



Department of
**Energy and Economic
Diversification**

Future Energy System Outlook 2027

General Clarifications Questions & Answers



1. Purpose

This document:

- sets out the questions which the Department of Energy and Economic Diversification (DEED) received from participants during the FESO 2027 Launch webinar;
- does not include the identity of the participant who submitted the question
- is current as at 4 August 2026.

2. Questions and Answers

Questions posed during the public briefing by DEED on **15 July 2026**:

1. How is the FESO different from the WOSP?

FESO satisfies the same ESM Rules requirements as the Whole of System Plan (WOSP), but the name better reflects that it will present a suite of plausible future scenarios rather than a single plan. The focus is on identifying low-regret investments across multiple futures.

2. Will the Future Energy System Outlook (FESO) be regularly refreshed like AEMO's ISP? If so, what is the intended timeline between refreshes, and how will you ensure regular updates so we avoid a multi-year gap like the one following the 2020 Whole of System Plan?

Thank you. Yes. Under the rules, FESO must be updated at least every five years, although future timing will depend on system needs and government decisions.

3. Will FESO have any formal link to transmission planning, reserve capacity mechanism settings, access arrangements or government funding decisions?

Yes. While FESO will not directly determine regulatory settings or funding decisions, its stated purpose includes guiding planning and investment in generation, storage and transmission infrastructure and informing regulatory and market development initiatives. FESO will also build upon and interact with the WEM ESOO, WA GSOO and Western Power's Transmission System Plan.

4. Given alignment with the ESOO for at least the first 5 years, have you considered a "Fee-Soo" pronunciation of FESO? Like ESOO but with an F at the beginning.

The suggestion has been enthusiastically noted. During the webinar several potential pronunciations were discussed and all broadly accepted, however "Fee-So" remains the most commonly used pronunciation at this stage.

5. Is it expected that ESMR 4.5A will be changed to FESO instead of WoSP?

The scenarios paper confirms that FESO is the publication that fulfils the statutory Whole of System Plan requirements under clause 4.5A of the ESM Rules. The Rules continue to use the term WOSP. Any amendment to that terminology would follow a separate regulatory process.

6. How often will the assumptions be updated if significant changes occurred before 2027?

Stakeholder consultation on the draft MISA, ongoing engagement with industry and further consultation on the draft FESO report provide opportunities to update assumptions as new information becomes available prior to finalisation of FESO 2027. However, due to the complexity of the modelling process, it is likely these assumptions will remain as defined in the final MISA release (pending a very significant and unexpected change).

7. Do you have any thoughts or plans around information sharing & cross pollination of ideas with similar initiatives to improve planning processes in the NEM (both at AEMO and state levels)?

We won't comment on processes in the NEM. We do however acknowledge the benefits of collaboration and engagement. FESO is being developed collaboratively by DEED, AEMO and Western Power through a formal working group and steering committee arrangement. We have also been engaging with AEMO on the ISP to support a flow of ideas between the NEM and the WEM.

8. We have been told that we are renewable energy rich. If we expand the capture of renewable via transmission of low cost renewable is there a view of what we can achieve in increasing economic activity beyond least cost?

FESO is not intended to be a fully integrated economic model. Economic growth will be reflected through demand forecasts, industrial developments, and connection pipelines that respond to and translate the scenario narrative for each scenario. Sensitivity testing and case studies can examine how major economic development opportunities interact with the power system.

9. Has the electrification of homes, its impact on peak demand and electricity demand, been modelled or considered? This wasn't mentioned specifically, like industrial and commercial electrification, or increased EV uptake.

Yes. Residential electrification, rooftop solar, batteries and EV uptake are embedded in Western Power's forecasting capability and will be represented in FESO's demand modelling.

10. What assumptions are being used for EV uptake across the scenarios, and does the modelling consider vehicle-to-grid (V2G) as a source of flexible capacity?

Currently the proposed approach is to model a proportion of EV storage capacity as available to the system at a future point in time. More sophisticated behavioural modelling may be beyond scope but could be explored via case studies.

11. If hydrogen was an AFL team, say the Eagles, will it rise again and have a place in the FESO final(s) demand estimates in the 2030s? Or has that hydrogen ship sailed?

FESO remains entirely neutral on AFL matters. Hydrogen has not been ruled out. Future hydrogen demand will depend on specific, credible use cases and stakeholder evidence. FESO will reflect a slowed development of hydrogen projects demand assumptions.

12. Can you please talk to your plans for modelling the Kalgoorlie Region which is currently part of the SWIS?

Kalgoorlie demand and existing generators will be represented. Regional consultation will be undertaken, and the modelling will consider existing and potential future demand and supply, including the possibility of transmission augmentation, if justified.

13. How will FESO distinguish between committed, probable and speculative industrial/data centre loads and how will that translate into transmission timing?

Scenario development will cover different levels of major-load growth, while case studies will be used to test specific locations, timing, and demand magnitudes to understand transmission implications. Assumptions regarding the inclusion of speculative large loads will also respond to scenario narratives. The Methodology, Inputs, Scenarios and Assumptions Document to be published later this year will detail our approach more completely.

14. Will you be surveying individual industry participants directly to form a view on future expansion and electrification?

Stakeholder engagement is a core part of the FESO process. As outlined during the webinar, DEED is already engaging with existing and prospective major loads, generators and industry participants. Industry input regarding expansion plans, electrification pathways and future electricity demand will be used to inform modelling assumptions and scenario development. Feedback can also be provided via EPWA-info@deed.wa.gov.au.

15. There is quite a lot of discussion about Data Centre consumption. When Naval frigates undergo upgrades/maintenance at the AMC - they 'connect' to the SWIS and I understand that load is significant. What would a significant naval support facility require (could that match Data Centre requirements from time to time). Is that scenario built into current forecasts for SWIS)?

FESO will model major loads and explicitly considers increased sectoral activity as part of the draft scenarios. Existing and prospective major loads, including industrial, defence-related and data-centre demand, will be informed through stakeholder engagement and may be examined through major-load case studies where appropriate.

16. How do the three models handle sensitivities from large potential loads, i.e. electrification of Alumina production, uptake of electrical vehicles, and V2L?

Major-load uncertainty is a key feature of the FESO framework. Existing and prospective major loads will be informed through direct industry engagement. It is proposed that differences in industrial electrification, data centres, hydrogen, defence activity and other energy-intensive industries will be reflected through scenarios and may be examined through case studies where appropriate.

17. [In relation to: If hydrogen was an AFL team, say the Eagles, will it rise again and have a place in the FESO final(s) demand estimates in the 2030s? Or has that hydrogen ship sailed?] does this mean that data centres are the dockers?

FESO remains entirely neutral on AFL matters. Some data centres are considered to be major loads and may be examined through scenario assumptions or dedicated large-load case studies smaller data centres are likely to be captured through sectoral growth assumptions.

18. Will there be a scenario where LLM-specific ASIC chips find widespread adoption and greatly reduce energy requirements of AI inference?

Not as a dedicated scenario at this stage. However, uncertainty regarding future technology development, energy efficiency improvements and major-load growth is a central reason for using scenario analysis. Improved computing efficiency and changes in AI-related demand could be explored through sensitivities, major-load assumptions or a specific case study if stakeholders consider this to be material.

19. What are the key factors that will be used as benchmarks to keep a check on Energy Costs in the SWIS?

FESO is a least-cost planning exercise that will help to guide the evolution of the SWIS. It will evaluate factors such as load flexibility, DER/VPP participation and demand response to reduce costs. It is not intended that FESO will produce annual electricity-price forecasts but will assess long-term trajectories. Outcomes of the FESO may form the evidence base for further reform or other policy responses in the SWIS.

20. Keen to see how you have considered (and modelled) requirements for peak demand to be served by GPG during times of extended renewables drought.

The FESO will explore renewable drought conditions and implications for gas infrastructure adequacy. It is expected that least cost modelling will include constraints that reflect gas infrastructure adequacy and may include consideration of dual fuel registered

plant and other operational responses. These assumptions and approaches will be documented in the MISA consultation material.

21. Does your modelling reflect the gas pipeline network as is, or does it consider scope for expansion of pipeline capacity to accommodate additional GPG (cf AEMO's GIOR)?

Large-scale gas network expansions are not a focus of FESO. However, the modelling will assess gas infrastructure adequacy and on the basis of this the FESO may consider the impact of operational arrangements, dual-fuel capability and least cost investment options to better understand and manage constraints during periods of high gas demand. FESO will also assess the interaction between gas infrastructure, changes to industrial demand for gas, and the electricity system's future firming requirements.

22. Will the FESO give a projection of electricity prices going forward?

It is not intended that FESO will produce annual electricity-price forecasts but will assess long-term trajectories. Outcomes of the FESO may form the evidence base for further reform or other policy responses in the SWIS. Results may be represented through scenario outputs and supporting artefacts.

23. Are the governmental forecast of the SWIS intensity of 0.27 kg CO₂e/kWh in 2029 and 0.14 kg CO₂e/kWh in 2030 reasonable? Is there a remote chance those factors can be physically achieved given the current pace of renewable penetration?

No assessment has yet been completed for FESO. FESO modelling will report emissions-intensity outcomes for each scenario.

24. What is the magnitude of the price increases anticipated in each of the scenarios and does this begin to effect demand?

The least-cost modelling will allow assessment of broad price trends. The interaction between energy prices and demand growth will not be explored in detail. Scenarios should be plausible and internally consistent. Stakeholder engagement will be important in ensuring scenario narrative and assumptions are credible. This may include the identification of hurdles that would need to be resolved for a particular outcome to be realised.

25. Are we going to see an end to non-government owned coal fired generation?

FESO will not predetermine the future of privately owned coal-fired generation. The modelling will assess the least-cost development pathway for the SWIS under a range of scenarios, taking into account emissions constraints, reliability requirements and future electricity demand. The announced retirement schedule for State-owned coal generation is expected to be treated as a common assumption across all scenarios, while the future role

of privately owned coal generation will depend on commercial viability, fuel availability, emissions pathways and broader market conditions.

26. Do all the scenarios assume the fixed closure dates for Sate owned coal generation or can these move under the "least cost" limb?

The scenarios paper identifies facility retirements as a fixed common assumption across all scenarios in line with Government commitments.

27. Are we modelling a least-cost system, or a target-price system?

FESO is fundamentally a least-cost system planning exercise. The modelling is designed to identify the least-cost mix of generation, storage and network infrastructure needed to maintain security, reliability and lower emissions under each scenario. It is not designed to achieve a predetermined electricity price outcome, although pricing and commerciality assessments will be used to test the feasibility and implications of modelled outcomes. Outcomes of FESO may form the evidence base for reform or other policy responses.

28. Gas prices are assumed to follow a common trajectory across all scenarios. Why are gas market uncertainties not treated differently across scenarios?

The draft scenarios intentionally use a common gas fuel cost trajectory across all scenarios to make it easier to compare changes arising from demand growth, electrification, DER uptake and industrial development. Gas market variation has already been identified as a candidate for sensitivity analysis across one or more scenarios. This reflects the focus of FESO predominantly on the electricity system.

29. Has any of the gas market modelling explicitly captured the difference between flexible gas supply infrastructure and downstream WEM firming services?

FESO will assess the reliability needs of the future power system and understand impacts on gas infrastructure. While gas-fired generation is expected to continue to play an important firming role during the energy transition, the amount of firming capacity required, and the infrastructure needed to supply gas to that capacity are separate planning questions. The modelling will consider both future firming requirements and the ability of the gas system to support them under different scenarios.

30. Comment - The renewable drought in June 2023 would be worth a thorough review when looking at the required amount of firming capacity.

Thank you for the suggestion. Historical renewable drought events provide valuable information for understanding firming requirements, gas infrastructure needs and system resilience. There will be further information on weather-related inputs released as part of the draft MISA.

31. Will this FESO be directing Western Power's longer term transmission planning? If so, will this be a document that is used by Treasury and the Minister to plan funding for the GTE's future spend?

Yes. FESO is intended to inform efficient transmission investment opportunities and government decision-making.

32. How will FESO interact with Western Power's Transmission System Plan and access arrangement process, so it creates a sequenced investment plan?

FESO and Western Power's Transmission System Plan will be coordinated to ensure consistency and sequencing of planning outcomes as it applies to FESO outcomes or recommendations.

33. Will FESO identify actionable transmission priorities, timing windows and trigger points, similar to how the NEM ISP identifies actionable and future ISP projects?

FESO will identify common or low-regret investments across one or more scenarios, these may form the basis of designating a priority project.

34. Will common issues identified from two or more scenarios lead to designation as priority projects? That can be fast tracked through the approval process for WP?

Not automatically, but consistent appearance across multiple scenarios would provide a stronger evidence base for government consideration as a low-regret investment.

35. With planned models for attracting large loads being largely dependent on energy price, how will the costing model support transmission build out to renewable generation zone

FESO will optimise generation, storage and network development together as part of a least-cost whole-of-system assessment. This enables the modelling to test whether transmission investment into a particular area lowers long-term system costs, supports future industrial demand, or unlocks broader economic opportunities. Candidate network augmentations identified through the SWIS Transmission Plan and other processes will be tested as part of this process.

36. Given the apparent consistency in likely transmission expansion corridors across previous SWIS planning work, is the biggest planning challenge now forecasting demand with greater precision, or preserving the corridor options that would be required across future scenarios?

Both remain important challenges. FESO seeks to improve understanding of future demand through detailed modelling of industrial development, electrification and major loads while also testing transmission augmentation options and identifying low-regret infrastructure investments. The scenario framework helps identify network developments that remain beneficial across multiple plausible futures.

37. What transmission build-out is assumed - and what happens if it is delayed?

Candidate network augmentation options will be tested in FESO, with Phase 1 projects from the SWIS Transmission Plan will be treated as committed across all scenarios. The impacts of delays to future network developments may also be explored through sensitivities or scenario analysis where appropriate.

38. Will the north, east and south renewable-generation hubs identified in the SWIS Demand Assessment be carried into FESO, and could Oakajee or the Eastern Goldfields be assessed as a common-use energy-park case study?

FESO will build on previous planning exercises, including the SWIS Demand Assessment, SWIS Transmission Planning Update and SWIS Transmission Plan. Generation hubs and transmission options identified through those exercises will therefore inform FESO, while stakeholder feedback will help determine whether specific locations warrant dedicated analysis.

39. Where can we get a copy of the distribution network model?

The FESO model uses an aggregated representation of the distribution network at zone-substation level rather than detailed feeder-level modelling. Western Power's annual Network Opportunity Map is the primary public source for relevant distribution network information.

40. Will the report consider the impact of residential customer behaviour as part of the scenarios? For example, willingness to participate in a VPP, cost of living influence on ability to invest in DER, etc.

Yes. Different levels of DER uptake, electrification, and customer behaviour are incorporated into the demand-forecasting framework and scenario development. Sensitivity analysis can also be used to explore the impact of different customer behaviour.

41. I see in Table 2-1 “Key parameter categories” there is a section on Energy Efficiency. If the largest cost (largely fixed) with the WEM is delivering capacity (both Tx & Dx and generation) and the largest contributor is AC would one of the scenarios include a version where consumers are given a cost reflective tariff to drive “energy efficiency”?

Energy efficiency has been identified as a key parameter category within FESO and is expected to influence future electricity demand, particularly from residential customers. The current draft scenarios will include varied assumptions regarding the uptake of energy efficient appliances but will exclude consideration of a specific cost-reflective or other tariff arrangements.

42. Given that the Distribution Network is over 70% of the regulated asset base, how is FESO specifically dealing with utility-scale wind storage and solar integration on the distribution network?

A key enhancement in FESO will be a greater consideration of the distribution network and distributed energy resources. Integration of larger generators onto the SWIS typically requires case by case assessment. The future evolution of the distribution network has also been identified as a potential case study.

43. Are there any studies/works being conducted on increasing energy capacity in infill areas where there is low capacity? e.g. City of Fremantle?

FESO is focused on long-term planning at the strategic level rather than specific distribution network projects which will continue to be managed through Western Power's annual planning processes. However, the inclusion of distribution network modelling may result in the identification of opportunities to increase utilisation of the distribution network in one or more locations.

44. How will FESO test whether assumed VPP capacity is actually dispatchable and can be counted on?

How will FESO test whether assumed VPP capacity is actually dispatchable and can be counted on? FESO will incorporate coordinated DER. The dispatchability of coordinated DER resource continues to be assessed and developed as part of the draft methodology, inputs, scenarios and assumptions (MISA), which will be released for public consultation prior to finalisation.

45. The Incentivisation of installation of solar and batteries has been effective in increasing solar capacity in the network, as noted early in this meeting.

Do you see a benefit to further incentivising the installation of renewable energy systems independently, such as solar/wind hybrid power for small/medium industry or agricultural businesses - particularly in the more remote locations in the network where transmission capacity is more strained?

FESO will not determine future incentive programs. However, it will assess the role and value of DER, batteries, coordinated DER and flexible demand in supporting least-cost system development. This may provide useful insights into where distributed technologies can improve network utilisation or defer network investment. Similarly, the core objectives of the FESO are to inform efficient investment, planning and policy decisions for the long-term interests of SWIS consumers.

46. Are there any specific network asset utilisation targets in consideration (like flexible loads) as we expect average utilisation further drops with wider gap between min and max loads?

FESO is not designed around a specific asset utilisation target. However, it is planned to explicitly consider the role of demand-side resources like industrial load flexibility, coordinated DER, and storage, all of which may improve utilisation of existing infrastructure and reduce the need for future augmentation.

47. Will the FESO consider commercial feasibility for the scenarios, considering market and contract pricing required to underwrite investment on the supply side and appetite or willingness to pay by industry on the demand side?

Yes. A commerciality assessment similar to the previous whole-of-system planning exercises is intended to be completed on the supply side. Market dispatch modelling will examine whether technologies can earn sufficient revenue and identify potential commercial barriers to investment. FESO will also inform the interaction between energy prices, future industrial demand, and investment decisions to better understand how commercial outcomes may influence both supply and demand.

48. Is there a concern about tenor gap in the SWIS and are discussions in the east around fungible contracts to incentivise investment relevant in the context of a capacity market?

FESO is not intended to design market mechanisms or propose changes to the Reserve Capacity Mechanism. However, one of its objectives is to identify future generation, storage, transmission and essential system service requirements, which can help to inform and evidence the need for market reform and review or development of other relevant policies.

49. How will system security requirements be converted into investable opportunities for batteries, synchronous condensers, grid-forming inverters, etc?

FESO will assess the least-cost combination of generation, storage, network investment and emerging technologies required to maintain a secure and reliable power system at a whole-of-system level. The FESO is not intended to be the primary vehicle for detailed system security policy development or investment decisions. There is ongoing analysis by DEED, Western Power and AEMO occurring through parallel processes. Nonetheless a partial representation of system security related constraints or markers is expected to be included as part of FESO

50. Will grid-forming batteries, synchronous condensers and other non-network technologies be assessed as well?

FESO is not intended to be the primary vehicle for detailed system security policy development, noting there is complementary work occurring in parallel. It will, however, reflect likely investments needed to support system security identified through these parallel processes.

51. What will be the role of DSPs in the reliability modelling, is it assumed that there will be growth in DSP capacity to 2050?

Demand-side participation and industrial load flexibility are recognised as important resources. Stakeholder input will help inform DSP growth assumptions, particularly as they apply to large industrial loads FESO will examine how flexible demand resources

contribute to reliability outcomes, reduce peak demand and potentially defer generation and network investment requirements.

52. How detailed will the resource plans be? Will it indicate optimal quantities of different generation and storage facilities?

Yes. FESO will model the least-cost mix of generation, storage and network infrastructure required under each scenario. Outputs will include the optimal mix of wind, solar, battery storage, long-duration storage, gas-powered generation and DER needed to meet demand, while maintaining security and reliability. While FESO is not intended to prescribe specific projects, it will provide a detailed indication of technology requirements and development pathways.

53. Thanks. Would there be a capture or an overlap in FESO for First Nations Set Asides in there are in both Tender 9 (renewable generation) and Tender 10 (dispatchable capacity and battery storage) of the Capacity Investment Scheme?

FESO is not a procurement, tender or Capacity Investment Scheme (CIS) design process. However, stakeholder feedback regarding First Nations participation, project development opportunities and broader economic outcomes can help inform assumptions regarding future energy infrastructure development.

54. How does the current geopolitical uncertainty in the Middle East influence the assumptions underpinning the FESO, particularly regarding delivery timing, investment priorities, and supply chain availability?

FESO recognises supply-chain constraints, fuel availability and infrastructure delivery risks as factors that may influence future energy system development particularly over the short to medium term. Although the scenarios are not currently based on individual geopolitical events, material impacts to fuel prices, logistics, equipment costs or project delivery may be reflected through scenario settings where appropriate.

55. How is the report considering resource use competition i.e. protection of future water for food and future high value agricultural land for domestic food security, and a premium exportable food surplus and land for conservation and restoration?

FESO is primarily an electricity-system planning exercise. However, its scenarios and investment pathways are intended to be plausible and deliverable, and stakeholder feedback on land-use, environmental and development constraints is being sought through consultation. These factors may influence assumptions regarding future infrastructure development opportunities in some regions of the SWIS.

56. How will FESO consider delivery constraints e.g. workforce, supply chain, planning approvals, connections and social licence?

Supply-chain constraints are explicitly identified as a key scenario parameter category. The scenarios vary assumptions regarding workforce availability, logistics constraints and infrastructure delivery capability, allowing FESO to assess how these factors affect both the pace and cost of future energy system development. Sensitivities may be used to explore the potential impact of specific constraints.

57. Does the modelling consider climate projections as recently delivered by DWER - specifically the Shared Socioeconomic Pathways?

Climate impacts and global response are both important drivers of change for the SWIS impacting demand growth, demand for green supply chains, and changes to capital forecasts. Each FESO scenario is anticipated to broadly align with the International Energy Agency World Energy Outlook 2025 scenarios: Current Policies Scenario, Stated Policies Scenario and Net Zero Emissions by 2050 Scenario.

The focus of the FESO is on understanding the optimal development of energy infrastructure through to 2050 and is not expected to draw explicit linkages between SSP and FESO scenarios. The Working Group continues to engage with the DWER, as well as other agencies, and is seeking feedback to ensure each scenario remains internally consistent.