Antora Energy

Submission — Review of the Integrated System Plan framework (EPR0092)
Australian Energy Market Commission | Discussion paper of 23 July 2026 | Lodged 3 September 2026

1. Purpose of this submission

Electric thermal energy storage (eTES) is a new and quickly growing technology that charges from the grid or directly from renewable generation during periods of low-value electricity or otherwise curtailed renewables and delivers that energy as an alternative to industrial process heat from fossil fuel combustion. Thus, eTES is both a flexible demand resource and a substitute for industrial natural gas. The current framework handles these two characteristics of eTES technology differently and treats neither as a decision variable. The demand enters as an exogenous forecast in the Inputs, Assumptions and Scenarios Report (IASR), and the gas displacement is visible only through the gas price input and AEMO's separate gas planning. As a result, the optimal development path (ODP) undervalues eTES as a resource that absorbs otherwise-curtailed generation, supports renewable capture prices, takes pressure off natural gas demand, reduces emissions, and reduces need for transmission and firming investment. In addition to these benefits provided from power-to-heat storage, eTES can contribute as a capacity resource, injecting power back to the grid during peak hours; however, in this document we have chosen to focus on the demand-side applications (as a flexible load providing firm process heat to industrial facilities) of eTES.

The consequence will be forecast error when it comes time for ODP development. Antora's analysis, built on AEMO, CSIRO and Australian Energy Statistics data set out in section 5.1, indicates approximately 95 PJ per year of NEM industrial gas demand is displaceable by eTES at temperatures at or below 350°C, creating approximately 32 TWh per year of price-responsive charging demand. This volume is comparable to the entire business electrification component of **AEMO's 2026 Integrated System Plan (ISP)** demand outlook. The framework risks erring in either of the two directions the Commission itself identifies: if it models this demand as inflexible baseload, it overstates the firm capacity and network required to serve it; if it omits the demand, it understates the load and undervalues the variable renewable generation and storage that would serve it. Either error could result in gigawatt-scale misalignment. A framework that cannot represent the scale and flexibility of this load, and resulting implications for reduced curtailment, increased renewable uptake and reduced gas demand, cannot produce an accurate ODP.

Antora does not advocate for a particular strawperson. Antora submits that the system benefits available from eTES and flexible industrial load are material to the NEM and should be capable of being identified and valued under whichever framework the Commission recommends. The sections below provide the evidence for that materiality, identify the modelling capabilities it implies (section 6.1), and propose a simple test of whether a chosen framework possesses them (section 7).

2. About Antora Energy

Antora develops, owns, and operates eTES systems that store electricity as high temperature heat in solid carbon blocks, above 2,000°C, and discharge it as industrial process heat. Antora's eTES system can also output that high temperature heat as electricity, through the addition of steam turbines on the back end of the system or via thermophotovoltaic cells within the modules.

Antora's eTES technology is operating at commercial scale today. Antora has delivered a 5 GWh multi-day thermal storage system at POET Bioprocessing's facility in Big Stone City, South Dakota, serving that facility's entire process heat requirements. The system comprises more than 200 modules and moved from start of construction to energy delivery in under twelve months (Energy Storage News, July 2026).

Three features of the POET project extend to eTES generally, and make the technology material and credibly modellable (meeting the Commission's stated conditions for co-optimisation) as well as deliverable on a meaningful timescale.

Duration: At approximately 100 hours of storage, the project is able to selectively charge during periods of excess wind and solar generation with minimal to zero charging disturbance from extended low-wind and low-solar periods that short-duration electrochemical storage systems cannot cover.

Modularity: Capacity is added by adding standard modules rather than scaling a bespoke design. Performance is therefore characterised in advance.

Deployment speed: Twelve months from construction to energy delivery is materially shorter than the development and construction timeframes for major transmission augmentation. A resource that can be built within a year is a near-term alternative and solution, not a long-dated option.

Dispatch behavior is the operating characteristic most relevant to the ISP. The battery charges opportunistically at a low load factor (~33%), drawing electricity when prices are low or when generation would otherwise be curtailed, and discharges heat continuously to the host industrial facility for their process heat needs. The industrial process therefore sees uninterrupted heat while the grid sees a dynamic load resource. This behaviour is economically enforced rather than aspirational: charging in low-priced hours is what makes the asset viable.

Antora is actively building a customer pipeline in Australia and has advanced commitments from several customers.

3. Position on the proposals

Antora responds to Question 4.3, which asks whether stakeholders support elements of more than one strawperson or an alternative combination of choices on the plan and actionability mechanism.

The Commission's initial preference for SP3 would, if implemented well, capture much of the value described in this submission. SP3 extends co-optimisation to distribution, **Consumer Energy Resources (CER)** and demand side resources as decision variables rather than input assumptions, which is the change that would allow the ODP to recognise flexible industrial load (§4.2.3).

Each of the other strawpeople could be configured to reflect this value:

- SP1 and SP2 - through improved inputs, assumptions, sensitivities and published datasets, without changing the scope of co-optimisation.
- SP4 - through an actionability framework that reaches non-network alternatives.
- SP5 - through explicit treatment of gas displacement, SP5 addresses industrial fuel switching most directly.

The relevant question is not which strawperson is selected, but whether the selected framework can represent a resource that is flexible demand and gas substitute at the same time. Section 7 proposes a test for this.

SP5 sits outside the SP1 to SP4 set and is put to stakeholders separately at Question 6, on which the Commission has stated it has no preference (§4.4). Antora supports further investigation of SP5's integrated electricity-gas demand modelling, while noting that most of the benefits quantified in section 5 of this submission are capturable under SP1 to SP3 by extending the analytical coupling that already exists between the ISP and the **Gas Statement of Opportunities (GSOO)**. AEMO builds both documents on the same IASR scenario set. The GSOO already derives gas-powered generation demand from ISP-informed modelling. We suggest completing the loop: representing industrial fuel-switching as flexible, locational electricity demand in the ISP, with the corresponding gas-demand reduction reflected in the GSOO.

4. The framework does not currently recognise eTES

4.1 Flexible industrial load is treated as an input, not a decision variable

The discussion paper acknowledges the cost of treating demand-side resources as inputs rather than decision variables: “the ODP may under-identify substitutes or complements to transmission investment. This could result in over or under-stating the case for some grid-scale investments” (§4.1.1, p.25). The discussion paper frames these resources around household scale flexibility and suggests that “investment in CER by individual consumers reflects private investment decisions that are unlikely to take the ISP into account” (§4.1.1, p.25). That is, it suggests that demand-side resources are exogenous because consumers will not respond to signals from the ISP.

That argument fails for industrial load. As an example, an industrial site of 30 MWth (~100 MWe grid connection) or larger would be making an eight- to nine-figure capital decision on heat supply. This is a sophisticated counterparty whose siting and flexibility decisions respond directly to published network and price signals. The paper already recognises that jurisdictional divergence in the treatment of “data centres, EVs and industrial loads” creates locational differences in demand and pricing (§3.2.1, p.16), which acknowledges that large loads are locationally material.

This speaks directly to the question the paper reserves at §4.1.1, whether the ISP should indirectly influence these decisions, and how that may be achieved. No new influence mechanism is required for an industrial load. The ISP already influences unregulated investment through the indirect pathway the paper itself describes: as the coordinating reference point that steers generation and storage developers' siting and timing decisions today. What that channel lacks is content relevant to flexible load: locational constraint, curtailment, and price-shape outlooks (see sections 6.1 and the response to Question 3.3). The paper's associated concern about actors "with a range of motivations" also recedes for this class: an industrial load's motivation is transparent and singular, minimising the delivered cost of heat.

4.2 The ISP taxonomy has no category for large flexible industrial load

The discussion paper glossary defines CER as “embedded solar and battery systems owned by consumers, where PV systems are below 100 kW and battery systems are below 5 MW, as well as EVs”. It defines distributed or mid-scale resources as assets 5 to 30 MW and demand side factors as “demand flexibility, electrification and energy efficiency”, which is a set of factors rather than a class of resources.

An industrial thermal battery, greater than 30 MWth, is too large for CER, too large for mid-scale, and is neither a grid-scale generator nor a network asset. It falls outside every category the framework provides.

The paper's consistent shorthand is “small-scale resources”, so the wider plan debate is conducted in the vocabulary of small resources. Yet the demand side resources with the largest impact per installation, individual flexible loads of greater than 30 MWth, each tens of thousands of times the size of a household system, have no name in the framework at all. The debate's vocabulary excludes its largest members.

Energy Networks Australia has already raised this with the Commission, submitting that “the existing demand forecasting approach may not appropriately consider future large industrial loads” (§5.1.2, p.48).

AEMO's final 2026 ISP modelled a sensitivity on “higher demand from industrial loads including data centres” (§5.1.3, p.49). Industrial load therefore enters the ISP as a demand risk to be served, and not as a flexibility resource the co-optimisation can draw on to lower the cost of the development path.

4.3 Gas is treated as a fuel input, not as displaceable demand

The paper states that gas is “treated as a fuel input to electricity planning, not as infrastructure the plan can build, repurpose or retire” (§4.1.1, p.24). The glossary confirms that gas infrastructure is not treated as a decision variable.

The consequence is that electrification of industrial process heat enters the ISP only as higher electricity demand, that is, as a cost to be served. This framing is incomplete.

The economics of eTES ensure it avoids charging in hours when gas-fired generation is setting the price; its charging therefore does not add gas-fired generation to the system. An industrial site with eTES alongside an existing gas boiler can flex between the two technologies, optimising for the cheapest strategy to produce steam. Electric steam undercuts gas steam on a marginal basis when the electricity price falls below the equivalent gas price, adjusted for efficiency losses. Gas-fired generation, converting the same fuel to electricity at 40 to 60 per cent efficiency, produces electricity at roughly double that fuel cost per MWh, so gas-fired generation does not set a price at which eTES can charge economically. Charging hours are therefore structurally hours in which supply priced below gas is on the margin. Independent analysis for ARENA benchmarks electrically-charged thermal storage as competitive with gas-fired heat at charging prices below approximately $40/MWh (CSIRO/ITP, 2025, pp.22-23).

A renewable-dominated system must be built to a scale that meets demand in low-resource periods, which guarantees over-generation in high-resource periods. eTES is sized to take only those hours and to store across them for continuous heat delivery. The **National Electricity Objective (NEO)**, as amended in 2023, requires AEMC to include emissions reduction within the ISP's central scenario. The structural surplus of renewable energy generation is a property of the ODP, and capturing its value for consumers sits squarely within the NEO.

Furthermore, the scale of achievable industrial gas reduction is sufficient to affect east coast gas prices and emissions. Antora's estimate of approximately 95 PJ per year of displaceable NEM industrial gas (section 5.1) is equivalent to roughly 40 per cent of AEMO's forecast east coast industrial gas consumption of 229 PJ in 2026, and exceeds the total decline to 168 PJ that AEMO projects by 2045 under the Step Change scenario (AEMO 2026 GSOO, §2.2.2). These benefits accrue to electricity consumers through gas-set firming intervals, and are invisible in a framework in which gas is only a price assumption. This is the coordination gap and information asymmetry that the Review is intended to minimise (§4).

4.4 Storage co-optimisation stops at the grid-scale meter

The plan co-optimises "grid-scale resources (generation, storage and transmission assets) and some large distribution assets" (Figure 4.1, p.24). Behind-the-meter thermal storage at industrial scale falls outside that boundary, despite being functionally equivalent to grid storage from a system perspective, in that it absorbs energy in surplus periods and avoids drawing energy in scarce periods.

The actionability framework contemplates non-network options on the ODP (Figure 4.1, p.24). Antora seeks clarity on whether that concept operates in practice and whether eTES could qualify. See section 6.2.

5. System value of eTES in the NEM

5.1 Scale of the addressable resource

According to a 2025 industrial process heat report by ITP Thermal, prepared for CSIRO, Australia's industrial sector uses 582 PJ of heat from combustion of fossil fuels annually (CSIRO/ITP, 2025, Table 3). Currently, electricity supplies only ~3% of the 842 PJ of fuel used for industrial process heat (CSIRO/ITP 2025, Figure 2). Based on Antora's analysis of this report, together with the Australian Energy Statistics 2025 (Table F) and AEMO's 2026 Gas Statement of Opportunities, around 60 per cent (346 PJ, 11 GWth) of process heat demand is within the NEM states. Approximately 5 GWth of that occurs below 350°C, and we estimate 3 GWth could be addressed by eTES in the near- to medium-term.

Deployment of 3 GWth of eTES could reduce natural gas consumption in the NEM by 95 PJ per year, reduce coal consumption by 17 PJ per year, and reduce other fuels (LPG, diesel and fuel oil) by 13 PJ per year. For context, the gas reduction is equivalent to roughly 40 per cent of AEMO's forecast east coast industrial gas consumption of 229 PJ in 2026, and exceeds the 61 PJ/yr reduction in annual consumption that AEMO projects by 2045 (AEMO 2026 GSOO, §2.2.2, Step Change). This deployment would result in approximately 10 GWe of connected, price-responsive charging capacity on the electrical grid, drawing approximately 32 TWh per year, which would reduce curtailment of new solar and wind generation.

The scale of the flexible charging load and impacts of significant reductions in gas consumption are both material to this review. Thirty-two TWh per year is comparable to the entire business electrification component of AEMO's 2026 ISP demand outlook (approximately 34 TWh by 2040). If that demand is modelled as inflexible baseload, the ODP overstates the firm capacity and network required to serve it; if it is omitted, the ODP understates demand and undervalues the variable renewable generation it would absorb. Either error could result in gigawatts of misdirected investment. Representing the flexibility of this load class is therefore a question of ODP accuracy, not of favouring any technology.

Antora's estimates are reconciled against published sources: the modelled NEM industrial gas-for-heat total agrees with the Australian Energy Statistics (2023-24 actuals) and AEMO's 2026 GSOO industrial gas figure within approximately 6 per cent. Key assumptions include an 83 per cent heat-supply efficiency for incumbent boilers, National Greenhouse Accounts Factors 2025 emission factors, and a 90 per cent electricity-to-heat efficiency.

5.2 System flexibility and firming

eTES converts rigid industrial baseload gas consumption into a controllable, multi-day flexible electric load.

AEMO's 2026 ISP counts demand side action as an infrastructure avoidance strategy for the first time, comprising energy efficiency, flexible industrial demand and better coordinated CER. Its sensitivity analysis quantifies the stakes: removing forecast CER coordination from the central case increases total system costs by $5.2 billion, through additional medium-duration utility-scale storage and flexible gas generation; removing forecast energy efficiency gains adds 27 TWh of annual consumption by 2049-50 and approximately $9.5 billion of total system cost (2026 ISP, Appendix A6). The ISP therefore already treats household-scale demand side flexibility as a multi-billion-dollar substitute for supply-side investment. The equivalent value of industrial-scale, multi-day, dispatch-responsive flexibility is left out of the plan.

5.3 Reduced curtailment

The mainland NEM curtailed approximately 7.2 TWh of wind and solar generation in calendar 2025, up from approximately 4.3 TWh in 2024, with rolling twelve-month figures of approximately 8.2 TWh (WattClarity, February 2026). AEMO's quarterly reporting shows network curtailment and economic offloading materially suppressing growth in grid-scale solar output (AEMO QED Q3 2025). AEMO forecasts curtailment to increase further.

eTES is well matched to help mitigate this problem since it has a very low marginal cost of energy absorption. The output of an eTES system is heat, so it does not incur the conversion penalty of returning energy to electricity. eTES has siting flexibility in permitting co-location with constrained generation. The duration of an eTES system is sufficient to absorb surplus events and store that electricity for multiple days. The scale of potential TES demand is well positioned to absorb growing curtailment; Antora’s estimated total potential TES deployment is approximately four times the 7.2 TWh of curtailment that the NEM experienced in 2025.

A plan that cannot site flexible load against network constraint will over-build transmission to relieve constraints that a co-located load could absorb at lower cost. This is the failure the Commission identifies at §4.1.1.

Curtailment is not addressed in the discussion paper's treatment of what the plan should co-optimise across. Curtailment is the clearest quantified evidence that the NEM already carries surplus energy which a flexible load could absorb, and it is the benefit on which the case for flexible industrial demand principally rests. Antora asks that curtailment absorption be recognised as an explicit benefit category when the ODP assesses demand-side resources.

5.4 Improved renewable energy economics and increased total MWh

Two mechanisms are relevant. First, price support: a large, price-elastic industrial load that charges in surplus hours raises the capture price of variable renewable energy in precisely the intervals where negative and near-zero pricing currently erodes the merchant investment case. Second, volume growth: industrial electrification increases total NEM energy demand, and because that incremental demand is flexible, it can be served disproportionately by new variable renewable energy at high utilisation rather than by firm capacity.

eTES shifts when energy is used and expands the addressable market for renewable energy. Both impacts improve the revenue quality of each marginal MW of renewable energy built. An ISP that models industrial electrification only as a demand forecast line item captures the additional MWh but none of the revenue adequacy or investment signal effect.

5.5 Reduced industrial gas consumption

Australian industrial sites using process heat consume approximately 582 PJ of fossil-fuel-derived heat each year, predominantly gas (CSIRO/ITP, 2025, Table 3).

Analysis by **the Institute for Energy Economics and Financial Analysis (IEEFA)** indicates that industrial heat pumps could replace more than half the gas used for Australian industrial process heat, in the order of 17 per cent of domestic gas use (IEEFA, 2024). That source addresses low-temperature applications. Antora's analysis indicates approximately 80 per cent of the eTES-displaceable gas identified in section 5.1 sits at 150°C to 350°C, above the practical range of commercially available heat pumps, so the two technology classes are largely complementary.

Displacing industrial gas has direct east coast gas market consequences, including deferred or avoided gas infrastructure and reduced exposure to gas price volatility for all gas users, including gas-fired generators. This lowers electricity prices in intervals where gas sets the price.

This is a whole-of-energy-system benefit that accrues to the electricity system and electricity consumers. It therefore falls under the NEO's mandate to promote the long-term interests of consumers.

5.6 Emissions reduction

Emissions reduction is one of the four assessment criteria for this Review, being whether recommendations "would efficiently contribute to achieving government targets for reducing Australia's greenhouse gas emissions" (§1.4.2, p.7). The 2023 NEO amendment confirmed that emissions reduction forms part of the long term interests of consumers (§3.2.1, p.16).

Industrial process heat is one of the largest remaining "hard-to-abate" emissions sources in the NEM footprint. Antora estimates the displaceable fossil fuel identified in section 5.1 corresponds to approximately 7 Mt CO_2-e per year of Scope 1 abatement, one quarter of industrial process heat emissions in the NEM (Antora analysis using National Greenhouse Accounts Factors 2025). Unlike most abatement options it increases electricity demand, which makes the electricity planning framework the appropriate place for it to be visible. A framework that cannot identify the abatement cannot value it.

Antora's requests that the emissions benefits of demand side electrification can be represented in the ODP, a question of modelling visibility.

6. Implications for the three workstreams

6.1 Planning

Industrial electrification and eTES should be modelled with:

- explicit flexibility characterisation covering duration, ramp rate and price elasticity, rather than an annual energy forecast alone;
- locational granularity sufficient to test co-location against network constraint;
- sensitivities on high industrial electrification futures, distinct from the existing sensitivity on higher industrial demand;
- published datasets enabling unregulated investors and industrial proponents to identify where flexible load is system-valuable.

We would be happy to collaborate to ensure accurate technical inputs in this process.

6.2 Delivery

The economic assessment framework should be capable of valuing non-network and demand side options as genuine alternatives to transmission, including options delivered by parties that are not regulated asset owners.

Antora does not support deferring all consideration of non-network options.

The Commission proposes not to prioritise reform to incentivise network businesses to deliver non-network options, on the basis that this is better addressed through the Electricity Network Regulation Review (§5.4.1, pp.67-68). It notes that the NER already obliges AEMO to consider non-network options in the ISP (clause 5.22.12) and TNSPs to assess them in the RIT-T (clause 5.15A.3), and that the Transmission Planning and Investment Review found no material bias towards capital solutions.

Antora accepts that incentive design belongs in the Electricity Network Regulation Review. The deferral nonetheless combines two distinct questions. Incentives determine whether a TNSP selects a non-network option once it has been identified. The prior question is whether the ISP's modelling can identify a flexible industrial load as a credible option at all. Incentive reform does not resolve a plan that cannot represent the resource.

That identification question sits within the planning workstream and within the evidence sought at Question 5.3. Antora asks the Commission to confirm in the draft report that deferring non-network option incentives does not also defer the question of whether it is represented in system modelling.

6.3 Governance

Large flexible loads provide grid benefits well beyond the typical firm industrial load, and are not well represented in current ISP engagement structures. Antora supports an explicit engagement channel for large load and industrial flexibility proponents.

The framework should also be adaptable to industrial electrification arriving faster than the central forecast.

7. Proposed design test

Whichever framework the Commission lands on, it should address likely impacts of large industrial process heat electrification. For example: if a 30 MWth (~100 MWe) connected, price-responsive industrial load with multi-day thermal storage were built in a given ISP sub-region or renewable energy zone (REZ), supplying continuous process heat otherwise served by gas or by an inflexible electric boiler, and charging only in low-priced hours, what system impacts would result?

A framework that passes the test can identify: (a) the transmission augmentation deferred or avoided; (b) the avoided firming capacity the plan would otherwise schedule to serve an inflexible load of the same size; (c) the otherwise-curtailed generation absorbed; and (d) the gas demand retired. For scale, one such load charging roughly 30 per cent of hours absorbs on the order of 0.25 TWh per year and displaces approximately 1 PJ per year of gas. Power-to-power discharge would add a further, separable question, i.e., the dispatchable injection capacity, but the test stands without it.

If the framework cannot address the foreseeable impacts of large scale flexible industrial electrification, it will undervalue the resource and over-build the alternatives. The question is not hypothetical: on Antora's estimates the NEM-wide addressable pool corresponds to approximately 3 GWth (section 5.1).

This test is independent of the choice between strawpeople.

8. Responses to consultation questions

The discussion paper poses ten questions, consolidated at Appendix D, pp.82-85. Antora responds to the following.

Questions 2.1 and 2.3
The most consequential sector change for the ISP is the emergence of large, flexible, price-responsive industrial load, which is distinct from CER.

Question 3.3
eTES systems are significant private investments, but their impacts are not adequately considered in the system planning framework. The ISP does not currently provide sufficient guidance or optimize based on the system benefits of industrial-scale flexible load. The gaps are: locational constraint and curtailment outlooks, expected price and marginal loss factor outlooks by sub-region, and any signal identifying where flexible load is system-valuable.

Question 4.3
See section 3.

Question 5.3

- 5.3(a), where treating small distribution, CER and demand side resources as inputs risks distorting the ODP: see sections 4.1, 4.3 and 5.1. Electrification enters the plan as a demand cost and never as flexibility or as gas saving. The distortion is significant: approximately 32 TWh per year of prospective charging demand that, modelled inflexible, overstates required firm capacity and network, and, omitted, understates demand and undervalues the renewable generation it would absorb.
- 5.3(b), which resources are most material to co-optimise: large flexible industrial load is the highest value and lowest complexity candidate. It involves hundreds of sites rather than millions of devices, national pollutant inventory analysis identifies approximately 1,500 process-heat sites, with the bulk of demand concentrated in fewer than 100 large sites (ARENA/ITP, 2019), each material in size, locationally specific, and operated by counterparties that reference the plan.
- 5.3(c), modelling capability required: industrial load requires less new modelling capability than household CER, which addresses the Commission's stated concern that a wider plan “would require modelling capability that does not yet exist at the level needed” (§4.1.1, p.26). AEMO already surveys these facilities individually for the GSOO.
- 5.3(d), risks to ODP stability: adding a small number of large, well-characterised flexible loads is close to stability-neutral, in contrast to mass CER co-optimisation.

Question 6
Antora provides evidence on the benefit of industrial gas displacement (sections 4.3, 5.1 and 5.5) and supports further investigation of the integrated electricity-gas demand modelling contemplated by SP5. The key benefit is the ability to represent cross-sector flexibility rather than gas infrastructure planning itself. Antora takes no position on the institutional question of NEL and NGL amendment, and submits that the nearer-term modelling capabilities sought at section 6.1, achievable through analytical coupling of the ISP and the GSOO, should not be gated on it.

Question 7
Antora does not seek additional prescription in the NER, consistent with the Commission's position that prescriptive rules are unnecessary and may constrain AEMO's ability to respond to change (§5.1.3, p.49). Antora seeks improved inputs, assumptions and sensitivities, which is achievable under SP1 and SP2 as well as SP3. The specific request is an explicit flexible industrial load sensitivity in the IASR, distinct from the existing sensitivity on higher industrial demand.

Question 10.1
See section 6.2 on non-network options.

Question 10.2
Additional issues not outlined in the discussion paper: curtailment (section 5.3) and the taxonomy gap (section 4.2).

Antora does not propose to respond to Questions 1, 4.1, 4.2, 4.4, 5.1, 5.2, 5.4, 5.5, 8 and 9.

9. Summary

Whichever future purpose the Commission adopts, Antora recommends that the ISP framework:

1. **Recognise large flexible industrial load as a distinct resource class** separate from CER, mid-scale distributed resources, and generic "demand-side factors", none of which accommodate a 30 MWth (~100MWe) or larger behind-the-meter thermal asset.
2. **Represent industrial electrification as a flexibility resource, not only as demand to be served –** characterised by storage duration, ramp rate, price elasticity and location, rather than by an annual energy forecast.
3. **Apply a locational substitution test at the ISP sub-region and REZ level:** if flexible industrial load with multi-day storage were built in a given sub-region, what transmission, generation, firming and gas infrastructure would the ODP no longer require? A framework that cannot answer this will systematically over-build the alternatives.
4. **Recognise curtailment absorption as an explicit benefit category** when assessing demand-side resources. Curtailment is the clearest quantified evidence that the system already carries surplus energy a flexible load could absorb, and it is currently absent from the framework's treatment of what the plan should co-optimise across.
5. **Publish the locational information unregulated proponents need** in order to site flexible load where it is system-valuable, constraint and curtailment outlooks by ISP sub-region and REZ, and indicative marginal loss factor trajectories.
6. **Include an explicit flexible industrial load sensitivity in the IASR**, distinct from the existing higher-industrial-demand sensitivity, scaled to test electrification of the 3 GWth Antora assesses as addressable in the near to medium term.
7. **Confirm that deferring non-network option incentives does not defer the prior question**, whether the plan can identify flexible industrial load as a credible option at all. Incentive reform cannot repair a plan that cannot represent the resource.
8. **Value industrial gas displacement as a benefit to electricity consumers**, given gas sets the price in firming intervals, irrespective of whether the ISP's formal scope is extended to gas.

Our driving concern is that the framework has no category for a resource that is simultaneously a flexible demand and a natural gas substitute, and therefore cannot value the transmission, firming, and gas infrastructure that resource displaces.

10. Conclusion:

Antora thanks the commission for the opportunity to comment. We are happy to provide additional information on charge profiles, flexibility characteristics, and other technical information.

Respectfully submitted

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