

Summary of digitalisation workshop feedback

1. Purpose

- 1.1 The purpose of this document is to summarise the feedback the Authority received during its digitalisation workshops, held between 8 and 19 September.
- 1.2 Note, this includes workshops with the Switch and Data Formats Group (SDFG) and a subgroup of the Electricity Authority Advisory Group (EAAG). These two workshops were not open to the public.
- 1.3 All workshops included discussion of feedback received on the discussion paper, the revised foundational principles, decision-making criteria and the draft system map.
- 1.4 The EAAG subgroup were also invited to reflect on discussion paper feedback and consider whether changes should be made to the problem/opportunity space.

2. Background

- 2.1 Following submitter feedback on the [‘Our future is digital’](#) discussion paper, we discussed/tested some changes to our proposals during the workshops:
 - (a) Changes to the foundational principles, adapting ‘simple solutions for consumers’ to ‘customer centricity’ to indicate the need for a range of solutions while removing unnecessary complexity, and adding a principle for an ‘adaptive ecosystem’ to reflect the need for openness to change as a sector through monitoring and iterating.
 - (b) New decision-making criteria were proposed, to help people understand the different facets of why an initiative might be important to do and what we expect to realise from it, and to be consistent about how we place importance on different initiatives.
- 2.2 The draft system map, indicating the range of initiatives that we considered important to accelerating digitalisation across the electricity system, was also shared with workshop participants for their critique. The various initiatives were categorised into the four foundational principles, noting that there was a reasonable amount of overlap between data visibility and interoperable systems.

3. Workshop feedback

Foundational principles

- 3.1 Across workshops, there was strong support for the principles of data visibility, interoperable systems and customer centricity – though some cautioned against ‘customer centricity’ being lip service. There were mixed views on whether an adaptive ecosystem and interoperable systems are principles or outcomes.
- 3.2 Several pieces of feedback called for clearer definitions and stronger language (eg, using ‘will’ rather than ‘may’).
- 3.3 Many workshop participants placed emphasis on trust, consent to data sharing/access, the need for data exchange standards and understanding diverse customer needs, particularly to build out potential use cases.
- 3.4 Across workshops there were suggestions to include resilience, risk management, and wider public good considerations, eg, decarbonisation and wellbeing.
- 3.5 A few workshop participants suggested using single-word principles for emphasis: “accessible, interoperable, agency, adaptive”.

- 3.6 Some of the SDFG members advised making explicit consideration of competition, efficiency and cost, taking a comprehensive market/system lens. Members also suggested "NZ-focused solutions" could be another foundational principle, then linking in the critical nature of electricity (particularly in times of emergency).
- 3.7 Some of the EAAG subgroup noted that the Authority as a regulator needs to provide certainty, rigour and robustness alongside adaptability. This is so that people trying to develop solutions and make financial decisions have enough confidence to do so, there is a pathway for action if/when things don't go as expected, and there are standards for preventing issues and training alongside access to avoid breaking trust. They also noted the importance of monitoring, enforcement and iterative action.

Decision-making criteria

- 3.8 Feedback on the decision-making criteria was mixed overall, with participants seeking clarification and simplification. Realisation of dependencies and cost-benefit analysis were called out as being important.
- 3.9 Workshop participants suggested that the criteria could be streamlined and consolidated (eg, statutory objective, then principle alignment, then cost-benefit analysis).
- 3.10 They also suggested clarifying certain criteria (eg, that the scope of benefits vs costs would be across the system and over the lifetime of the technology; merging "New evidence to drive policy decisions" and "New market development potential") and that it would be useful to have clarity on roles and responsibilities.
- 3.11 Workshop participants also suggested we include consideration of resilience, carbon reduction, wellbeing, security, industry collaboration and equity. There was focus on being willing to take "no regrets" moves, which could be reflected in "Realising dependencies" or by creating a low(er) threshold for early discovery with increasing governance/checks as solutions mature.
- 3.12 Many participants questioned including 'Adaptability', suggesting that it may be better to remove it from the decision-making criteria as it was included in a principle.
- 3.13 There was question of how criteria would be prioritised against each other or weighted, and suggestion that the criteria could instead be considerations that guided choices. Robust options assessment was also indicated as preferred over jumping to regulatory solutions.
- 3.14 Some of the EAAG subgroup queried whether we should be explicit about risks for customers, cybersecurity and privacy – which could include AI. They noted cost benefit analyses are often incomplete as they typically ignore the benefit that sits outside the sector, leading to decisions being poorly connected. They also noted that we could consider high/low value or controversial/non-controversial initiatives to enable rapid progress.
- 3.15 Some of the subgroup members also noted that it is important that we are protecting small consumers, eg, since people are buying distributed energy resources (DER) to serve their own objectives, we need to help this happen in a coordinated way.

Draft system map

General comments

- 3.16 Workshop participants indicated the importance of a consolidated roadmap that would indicate strategic alignment of initiatives with desired outcomes, so that there would be markers in the sand and it would be easy to understand how the work fits into other initiatives

(particularly where participation was required). It was noted that there were many initiatives listed, and prioritisation would help focus parties on what would be achievable in 1-2 years.

- 3.17 They also identified that an architecture map would be needed and that across the different initiatives, people developing solutions could learn how to scale by testing. They indicated co-ordination should be wide and that we should learn from overseas markets/jurisdictions.
- 3.18 One piece of feedback indicated that the principles should be the north star that guides all initiatives, and the initiatives could instead be grouped as improving the operations of energy system, improving consumer interactions with the energy system, supporting regulatory decision making and accelerating government initiatives.

Data access and visibility

- 3.19 Workshop participants expressed significant enthusiasm for developing data sharing infrastructure: developing data access/management principles; identifying roles and access levels - data holders, creators and users etc; developing consistent definitions and metadata requirements; and establishing key use cases (eg, for C&I consumers, EDBs, flexibility service providers), including any instances of centralisation and public access. They considered key use cases could even be considered as part of decision criteria.
- 3.20 Workshop participants suggested the Authority lead the data sharing conversation but questioned who would own (parts of) the infrastructure, how it would be hosted, and consumer consent vs being informed.
- 3.21 Many highlighted that cybersecurity, privacy and safeguards must be at the core of efforts to increase data visibility, and a fundamental part of data access/use and ownership conversations. One workshop participant noted the "presumed open" principle that is applied in the UK (and also noted in the discussion paper).
- 3.22 Workshop participants also expressed support for mapping the data required for decisions and actions in flexibility journey; investigating existing contractual mechanisms for data sharing; and determining the structure for sharing of flexibility asset (eg, product response and status information), market and forecast data.
- 3.23 Workshop participants emphasised the need for data governance, data processing and security: improving quality (eg, consistency, accuracy and completeness) of data; access being as close to the source as possible and defined by clear rules (what, when, why); data being of the appropriate granularity and timeliness; clear retention requirements; robust verification/accreditation/authorisation processes; access logging and auditing; and quality control and assurance processes. Data best practice developed collaboratively was noted as being able to help with consistency across the sector, though there may not be a single 'best practice' for all energy data.
- 3.24 Clearer definition of roles and responsibilities were highlighted as being useful, as was the need to foster the skills/operating model/culture needed for digitalisation to be successful. However, there were mixed views on what capability development/uplift would be required across the sector (eg, some did not consider cross-industry data analytics and management capability development as being important).
- 3.25 BESS state of charge, network congestion and power quality (sampling frequency and transfer frequency being relevant) were specifically identified as being useful.
- 3.26 Some of the SDFG members advised that we look at breaking through the default (eg, contractual barriers between MEPs and retailers), where all data sharing is via retailers, as the end user should be able to go to the source to get to the data. They also suggested clarifying the total flow of data across system as part of the data sharing infrastructure work,

as stronger end-to-end governance of data sharing and usage is needed to build trust and support innovation.

- 3.27 Members also suggested considering how to improve the timeliness and reliability of meter data (eg, validation responsibility could sit with MEPs).
- 3.28 An EAAG subgroup member noted the importance of keeping the consumer front and centre, as their role was less visible in this section of the draft system map. Some subgroup members highlighted that current market rules are based on decentralised data and restricting transparency (unintentionally), and although existing models may rely on it now, we should be open to challenging the status quo.
- 3.29 They noted access and use of data had been misused in the past, so there is an undercurrent of low trust – collectively, we will need to prove that data is useful and controlled well, and the people generating the data have some form of sovereignty of that data.
- 3.30 More specifically, data usability was identified a key principle, which is implicit in the broad definition of data accessibility, but adds a nuance that the data can't simply just be accessible. There are a set of attributes that make it also "commercially" usable including data quality, data timeliness, standardised formats that are stable, appropriate granularity, processes that do not frustrate affordable, efficient and automated third party use for the purpose of security, identity and privacy processes.
- 3.31 They considered a principle of open data as being important but noted the tension between data transparency and maintaining simplicity for consumers, and managing risks. They also highlighted that data needs to be validated and updated consistently.

Interoperable systems

- 3.32 Workshop participants expressed support for initiatives on establishing (open) API standards for data access; transition of Electricity Information Exchange Protocols (EIEPs) to be API-first; testing a localised flexibility market platform; implementing a data quality framework and Common Information Model (CIM); national connection guidelines; and hardware enhancements/standards. They also specifically suggested modernising the registry and the associated data transfer, and conducting data exchange testing.
- 3.33 One workshop participant noted that API polling could be augmented by modern message queues, which are more efficient.
- 3.34 Workshop participants emphasised the need for standardisation (eg, using international standards such as OpenADR and IEEE 2030.5) and seeking wider expertise outside the sector, such as cybersecurity. They also identified the need for more hardware technology discovery and that Australian device standard alignment could be helpful for customer choice.
- 3.35 Workshop participants also noted that cross-sector interoperability would be an option, so it would be important to define scope and use cases where interoperability can benefit. They also identified that interoperability for flexibility has different meaning to interoperability of data systems for network benefits and to interoperability of data systems that will provide benefits to end consumers.
- 3.36 They noted a gap in initiatives relating to home energy management systems (Google Home, Apple Home etc) and that for DER, AS4777 DER integration requirements and the CSIP-Aus inverter profile could be used or considered. They also suggested application testing requirements for EV chargers and using OCTT certification, and that blockchain could be used to simplify market integration.

- 3.37 Some of the SDFG members noted that it would be beneficial from a cost efficiency perspective to create meter standards, which could also help meet modern flexibility requirements. Members also mentioned that as we shift toward real-time data, a more joined-up way of supporting communications networks would become critical (eg, in times of emergency, mesh networks may fail).
- 3.38 One of the EAAG subgroup members noted the importance of keeping the consumer front and centre, as their role was less visible in this section of the draft system map.

Customer centricity

- 3.39 Workshop participants expressed support for initiatives on developing Code FAQ or common interpretation Q&A; a consumer data right for electricity; and undertaking customer behaviour, sentiment and segment research (and persona development) to identify specific preferences. They also specifically suggested educating customers on what is available for them to get the most value, before researching customer behaviour. Some pointed out that the sector should be enabled to understand customers so they can do the solutioning.
- 3.40 There were mixed views on the need for a separate consumer advocacy statutory body, suggesting such a role could be carried out by existing organisations, eg, UDL.
- 3.41 There were also mixed views on template commercial contracts; developing a centralised customer data and information portal; creating a centrally managed open data platform; and establishing grant funding for publicly driven solutions, with concerns about how it might be used (eg, price discrimination, consumption data patterns compromising safety) and that customer data should be in the customer's hands/control.
- 3.42 Similarly, some workshop participants didn't see as much value in within-day switching processes; best-planning; or guidance for flexibility services participation.
- 3.43 Workshop participants also identified a shared journey map and seeking specific use cases by asking customers what they want, co-designing with them and providing feedback loops as being useful. They cautioned against creating a 'system' only accessible by those who can afford to participate.
- 3.44 Workshop participants also advised about the need for a communications plan to inform/educate people about the benefits that are coming, and to hold a view for new product integrations into the market.
- 3.45 Some of the SDFG members highlighted that within a centralised customer data/information portal, that it could be helpful to include medically dependent consumer information at DHB level, so it persists across retailers and reduces the amount of work a customer needs to do.
- 3.46 Some EAAG subgroup members noted customer segment research and persona development would be a useful tool, and that we should talk to the parties (innovators, generators etc) who might interact with customer data as these are developed.
- 3.47 They also advised that not every consumer is engaged or wants to be, so we should focus on what we can do now to enable innovation to happen so a disengaged consumer can have their problem solved without needing to communicate it. They also highlighted the importance of electricity-adjacent information, eg, housing characteristics, and that we should work closely with the other parts of Government on this.

Adaptive ecosystem

- 3.48 Workshop participants expressed support for initiatives on reconciliation using half-hourly data; monitoring the need for flexibility market coordination; developing regulatory sandboxes to enable innovation; developing a standards testing environment/ regime; testing policy

within regulatory sandboxes; maintaining a basic set of common forecasting assumptions; public trials to inform solution development; and helping to establish a distribution system operation (DSO) framework.

- 3.49 There were questions and conflicting views on multiple trading relationships, with suggestion of developing use cases to inform next steps and seeking evidence of consumer preference for it. Another suggestion was to explain the outcome by describing it as enabling import + export splitting.
- 3.50 Workshop participants noted that an effective regulatory sandbox would need to be unlocked across all relevant regulatory agencies and require policy definition and standard requirements to be developed, along with a scientific approach (hypothesis, aim etc.) to translate from sandbox to reality.
- 3.51 A database of learnings from all trials with customers to inform policy was identified as being useful, but also having the right incentives to get people to participate in change and needing to talk to them during discovery and design. Another suggestion included taking system needs into account as an input to services.
- 3.52 Separately, trials and solutions were also suggested as being outcomes of a well-defined pillar, rather than being the definition of a pillar.
- 3.53 An EAAG subgroup member noted the tension between need to move fast vs doing things in a way that creates trust to enable investment and advised being careful about what we "disrupt" - coming back to what matters for affordability.

Other comments

- 3.54 Workshop participants noted the lack of incentives for technology change. They also questioned where AI was, or where it would show up in this work.
- 3.55 They also expressed a need for a clear "why" or problem definition to precede any initiative, and to leverage work that has been done already (here and overseas). For example, this would inform what data needs to be collected, who it needs to be made available to and how it could be used to measure benefits. Some workshop participants acknowledged that users and use cases would evolve over time.
- 3.56 Also raised was how we might govern at pace to adapt to an evolving system and where governance fits in across the principles and decision-making criteria. There was also question of who leads changes in the industry – whether this was participants, external vendors or the Authority.
- 3.57 Some of the SDFG members noted that capability building would be important in the digitalisation/system evolution context, and that the previous approach of implementing obligations would not be effective.
- 3.58 Some members of the EAAG subgroup raised the need to continue grounding the work in the outcomes that the Authority is trying to achieve around affordability and reliability of electricity. They noted it would be important not to drop simplicity, standardisation, interoperability and transparency, and to widely consider consumer accessibility and privacy (eg, connect with other Government departments and the Office of the Privacy Commissioner, consider what our measure of success is in not leaving people behind).
- 3.59 On AI, they also commented on the need to understand how it works and share our thinking on how it could be used, not necessarily where it *should* be used. Reference was made to, for instance, professional ethical standards that set guidelines for what users of AI should consider/ need to be able to answer (e.g. they or an expert they have guidance from

understands how the AI derives its results), along with how data sovereignty, privacy or other ethical and compliance requirements remain protected/appropriately managed.

- 3.60 In relation to data storage/sharing, they noted that if a decentralised model is implemented effectively, flows of communication and interaction can be well established regionally through to a national level.
- 3.61 The group also recommended we consider and display initiatives in layers:
- (a) Explaining interactions with other systems outside of electricity, eg, housing characteristics, heavy electric vehicle charging, which will highlight where data flows don't currently exist and/ or raise electricity industry specialist awareness of how the electricity system interacts with the other outcomes, inputs and needs relevant to consumers
 - (b) Then, the electricity system and what we can achieve. Within that, separate out the enablers and actions/initiatives
 - (c) Within the initiatives, distinguish between non-controversial/no-regrets/fast-follower ideas vs those which need more time to work through – painting the picture over 5, 10, 20 years' time. Note however that some communities would prefer to be equipped with resourcing and to be able to self-determine their future (ie, no one-size-fits-all)
 - (d) Categorise the initiatives into 'platform' and 'people'.

Separate SDFG member feedback

- 3.62 One SDFG member was unable to attend the scheduled workshop in person due to a prior commitment, so provided feedback via email – this is summarised below.
- 3.63 Regarding decision making criteria, they advised a key decision-making criterion for future market and system design should be the ability to accommodate higher levels of intermittency—both at the grid level and within local distribution networks (eg, market systems capable of rapidly adjusting settlement, dispatch, and reconciliation processes; advanced metering and network visibility so that intermittency can be measured, managed, and integrated).
- 3.64 Regarding the 'data access and visibility' section of the draft system map, they noted a critical step would be to establish a clear, industry-agreed definition of data requirements, which also specifies standards for quality, granularity, timeliness and accessibility. They also noted that the system must be designed with scalability and adaptability in mind, so new products can be incorporated more easily as they emerge.
- 3.65 Regarding the 'interoperable systems' section of the draft system map, they supported modernisation of registry and reconciliation systems, suggesting MEPs could provide data directly to the reconciliation manager. They also suggested the industry needed to encourage certification, replacement, or upgrade of uncertified metering installations and to reprogramme rather than replace meters. They also noted that PAS 6014 – the new residential solar and BESS standard – has been released.
- 3.66 They also noted that centralising as much common functionality as possible within trusted, core service provider systems could help the industry achieve a more adaptive, scalable and resilient ecosystem.
- 3.67 Regarding the 'customer centricity' section of the draft system map, they commented on the need for an independent consumer voice, to avoid market design potentially being overly shaped by participants rather than end-users.

- 3.68 Regarding the 'adaptive ecosystem' section of the draft system map, they expressed support for reconciliation using half-hourly data (and addressing the residual need for profiling and the improvement of distributed unmetered load settlement) and shortening the settlement period (eg, weekly). They also considered that by explicitly acknowledging DSOs, we could ensure that market design, data requirements, and flexibility mechanisms would account for their needs alongside those of DER.
- 3.69 They also identified that systems (eg, metering, settlement, data exchange) will need to be flexible enough to evolve with market needs, yet robust enough for participants and investors to maintain absolute confidence in settlement outcomes.