# ELECTRIC VEHICLE SMART CHARGING

STAKEHOLDER FORUM

AUGUST 2022

# AGENDA AND OVERVIEW

## Why an EV smart charging policy?

Over the next few years EV uptake is projected to grow substantially and become a key form of CER. This growth has implications for planning and forecasting of energy demand across the NEM

| Time | Topic | Speaker |
|---|---|---|
| **1:00** | Welcome | Neil Gibbs, Online Power |
| **1:05** | Customer Perspectives | Lynne Gallagher, ECA |
| **1.15** | Customer Insights Work | Chris Alexander, ESB |
| **1:25** | EV Perspectives | Rob Colson, AGL<br>Josef Tadich, Tesla |
| **1:45** | Themes in EV Charging Issues Paper | Phil Blythe, ESB |
| **2:00** | Q&A | Neil Gibbs, Online Power |
| **2:30** | Next steps and close | Neil Gibbs, Online Power |

# CUSTOMER PERSPECTIVES

**Lynne Gallagher, ECA**

# CUSTOMER INSIGHTS

**Chris Alexander, ESB**

## CUSTOMER INSIGHTS COLLABORATION - RELEASE ONE

- To support the Post-2025 market reforms, the Energy Security Board (ESB) established the Customer Insights Collaboration to draw on diverse stakeholder perspectives, and the latest market research, to shed light on practical customer issues that need to be addressed to achieve the objectives of the reform.
- Release One (Q1-2 2022) explored the broad topic *of barriers and enablers to customer reward for flexible DER and energy use*.
    - ***We looked at flexibility in a variety of forms rather than EV charging specifically.***
- The Knowledge Sharing Report for Release One, and a rapid evidence undertaken by ACIL Allen, were published on 28 July and are available on the ESB website.
- Release Two commences next month and will focus on working with the project teams designing and implementing the CER Implementation Plan reforms to apply the insights.

## RELEASE ONE - KEY FINDINGS ABOUT FLEXIBILITY GENERALLY

- While the reforms are built on the huge potential for flexible management of these assets and energy use, to create value for customers, and underpin the efficiency and reliability of a decentralised, largely renewable energy system, we cannot take customer participation for granted.
- Insights from research and trials indicates that consumers who have already invested in CER are not necessarily motivated to change the way they use their assets for the rewards that are currently on offer, and access, understanding and trust are material barriers for consumers who are yet to engage with new products and services.
- We need to be clear about the benefits and aim high for excellent experience at every step in the customer journey, from making a choice, to installing and learning about the equipment, to using and living with it, and getting help, and being protected when things go wrong.
- Unlocking the potential of flexibility and ensuring the benefits are shared by all energy consumers in a fair and equitable way will require a collective and coordinated effort by energy companies, governments, regulators, research institutions and the civil sector.

# Critical barrier 1: Inclusion and equity

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| **WHAT WE LEARNT** | Customers are diverse and have different motivations, abilities and opportunities to access flexible DER and energy use. However, we have accepted that all customers should have access to flexible DER and energy use based on how they choose to participate and should benefit by the sectors advancement.<br>To respond to this diversity, policy makers, project teams and product designers must consider how they are reaching all customers.<br>As a sector we also need to use a range of methodologies to engage with and understand customers and consider the practicalities of participation as well as traditional socio-economic segmentation approaches. |
| **STRATEGIC CHALLENGE** | To unlock opportunities for flexible DER and energy use to work for all consumers regardless of circumstance or accessibility. |
| **GUIDING ASSUMPTIONS** | There is evidence many consumers cannot access popular forms of DER and are at risk being left behind as the market evolves.<br><br>Research and trials focused on flexible DER and energy use sheds most light on the experience of early adopters, but there is less evidence about the experience of other customers. Understanding typical barriers that prevent adoption of new products or service offerings can be used to inform the DER implementation plan while further evidence is gathered.<br><br>More effort is needed to better understand and engage with wider groups of customers to provide insights about how to make flexibility more inclusive.<br><br>Stakeholders identified existing and mature flexibility products and services (e.g., load control) that have the potential to work for consumers who have not yet benefited from DER. |
| **DESIGN AND IMPLEMENTATION QUESTIONS FOR FUTURE REFORM** | • How can the DER Implementation Plan reforms be as inclusive as possible to maximise benefits for all consumers?<br>• Who will be able to access the opportunity and how will they benefit?<br>• Who may not be able to access the opportunity and how can they be empowered?<br>• How can benefits be shared with those who may not directly participate? |

# Critical barrier 2: Incentives and nudges

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| **WHAT WE LEARNT** | Customers may be inclined to stick with the status quo unless they see value in flexible DER and energy use. To overcome this, it will be critical to improve access to value streams (e.g., 'value stacking'), offer more compelling incentives which go to the range of financial and non-financial values motivating consumers, and provide transparency around how the benefits are shared. Schemes to reduce the costs of new technologies have a role to play in widening access to flexible DER and energy use. |
| **STRATEGIC CHALLENGE** | Creating incentives and nudges that make flexibility easy and attractive for consumers |
| **GUIDING ASSUMPTIONS** | Consumer motivations in relation to flexible DER and energy use – how they want to be rewarded – is diverse, and include economic, community and environmental benefits.<br><br>Saving money, optimising own energy use and self-sufficiency are strong motivators for some consumers and may act as a barrier to engaging in flexible DER and energy use for a market reward.<br><br>The way rewards are structured, communicated and where they fit in the customer journey for a product or service can influence engagement. Transparency around how rewards are shared – particularly where they change over time – is valued by many consumers.<br><br>Incentives work best when complemented by information, tools and support to help consumers respond to price signals. There is evidence that suggests that in relation to incentives, carrots work better than sticks. |
| **DESIGN AND IMPLEMENTATION QUESTIONS FOR FUTURE REFORM** | • Is the opportunity attractive – does it create value in the eyes of the consumer or appeal to their broader motivations?<br>• How will customers perceive the value and characteristics of the product or service?<br>• Can customers easily understand the proposition? |

# Critical barrier 3: Communication

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| **WHAT WE LEARNT** | The energy sector is still learning how to communicate with consumers about flexible DER and energy use. Information needs to be tailored to the customer's particular circumstances or risks being too complex or confusing (e.g., too technical), or not compelling in terms of value and benefits. We heard feedback that communications for culturally and linguistically diverse (CALD) customers, and small businesses, was a particular issue.<br><br>A strong message from stakeholders was that the communications challenge requires a coordinated, and consistent approach by the sector, with a recurring question being 'who' should lead efforts to inform consumers about the energy transformation. Understanding the communication needs at each step in customer journeys shaped by the reforms can inform these discussions. |
| **STRATEGIC CHALLENGE** | How do we talk to consumers about flexible DER and energy use? |
| **GUIDING ASSUMPTIONS** | Communicating with consumers about flexibility products and services, and where they fit into the bigger picture of a changing energy market, is challenging.<br><br>Energy market stakeholders use a variety of different terminologies and framings to discuss consumer issues around DER. Clarity of vision for the desired long-term outcomes for consumers is seen as important for alignment and progress.<br><br>Communications are generally more effective when the benefits are communicated in terms that are relevant to the way consumers live their lives, run their businesses and support their communities.<br><br>Consumer communications which are framed around system requirements may not be as effective.<br><br>A question raised by stakeholders is who should lead public discussions and support consumer education around DER. |
| **DESIGN AND IMPLEMENTATION QUESTIONS FOR FUTURE REFORM** | • How can flexibility opportunities be communicated to consumers in a way that fits into their lives, businesses and communities?<br>• Is the information accessible for diverse customers?<br>• Can the communication be targeted to meet customer needs and expectations?<br>• What do customers need to know at each step in the customer journey and who is best placed to communicate that information? |

# Critical barrier 4: Trust

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| **WHAT WE LEARNT** | The evidence suggests a lack of trust in institutions and organisations as well as in flexible DER products and services. Trust is critical in public acceptance and advocacy of new technologies, as well as the transformation of the energy sector.<br><br>Trust can be earned through simplicity, using trusted channels and voices, adopting inclusive approaches to design and transparency. |
| **STRATEGIC CHALLENGE** | How does the energy sector earn consumers trust to unlock the benefits of flexible DER and energy use? |
| **GUIDING ASSUMPTIONS** | Flexibility is a new, potentially complex proposition and consumers will need to trust service providers in a range of ways including terms of technology choice, control and agency, privacy and cyber-security and value sharing.<br><br>A lack of trust with the service provider, the sector or institutions in general can be a barrier to consumers engaging with flexibility propositions. Surveys suggest trust in the sector is not high, and consumers may seek to retain higher levels of personal control.<br><br>Frictions in today's customer experience (e.g., who to contact when things go wrong) is a source of frustration and undermines trust. Trust can be earned at every step in the customer journey.<br><br>The multifaceted nature of trust means there is a role for all stakeholders in the sector to play a part in earning it. |
| **DESIGN AND IMPLEMENTATION QUESTIONS FOR FUTURE REFORM** | • What principles does this project need to embed to build trust?<br>• How can the design and implementation of the project build trust amongst participants and brings everyone along the journey?<br>• Does the reform, product or service meet customers where they are to enhance participation? |

## WHAT DOES THIS TELL US ABOUT EV CHARGING?

- We need to take care about our assumptions about EV charging preferences and behaviour … draw on evidence when designing and implementing the reforms, and test and learn where they are gaps in our knowledge.
    - We are still learning about EV owners' willingness to manage charging flexibly in response to price and other signals.
    - How will later-adopters needs and preferences differ from EV pioneers?
- Driving and charging EVs are new experiences for most people and businesses and will require information, support and time to adapt.
    - Community and interest groups/clubs playing an important role in generating interest and educating people (and industry) about EVs and charging. ANU review of My Energy Efficient Electric Home Facebook page found home charging installation requirements, costs and experience a common topic on (questions about cables, circuit selection and phasing), as well as questions about environmental benefits, viability of vehicle-to-home, solar size required to power EVs, hybrids, performance/savings and technological maturity).
    - Pre and post-installation process identified as areas for improvement in current EV trials.
- Availability, visibility and reliability of public charging are issues.

# EV PERSPECTIVES - AGL

**Rob Colson, AGL**

# EV PERSPECTIVES - TESLA

**Josef Tadich, Tesla**

# EV CHARGING ISSUES PAPER

**Phil Blythe, ESB**

# SCOPE & KEY ISSUES

## Scope

- ESB has been tasked with developing policy advice on what technical foundations are necessary to support the effective integration of smart charging for EVs into the NEM.
- The issues paper is seeking stakeholder engagement on the mix of policy settings required to support all consumers from the electrification of transport.
- A key focus of the EV workstream is to identify how to deliver effective outcomes for all energy consumers (whether they have EVs or not).

## Key issues

**Policy and regulator gaps, barriers and enablers**

Identifying potential policy and regulatory gaps and enablers that may impact the effective uptake of smart EV charging and the adoption of charging frameworks.

**Fit-for-purpose regulatory frameworks**

Understand the effectiveness of current frameworks to determine if they are fit-for-purpose to support effective uptake and cost-minimised integration of EVs.

**Future challenges**

Understand the future challenges/risks for customers associated with interoperability related to EV charging.

# POTENTIAL POLICY AND REGULATORY GAPS AND BARRIERS

## Domestic EV charging

**Minimum Smart Charging Equipment Standards**

- Minimum functionality for domestic chargers to be installed with built-in scheduling; and
- Remote management and consumer over-ride capabilities. Minimum requirements would apply to 7-22 kW (1-3 phase) equipment and higher.
- Consideration of various communication protocols to be adopted in Australia.
- Consideration of default charging configurations for EVs.

**Consumer participation**

- Developing a market framework that provides consumers with choice and control over CER.
- Potential requirements for household EV charge points to be actively coordinated.
- Consideration of roles and responsibilities if CPOs manage EV charge points on behalf of consumers.

**System Operation requirements**

- Enable real-time energy coordination for aggregated CER.
- Imposition of requirements for randomised delay functionality.
- Development of cyber security standards.
- Visibility of EVSE data.

## Public charging

**Grid connections**

- Structure of tariffs associated with high capacity and low volume loads from ultra-rapid DC charging. Difficulty integrating demand-based tariffs into CPO business models.
- Consideration of networks to take the volume risk and provide a simply volume tariff to CPO sites.
- Consideration of allocation of network costs in respect of EV charging – noting challenges in the early days of Australian EV uptake.

**Pricing and measurements**

- Application of NMI standard – stakeholders have previously noted a risk of retrospective legislation that could require the new NMI standard for existing EV charge points.
- Consideration of innovative pricing models to be introduced as the sector matures.
- Currently no guidelines for pricing of public charging.
- Ensuring customer protections are fit-for-purpose for consumers using public EV chargers.

**Roaming**

- Concerns have been raised regarding the inability of EV users to charge over significant distances due to incompatibility between CPO payments systems.

# INTERNATIONAL & DOMESTIC EXAMPLES – DOMESTIC CHARGING

## UNITED KINGDOM

Any consumer charge point sold in the UK must come with minimum smart charging capabilities, supported by a consumer participation framework.

## UNITED STATES

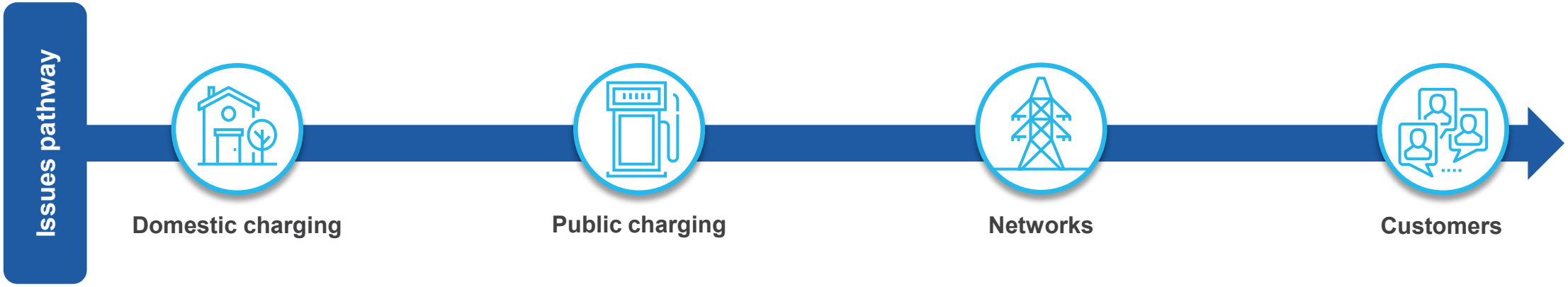
SEPA survey identified the top 3 most important factors to facilitate EV smart charging as:

1. Industry consensus on a smart charging protocol.
2. Smart charging program design.
3. Regulatory and policy support for smart charging projects.

## AUSTRALIA

- SA smart charging requirements will be effective as of 1 July 2024.
- WA government has an EV strategy pointing to future work in standards development.
- QLD, VIC and NSW governments' also have developed comprehensive EV roadmaps that includes financial incentives reducing the up-front purchase cost of various zero emission vehicles.

# STAKEHOLDER FEEDBACK/DISCUSSION – KEY ISSUES




- What issues and considerations should the ESB take into account to facilitate jurisdictional policy setting?
- What timing considerations should be considered to enable a roll out of minimum technical standards for domestic EV charging?
- Would there be any unintended consequences of introducing EV CPO specific tariffs?
- What mix of arrangements might best facilitate flexibility in charge-point pricing to encourage more drivers to charge during times of excess renewable energy?
- How should the industry consider issues associated with roaming?
- Should there be a minimum requirement to capture installation of EVSE, to assist with effective planning and operational management?
- What measures are required to streamline the connections process for public charging infrastructure?
- What are the appropriate responsibilities that should be taken on by CPO (e.g. customer support functions)
- What functions would CPOs be required to perform on behalf of customers?

# Q&A

## Neil Gibbs, Online Power

# MEETING CLOSE

**Next steps:**

- Submissions on the EV Charging Issues paper are due on 19th August
- Please send through to: info@esb.org.au