

CER Data Exchange Industry Co-design

Workshop 2 Sumary Report October 2024



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Overview

Summary Report Overview

The second of three Industry Workshops for the CER Data Exchange Industry Co-design Project was held in Sydney on 19 September 2024. A broad range of stakeholders in the energy sector attended, with over 100 representatives from industry bodies, aggregators, retailers, equipment manufacturers, networks, governments, market bodies, academia and consumer advocates.

The workshop was designed to provide participants an opportunity to share perspectives on the CER Data Exchange – focusing on co-defining the value of use cases in alternative futures and preference setting for the ownership, operations and functionality of the design. We, the Project team, used co-design tools to test the concepts and elicit informed responses. Stakeholder questions and feedback provided highly valuable insights.

We have documented stakeholder preferences and feedback expressed at the workshop, including assessments of each use case and preferences for ownership, operations and functionality of a CER Data Exchange. This input will be reflected in the development and design of the CER Data Exchange, as presented in the consultation paper intended for release in October 2024.

This report provides a summary of the workshop sessions and stakeholder feedback, including:

- Key themes
- Workshop Session 1: Alternative Futures
- Workshop Session 2: Ownership, Operations & Functionality
- Survey results & Ideas wall

The workshop presentation slides are available on the <u>AEMO Project Webpage</u>.

Co-design tools



Table discussion and input



Group Surveys



Placemat Discussion Capture



Workshop presentations



During the workshop, we had presentations from the project team introducing the day, explaining our approach to co-design and outlining reasons for undertaking this initiative.



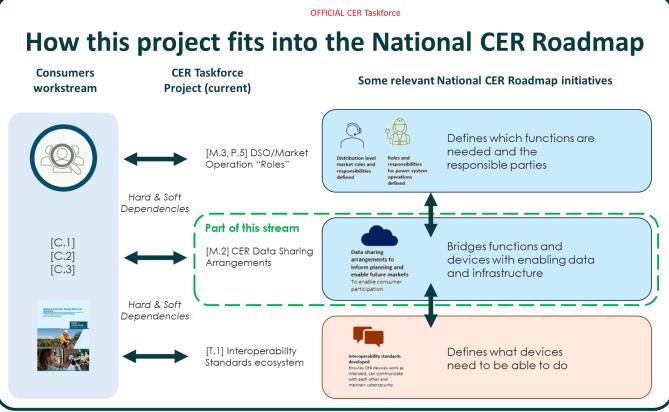
DCCEEW presented on the National CER Roadmap and **highlighted the importance** of this project in the roadmap, and the energy transition more broadly (see figure).



As agreed by Energy Ministers, there has been a **high-level policy decision to define and implement a CER Data Exchange** to enable markets and services that incentivise consumer participation in CER coordination.



The **CER Data Exchange is a National Reform Priority** included in consumer workstream M.2: 'Data sharing arrangements to inform planning and enable future markets'.



National Consumer Energy Resources Roadmap

Key themes from industry feedback





Broad view: There has been broad agreement, at a conceptual level, on the need for and value of improved data sharing infrastructure between organisations now and into the future.



Priority use cases: There appeared to be broad agreement among stakeholders that the priority use cases are: 'sharing network limits' and 'supporting local network services', which complement each other.



Value use cases: There was support for immediate implementation of the 'consistent CER standing data' use case. Also 'visibility of CER customer choices' and 'streamlined CER portfolio access' were considered as having future value and complementary, although not deemed as critical immediately.



Preferred functionality: Participants broadly preferred the CER data exchange to start with a narrow focus to accelerate implementation of the immediate use cases and manage risk/cost. There was recognition of the need to design for broader functionality based on a wider set of potential use cases – enabling the scope to expand over time as industry needs evolve.



Preferred ownership model: Participants have narrowed the focus to three possible models: (1) AEMO owns infrastructure and operates; (2) AEMO owns infrastructure, with a separate operator; or (3) New government agency owns and operates. Participants had concerns about a commercial bias under privately owned option.



Preferred oversight approach: Participants gravitated towards a balanced approach. Trade-offs were recognised between both being too prescriptive (which could have unintended consequences and reduce flexibility), and providing too much discretion (which could reduce certainty and increase market risks).



AEMO IDX Extension: This was the preferred model in most use cases as it would leverage existing industry investments. Participants highlighted stronger customer representation would be required, and the IDX design and development process would need to be transparent, inclusive and consultative.



Alternatives considered: The new agency option received support for being most fit-for-purpose, but concerns were raised around bureaucracy/political risk, delays to establish and the cost recovery pathway. An industry led message bus was seen as quicker and cheaper to deploy, but significant concerns were raised about a commercial bias.



Questions remain: Some participants were uncomfortable providing feedback on individual options without understanding the preferred delivery models, including initial use cases. Further, participants highlighted concerns around the costs of implementation, the overall benefits to consumers and the use of consumer information – including privacy, security and consent management issues.



Context

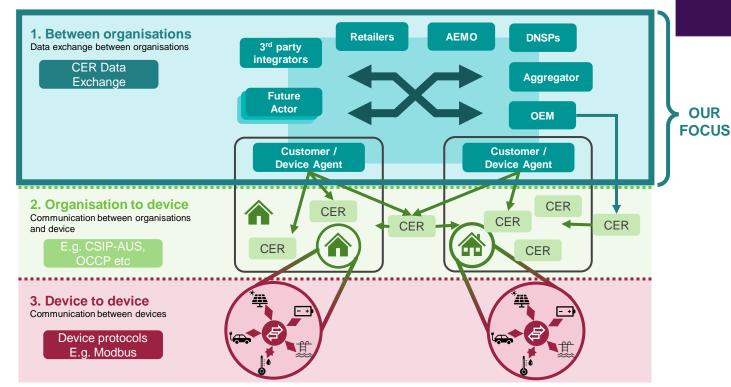
Project summary



The Consumer Energy Resources Data Exchange (CER Data Exchange) Industry Co-design is a joint initiative between the Australian Energy Market Operator (AEMO) and AusNet Services to work collaboratively with industry to co-design a national CER Data Exchange. AEMO has appointed Mott MacDonald to support this project by providing subject matter and change management expertise, delivering project management and administration capabilities, and managing stakeholder engagement.

This project is the first step in a multi-stage process that seeks to create a digital foundation that supports multiple organisations to share CER-related information through a secure, reliable, flexible and cost-effective exchange. Providing lower cost access for organisations to connect and support the development of new and innovative services will provide greater value to all customers. The CER Data Exchange initiative will be a key enabler for CER to be an integrated part of a customer-centric, affordable, and data-enabled electricity system. This is identified as a National Reform Priority under the government's National CER Roadmap.

The target outcome of this process is to build industry alignment on a high-level design of a National CER Data Exchange that has considered the use cases, governance, business models and implementation that meets the needs and best interests of Australian consumers.



The purpose of this co-design process is to deliver industry backed, consumer-centric reform that supports CER at scale



Priority Reform

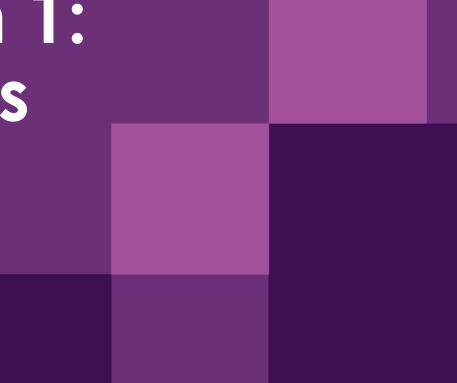
- Governments and market bodies have embarked on a significant program of reforms in recent years that are designed to create policies and regulatory frameworks that support the efficient integration of CER to benefit all.
- The expectation is that we need to adapt the energy system to support very high levels of CER to achieve net zero policy targets. Indeed, governments are continuing to facilitate and create incentives for households to adopt solar PV and battery storage.
- This future requires CER data to be coordinated at a scale that is far beyond current arrangements.
- International experience has shown public-good common data sharing infrastructure is a key enabler of new market developments and customer choice.

Why co-design?

- Ministers require AEMO to define and develop an implementation plan for the CER Data Exchange, as part of the <u>National CER Roadmap</u>.
- When considering the various trade-off in deciding the form and function of the CER data exchange, we are seeking input to ensure it meets the evolving needs of industry and consumers.
- Through several workshops and extensive consultation with our Expert Working Groups, we are exploring critical aspects of the CER Data Exchange – including priority use cases, governance, ownership, operation, funding and implementation strategies.
- Stakeholder views are a key input into the Project team's final recommendations on the design of the CER Data Exchange especially in relation to establishing industry alignment.



Workshop Session 1: Alternative Futures



Session 1: Alternative Futures

This session focused on exploring different ways of addressing CER data challenges. Participants explored and 'stress tested' ten example CER use cases in three alternative futures that would need to deliver these use cases. Participants discussed and indicated preferences among trade-offs. The following slides show industry sentiment and feedback expressed through the activity.

Challenge 1: Complex Sharing Challenge 2:	System Operation & Security use cases	 Use cases for information exchange to manage power flows and risks: 1. Sharing Network Limits 2. Grid Data Collaboration 3. Scaling Dynamic Network Prices 4. Supporting Local Network Services 	Future 1 Organic <u>incremental</u> approach Most like our current arrangements and would see minimal changes to existing data sharing arrangements.
Challenge 2. Duplicative Administration Challenge 3: Fragmented Availability	Market Efficiency & Performance use cases	Use cases for information exchange for CER participation services 5. Transparency of Market Data 6. Flexibility Service Requests 7. Streamlined CER Portfolio Data Access	Future 2Enhance existing capabilities and systemsBuilds on the current arrangements – adding new capabilities where there are needs or gaps.
Challenge 4: Integration Burdens	Customer, Asset, & Actor Records use cases	Use cases for information exchange on customer's CER choices: 8. Visibility of CER Customer Choices 9. Consistent CER Standing Data 10. Support EV Uptake and Integration	Future 3 Create a <u>new</u> data exchange Develops a new, strategic, fit-for- purpose, data exchange.

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Session 1: Alternative futures – Results

System Operation & Security use cases



Use case 1: Sharing Network Limits

Description: Allow all relevant organisations to see DNSP-created limits across NEM jurisdictions via a common integration point.

Participant feedback and discussion:

- **Current state**: Industry is currently focused on delivering dynamic operating envelopes (DOE) limits in a standardised way. Networks increasingly communicate these limits direct to devices and via aggregators using CSIP utility servers.
- **Need**: CSIP exists as a communication standard, however the current state needs to improve to give visibility to aggregators and retailers. Utility servers on their own do not have the ability to manage access rights which is especially important to manage customer switching. So, a complimentary solution is needed.
- **Benefits**: Identified benefits of this use case include reduced constraints for customers and increased network utilisation. Allowing broader aggregator and retailer visibility of forecast and historical DOE data through a common integration point will increase efficiency at scale.
- **Preference**: Stakeholders are supportive of this use case with the goal of increasing network utilisation over the next <<u>5 years</u>.



Use case 2: Grid Data Collaboration

Tables: 2, 6, 10

Description: To facilitate the sharing of aggregate operation data, primarily between AEMO & network service providers.

- **Current state**: Capability exists to share actual data (SCADA) but forecasting capability is not as mature and its sharing is not streamlined.
- **Need**: Relates to sharing of forecasts, not generating forecasts. Use case is dependent on progress of system integration and standards. Important to create common and open ways of communicating data but need to ensure they integrate with new and old systems.
- **Benefits**: Ensure the need to collaborate is inherently linked to customer value-stacking and system security benefits through greater operational visibility.
- Preference: Stakeholders did not see this as urgent for the exchange. However, if it proceeds, suggestion was to start small via <u>enhance</u> / use existing systems <u>immediately or <5 years</u> depending on EV uptake and defined consequences.



Session 1: Alternative futures – Results

System Operation & Security use cases



Use case 3: Scaling Dynamic network pricing

Description: Enable the sharing of dynamic network prices in a standardised way, at scale, across multiple jurisdictions.

Participant feedback and discussion:

- **Current state**: Duplication of independent initiatives, with limited access, scale and scope. Need to enhance and standardise existing connection processes to enable uniform capabilities with high compliance. Although Project Edith still at small scale, opportunity for other DNSPs to replicate and adapt.
- **Need**: CER Data Exchange not required for this use case at present given it is in concept development/trial phase (Project Edith). Priority is standardised implementation. Organic development not viable in the long term, new platform may be too expensive.
- **Benefits**: Need more clarity on the issues and limitations with existing systems to manage pricing responsive signals.
- Preferences: Enhance existing capabilities and systems over longer timeframe (<u>>5 years</u>).



Use case 4: Supporting local network services Tables: 4. 8. 12

Description: To support common data processes to discover, register, trigger, and verify local network support services to relieve congestion.

- **Current state**: Limited examples in the NEM does not happen at scale. Uptake of local network services is low and biased towards incumbents due to standardisation and fragmentation. Limited value shared with customers. Proprietary technology, data and devices are creating challenges for VPPs.
- **Need**: Information should go both ways. There are too many players and too many ways of orchestrating: "we need to build a gateway for communication." Need certainty for industry to build toward.
- **Benefits**: More parties with LNSS opportunities and competition. Visibility of committed services useful to system operators. But cost could be a major factor.
- **Preferences**: Build <u>new, immediately</u>. New build should be progressive, but not for device capability and needs to keep control systems separate from the exchange.



Session 1: Alternative futures – Results

Market Efficiency & Performance use cases



Use case 5: Transparency of Market Prices Tables: 1, 4, 7, 10

Description: Enable wholesale market price forecasts and clearing prices broadcast to a wide range of organisations.

Participant feedback and discussion:

- **Current state**: AEMO publishes prices on website and market systems that can be extracted more easily by registered market participants.
- **Need**: Immediate value but a new exchange is not required. If new exchange is justified due to other use cases, this may be included.
- **Benefits**: Key enabler of market activity and CER optimisation / value stacking. Concerns regarding parties 'gaming the system' and adding a system onboarding process may act as a barrier.
- Preferences: Incremental approach or enhance / extend existing arrangements (depending on if publishing new market price data), priority <5 years.



Description: Enable retailers to broadcast flexibility requests to VPPs across their entire customer base via a common interface.

Participant feedback and discussion:

- **Current state**: Aggregators have some capabilities in this field, but uplift is important for increased visibility and understanding of the market.
- **Need**: Need data fast and consistent. Less reliance on cost reflective pricing and requests for emergency demand response. Overlap with local network services support and DOE use cases.
- **Benefits**: Network portfolio level visibility of flexibility offers. Debateable if price signals are sufficient to justify need.
- Preferences: Although mixed views, overall, enhance existing (if there is a common model that could be standardised) priority <5 years.



Use case 7: Streamlined CER Portfolio Data Access Tables: 3, 6, 9, 12

Description: Enable a secure way to share and access 'source of truth' CER capabilities and commitments to access many opportunities.

- **Current state**: AEMO's current Portfolio Management System does not provide visibility of individual CER capability and commitments (including off-market) to a range of relevant parties. Another option is the DER Register, but recognised availability / quality of data is highly questionable.
- **Need**: DER register is not available to all parties and does not record all assets (eg, EVs, A/C, hot water, demand flexible resources).
- **Benefits**: Streamlined customer switching for VPP / aggregator services. But need to avoid duplication of information.
- Preferences: Enhance existing systems, immediately. Uplifting existing might not be enough, but time horizon to build new is too long. Stepped approach might be better – uplift existing, then build new.

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Session 1: Alternative futures – Results

Customer, Asset, & Actor Records use cases



Use case 8: Visibility of CER Customer Choices Tables: 1, 4, 7, 10

Description: CER customer choices recorded and shared with relevant organisations (with correct access rights) in the ecosystem.

Participant feedback and discussion:

- **Current state**: Bespoke expression of choices to retailers and service providers. Customers don't trust companies and are wary of sharing data, which may become a blocker to reforms.
- **Need**: Visibility of CER configuration can support choices for new homeowners, switching customers and communicate preferences of CER use by aggregators. Potentially high cost for marginal value.
- **Benefits**: Enable more tailored products to customers and offer seamless preferences across multiple agents/ services.
- Preferences: Although mixed views, overall, build <u>new</u> given sensitivity and importance of customer data, <u><5 years</u>.



Use case 9: Consistent CER Standing Data Tables: 2, 5, 8, 11

Description: Dynamically reflect CER changes (e.g., firmware updates) across organisations in a secure and auditable way.

Participant feedback and discussion:

- **Current state**: Reliance on DER register. Challenges include manual registration, incomplete data set and lack of retailer visibility.
- **Need**: Supports change of customer, customer agent, retailer. Can see value but can take a back seat. Operational state of devices more important.
- **Benefits**: Price discovery for products that are verified and certified across networks and states. Retailers can understand consumer characteristics to offer better deals, market customer-specific plans, and lower cost for OEMs to participate.
- **Preferences**: If a CER Data Exchange is adopted, <u>enhance</u> existing systems in the <u>near term/immediate</u>.

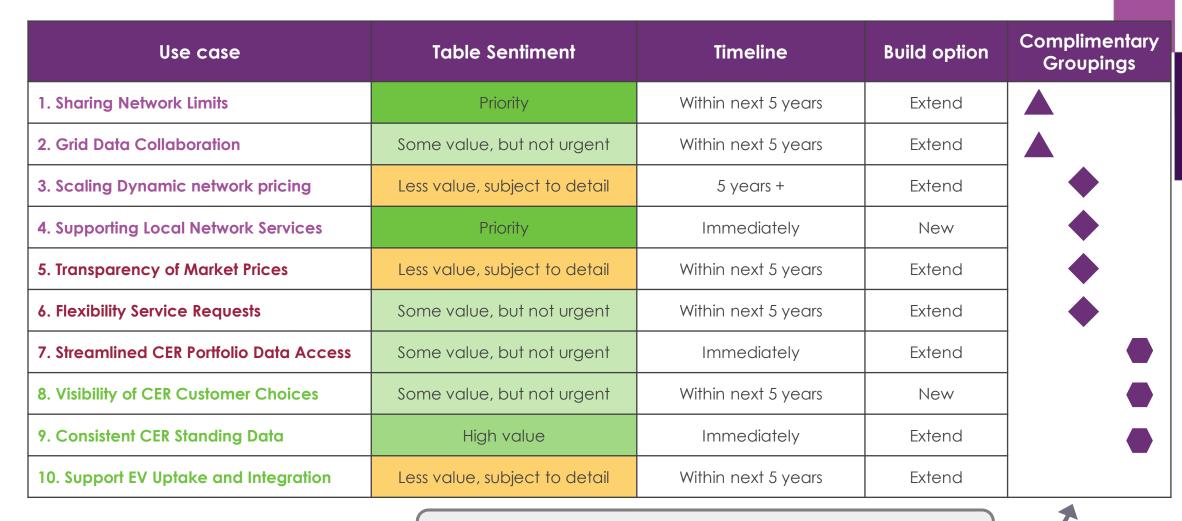


Use case 10: Support EV Uptake and Integration Tables: 3, 6, 9, 12

Description: Support EV integration with dynamic registration, visibility of infrastructure (e.g., public chargers), and market access.

- **Current state**: Doesn't exist today customers do not have sufficient visibility of: charger reliability, charger operating capacity (i.e. subject to DOE), dynamic pricing.
- **Need**: Could uplift DER register to include EV data, but not capable of supporting dynamic data and access is limited. Mapping tools exist, but they don't capture complete data. Device-to-organisation is the priority, rather than 'org-to-org' communication.
- **Benefits**: "You can't optimise what you can't see."
- **Preferences**: <u>Enhance</u> existing systems, with mixed views on the timeframe <u>~5yrs</u>.

Summary of stakeholder feedback Preferred use cases for a CER Data Exchange

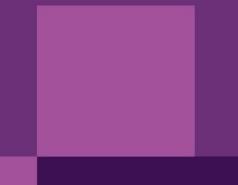


Groupings are based on the complimentary capabilities and features which would be used in an exchange to implement these use cases.

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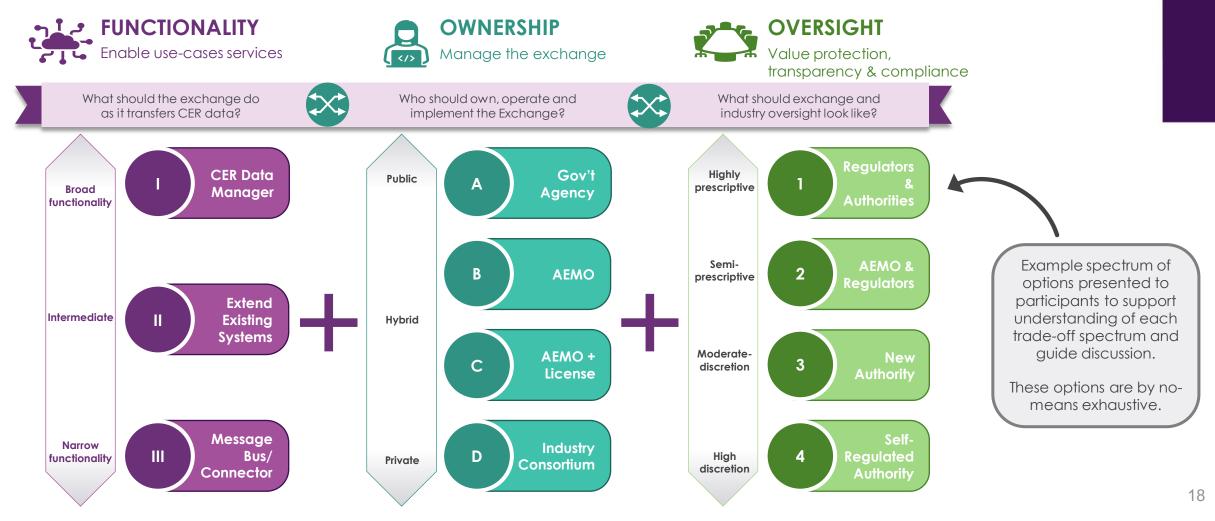
Workshop Session 2: Ownership, Oversight & Functionality





Session 2: Ownership, Oversight & Functionality

Activity 2a: During this session, participants were presented with a spectrum of options against which to assess ownership, oversight and functionality preferences and asked to share perspectives on the three key design trade-off spectrums for the CER Data Exchange.





Session 2: Activity 2a - Results

During this activity, each table was asked to place a sticker on where they would want a CER Data Exchange to fall on the spectrum and provide commentary, considering the challenges, futures and use cases discussed in Session 1.

Functionality

Participant feedback:

Broad

Functionality

Intermediate

Narrow

Functionality

- Start narrow to accelerate implementation of immediate use cases and manage risk. But design for broader functionality based on wider set of use cases – so scope to expand over time.
- Narrow functionality means speed to market, easily extensible, retain alignment of roles / responsibilities, and more cost effective (ie, lower set up costs for users, lighter overhead, less cost to consumers).
- Appropriate given the vast unknowns and limited horizons.
- More functionality could make the exchange more complex. Start small and provide flexibility to adjust to future needs.
- The level of functionality may be dependent on priority use cases.





Private

Ownership

Participant feedback:

- A public or hybrid model was preferred overall. Benefits identified included more accountability and trust, and ensuring the exchange promotes consumers' interests.
- Stakeholders considered the owner should not be seeking to profit – rather decisions should be made in the public interest. Conflict of interest and commercial bias issues should be avoided.
- Some preferred hybrid over public because, in their view, government can be hard to work with, slow, and jurisdictional boundaries make it challenging. Public ownership may delay decision making.
- Some considered AEMO as a sensible option. If AEMO is the owner, responsibilities relating to the exchange should be clear, and it should see the exchange supporting industry as a priority.

Oversight



•







Participant feedback: Most stakeholders gravitated towards a balanced approach.

- Flexibility required in the context of an evolving power system / markets landscape. Should be reasonably adaptive and support innovation.
- Needs to be prescriptive enough to provide stability but allow for change.
- Prescriptive on intent, but flexible on mechanisms. Prescriptive on standards, roles and consistency of inputs. Penalties under a separate compliance and enforcement framework.
- High discretion can increase risk. The broader the functionality, the more prescription.
- Consultative process is valued despite time and cost. Cost of change and allocation of cost must be well-managed.

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Table #



Session 2: Ownership, Oversight & Functionality

Activity 2b: Based on the spectrum of options presented in Activity 2a, participants were presented with three representative options for the CER Data Exchange design: Industry Led Message Bus, AEMO IDX Extension and New Agency Full Service Exchange. During this Activity, participants discussed each representative option and evaluated each against a set of criteria.

Industry Led Message Bus



This option involves an industry-led messaging bus, owned by a **consortium of energy stakeholders**, with rigorous regulatory oversight and limited functionality. The focus here is on a **lightweight, decentralised decision making, yet trusted system** that facilitates simple data transfers between market participants.

AEMO IDX Extension



This option builds on AEMO's IDX platform, which is under development. It would be owned by **AEMO** for operation, offering optional **improved functionality** over a basic data messaging system.

New Agency Full Service Exchange



This option involves creating a **new**, **selfregulating Gov't agency and authority** dedicated to managing a **full-service CER data exchange**. Offers a **comprehensive centralised capabilities** for industry and **streamlined centralised decision making** for management of the exchange, with a **consumer benefit mandate**. Designed to integrate with all existing systems.

Evaluation Criteria



Fit-for purpose

Suitable to solve the challenges and use-cases identified in Activity 1. Includes appropriate speed to market, and ease of implementation, integration and uptake.

Efficient

Economical upfront and ongoing cost for services provided and efficient processes for stakeholder engagement and data exchange development.

Flexible



Able to evolve and scale for more data, different use cases, changes in regulator or market environments and different user requirements as needed over time.

Trust

Can be trusted by industry, customers and consumers to protect their data and rights and deliver an effective and efficient exchange in the long-term interests of consumers.



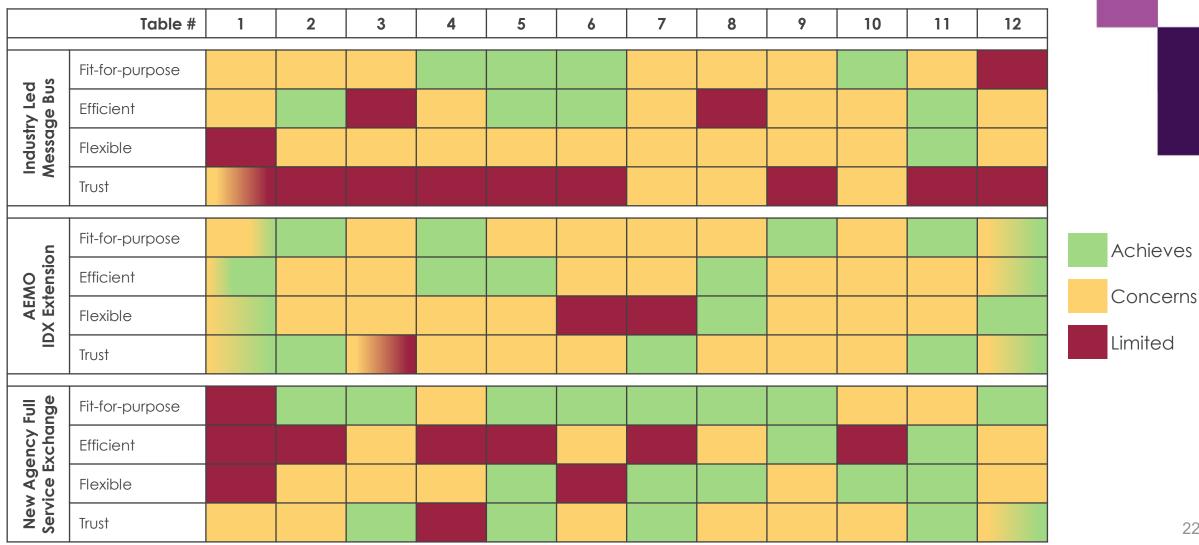
Session 2: Activity 2b - Results

During this activity, participants discussed what they liked and disliked about each of the three (3) representative options for the CER Data Exchange design. The purpose of this exercise was to test sentiments towards the ownership, oversight and functionality within each option and form an understanding of a preferred model.

Industry Led Message Bus	AEMO IDX Extension	New Agency Full-Service Exchange	
 Like Fast to deploy, cheaper, scalable Lead rather than enforce via regulation Innovation targeted at value Consultative nature Nothing superfluous Dislike Less incentive to keep in public good Consortium would enable commercial bias (dominant / large / existing players) or anti- competitive outcomes Perceived distrust if profit making Data protections Stifle competition 	 Like Speed to implement Low overhead Adding use cases to approved and existing capability Integrated with existing processes Ownership and regulation already considered and enduring Track record Not for profit 	 Like Fit-for-purpose Independent and balanced interests of stakeholders Enduring / future proofed Efficient Not for profit Dislike High initial costs and too long to implement Likely bogged down in bureaucracy / political risks Complexity 	
 How would you improve this option? Would require high prescription and governance Open-source protocols and technology Stronger consumer representation – how do you enforce customer benefits? Heavy regulatory authority / oversight, strongly driven by policy Important to ensure data is democratised 	 How would you improve this option? Make IDX design and development process more transparent, inclusive and consultative AEMO needs a more commercial attitude (i.e. product development skills) Change IDX governance away from IEC committee, create new AEMO services SPV Ensure access for non-market participants and new players Ensure investment in use cases are robust and industry impact is considered Industry (+Consumer) governance on transactions Ensure adequate future-proofing 	 How would you improve this option? Auditing and compliance Ensure effective integration with other market systems Clear cost recovery pathway Staged implementation – build aspects / leverage existing until a point that it makes sense to build Ensure independent oversight Leverage IDX / IDAM design and enforce a National CER Regulator 	

Session 2: Activity 2b - Results

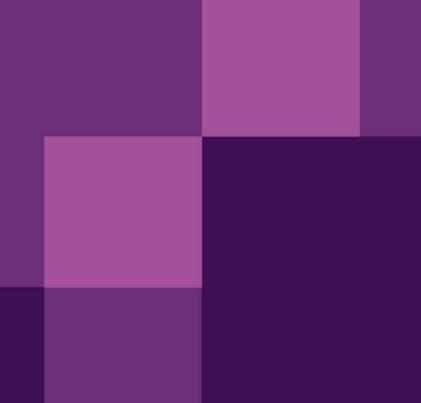
During this session, participants provided the following assessment of each representative option against the provided criteria, whilst considering the complexity of the trade-offs.



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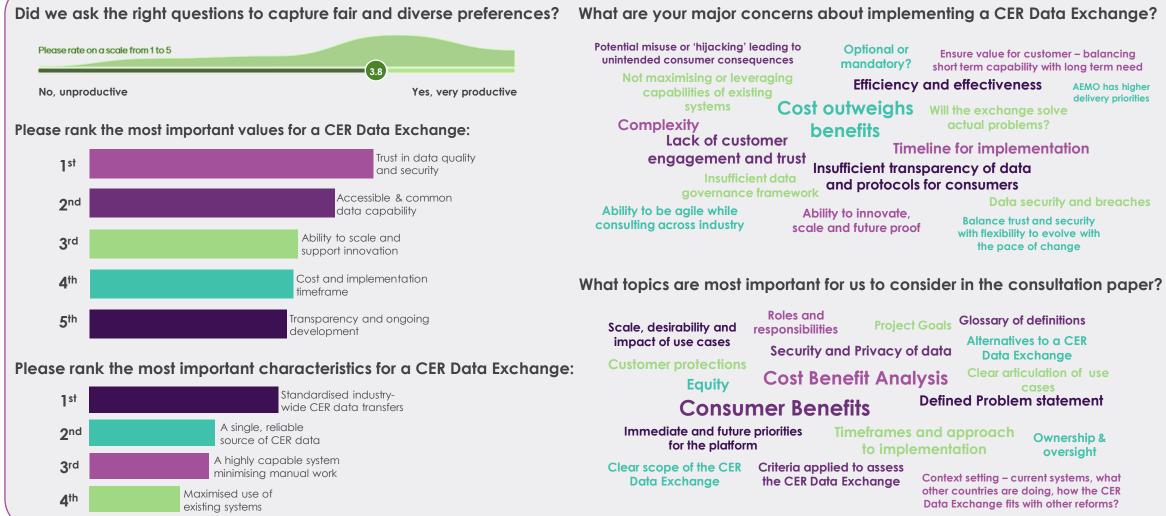
Survey & Ideas Wall



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Survey Results

We posed a series of questions to understand sentiments towards the co-design process, the consultation paper and the characteristics of a CER Data Exchange.





Ideas Wall Would the design of IDX+ lead to AEMO CDX knows customer usage and designing an exchange that favours equipment \rightarrow can size customer PV, wholesale market over distribution market? BESS and EV (V2G) and recommend best VPP product like Energy Made Easy. Energy ministers desire for the CER Data Exchange should lead to Sharing of DOEs implicitly gives State + Fed. Government funding information on areas of network / contribution for the which require / would benefit from development and ongoing investment in CER. running of the Data Exchange. Split ownership and operation: Standardise a 'price elasticity' function that models how a site

Ideas Wall

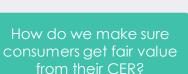
During the Workshop, participants were able to share their broader thoughts / feedback through the Ideas Wall. We received the following ideas and use cases proposed by industry representatives.

responds to market prices (i.e. like a DR vs Baseline)

Own could be industry Operate could be AEMO

Inverter data (operational) Proj MATCH Standardised API for OEMs Recurrent transmission Not real time virtually

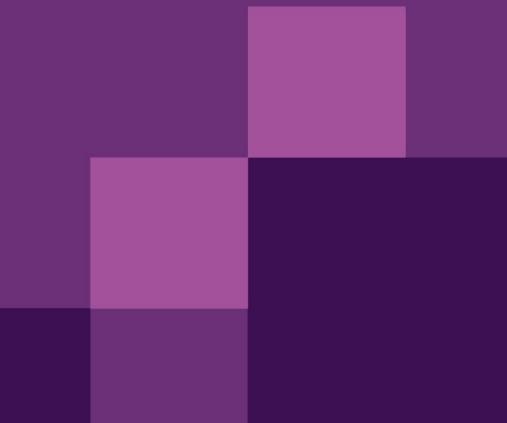
Within an acceptable range there should be a location value factor applied at each zone substation, so energy location value has a price signal.





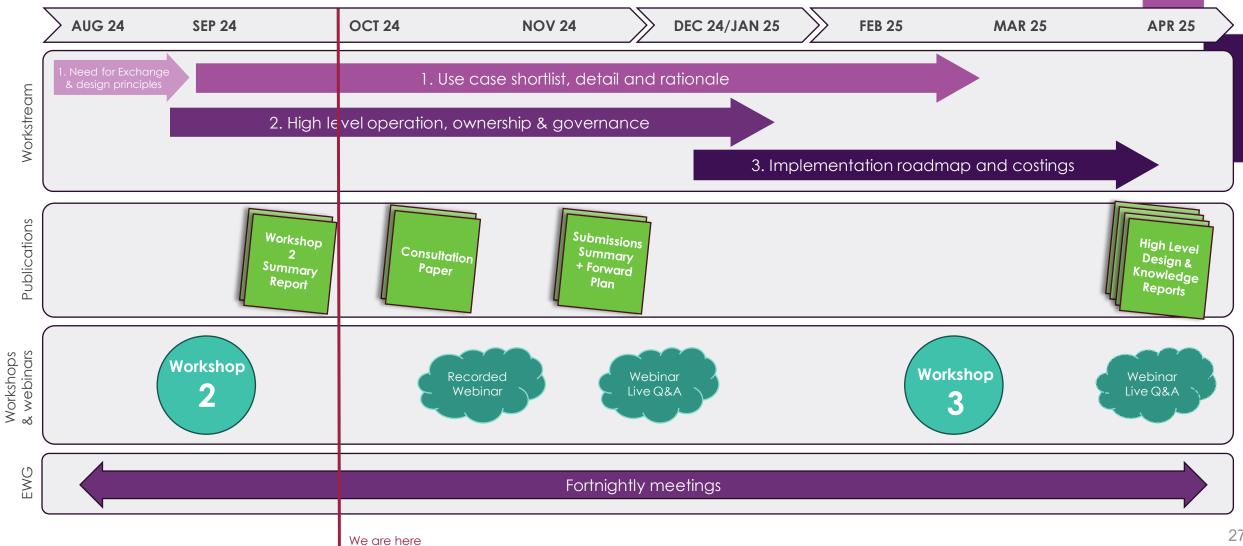


Next Steps





Where are we at in the co-design process?



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Thank you





There will be more opportunities for stakeholders to contribute to the co-design process. We intend to publish a consultation paper the week commencing Monday 21st October 2024, open for four-weeks and invite written submissions.



In early December 2024, we will host a public webinar summarising project activities this year and providing an opportunity for Live Q&A.



Our next industry workshop will be held in February 2025. Building on feedback summarised in this report, and our ongoing engagement with the Expert Working Group, the third workshop will focus on implementation and cost allocation.



If you want to sign up for our email updates, or you have feedback or any questions, please feel free to contact us at: <u>cerdataexchange@aemo.com.au</u>. Further information is available on the <u>Project Webpage</u>.



Acronyms

Acronym	Definition		
AEMO	Australian Energy Market Operator		
CAPEX	Capital Expenditure		
CER	Consumer Energy Resources		
DNSPs	Distribution Network Service Providers		
DOEs	Dynamic Operating Envelopes		
EWG	Expert Working Group		
EY	Ernst & Young		
FCAS	Frequency Control Ancillary Services		
FRMP	Financially Responsible Market Participant		
IDAM	Identity and Access Management		
IDX	Industry Data Exchange		
NEO	National Electricity Objective		
OEM	Original Equipment Manufacturer		
RAB	Regulated Asset Base		
VNMI	Virtual National Metering Identifier		
VPP	Virtual Power Plant or CER Aggregator		



Contact us

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