heat pump in the electrification cohort), which we believe underestimates plausible market trajectories when policy, cost declines, and consumer economics are considered.

Independent domestic data from EECA shows:

- Heat pump water heaters remain an emerging product in NZ and currently represent less than 1% (~12,000 units) of installed hot water systems — i.e., there is a large untapped potential in the water-heating market. EECA's market scan finds claimed COPs for HPWHs of around 3–4 and potential energy savings of 60–80% compared with electric resistance and gas alternatives.
- On space heating and air-source heat pumps, EECA's sales data (E3 programme datasets / national statistics) shows very large growth over the past decade — annual unit sales rose from ~100k a decade ago to a multi-hundred-thousand market in recent years (e.g., ~272k in 2022; ~241k in 2023; ~205k in 2024) — demonstrating rapid household uptake of heat pump technology nationwide.

This historic growth trajectory should be treated as an important input for scenario design because it demonstrates a strong and sustained consumer preference for efficient electric heating, reflects real-world market momentum that is unlikely to reverse, and provides tangible evidence that large-scale electrification of space heating is already underway in New Zealand. Ignoring this trend risks basing future energy planning on outdated assumptions that underestimate both the speed and scale of the transition already in progress.

c. International evidence shows both rapid HPWH uptake under supportive policy and large market potential.

Overseas examples show that where targeted incentives, regulations and market development occur (for example, in parts of Australia and Europe), heat pump water heater adoption can scale quickly — Australia sold over 100,000 HPWHs in 2021–22 under incentive schemes and market conditions that encouraged uptake. This demonstrates the upside market opportunity Castalia's baseline understates.

3. The economics of “locking in” legacy systems and price volatility risk.

Because energy consumption dominates consumer costs in Castalia’s model, the assumption that households will continue to rely on gas or shift to LPG in significant numbers exposes them to commodity price volatility over the coming decades. In contrast, a hypothetical household that reduced its dependency on the grid by installing solar (and optionally batteries) would move them towards a more decentralised approach, coupled with energy-efficient and electric home upgrades (such as hot water heat pumps) this would lock in lower, more predictable marginal energy costs and gain resilience to fossil-fuel market shocks. Rewiring Aotearoa’s analysis and other local evidence show electrification can be net beneficial for household budgets at scale when solar and efficient electric appliances are accounted for — a factor absent from the main consumer cost comparisons.

4. Emissions outcome is sensitive to plausible generation mixes and demand flexibility. Castalia finds that switching off the gas network reduces North Island emissions by 63% over the period 2029–2050, as additional electricity demand is modelled to be largely met by wind and limited peaking gas. That outcome rests on the assumed generation mix (93% new onshore wind, 7% peakers) and a marginal emission factor of ~0.04 kgCO₂e/kWh — assumptions that are credible but also highly sensitive to future policy and investment choices. **The report therefore demonstrates that emissions benefits are possible, which further strengthens the case for modelling higher electrification, plus storage,** and temporal demand shifting (e.g., scheduled HPWH charging, heat pump pre-warming) that reduce peaking needs.

5. Recommendations to Gas Industry Co, Castalia, and policymakers.

To make the analysis useful for policy setting (rather than creating a prescriptive argument to preserve legacy infrastructure), the HPSA recommends the following actions:

a) Re-run or augment the modelling to explicitly include:

- Household rooftop solar adoption (plausible uptake paths) and behind-the-meter battery storage.
- A wider range of heat pump adoption pathways (including faster uptake of both space and water heat pumps consistent with EECA trends and international comparators);
- Consumer economics that capture solar self-consumption, HPWH thermal storage benefits, and avoided exposure to fossil fuel price volatility.

b) Engage EECA, HPSA members and other electrification stakeholders to align assumptions on appliance performance (realistic COP distributions), current market sales trajectories, and deployment costs for HPWHs, space heat pumps, solar and batteries. Castalia’s sensitivity testing shows outcomes shift materially with heat pump uptake — these inputs deserve expert validation.

c) Report policy-relevant scenarios (not only BAU vs Switch-off) that include credible low-carbon, high-electrification pathways. This will help policymakers compare options without bias toward maintaining the status quo.

6. **Short conclusion and HPSA offer of support**

Castalia’s report raises important points about network costs and near-term consumer



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impacts under narrow assumptions. However, because (a) the report omits household solar and battery adoption material to consumer economics, and (b) it treats faster heat pump uptake as an extreme sensitivity rather than a central, plausible pathway supported by local and international experience, the report should not be used in isolation to justify policy that locks consumers into legacy fossil-fuel systems.

We therefore urge Gas Industry Co, MBIE, EECA and other agencies to commission or publish scenario work that treats electrification (high-efficiency heat pumps, HPWHs, rooftop solar and storage) as a central, evidence-based pathway — and to engage the HPSA and EECA on appliance performance, current adoption trends and consumer economics. The Heat Pump Suppliers Association is ready to share market data, performance metrics and case studies to support more robust, balanced modelling.

Signed,

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Key sources cited in this response: Castalia / Gas Industry Co (Final Report, Sept 2025); EECA (Heat Pump Water Heater market scan & E3 sales data); Rewiring Aotearoa; IEA / international heat pump sales data.