Safer, Stronger, Smarter Networks

# Smart EV: Consultation Response

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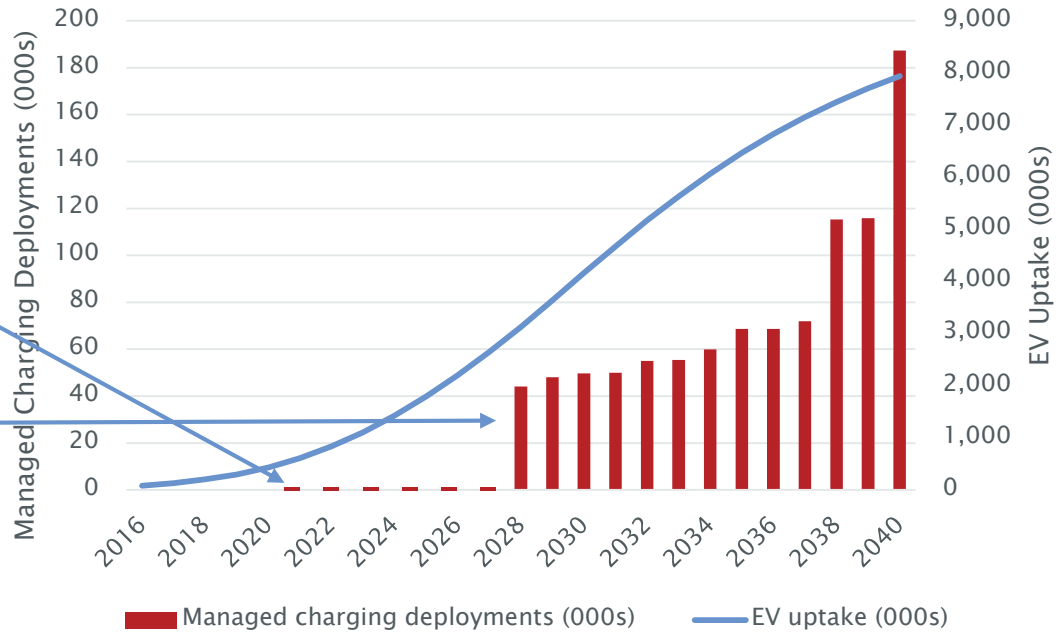
# Context

# Forecasts for EV uptake
## And managed charging

- EV uptake is substantial: We know it will need action from DNOs in the short term
- International examples show that uptake can increase very rapidly

Small numbers of deployments needed soon

To support widespread uptake



# DNO Need

## The background to Smart EV

- Smart EV charging:
  - Could save £2.2 bn for electricity customers, by 2050
  - Proven solution – but will only be effective for local needs if most customers install the technology
- Time of use tariffs are promising tools with key challenges:
  - Innovation projects showed insufficient change in customer behaviour
  - Cannot meet very local needs: customers will choose a range of time of use tariffs
- Smart meters (with half-hourly measurement) cannot provide the fast response needed for local network needs
- Smart homes will be crucial but their implementation is not yet clear

# Smart EV Consultation

## We asked questions on four areas

1. Is managed EV charging acceptable if it can reduce cost to electricity customers?
2. What situations and safeguards are applicable?
3. What level of choice and reward should customers experience?
4. Does the technical ‘straw man’ presented move us in the right direction?

# Smart EV Consultation
## Response

28 responses from across industry:

Automotive: 2 representative bodies, 1 OEM, 2 senior individuals from OEMs, 1 from supply chain

Charge Point Manufacturers: 2 representative bodies, 5 OEMs

Consumers: 2 individual consumers, 1 representative group

Academia: 1 response

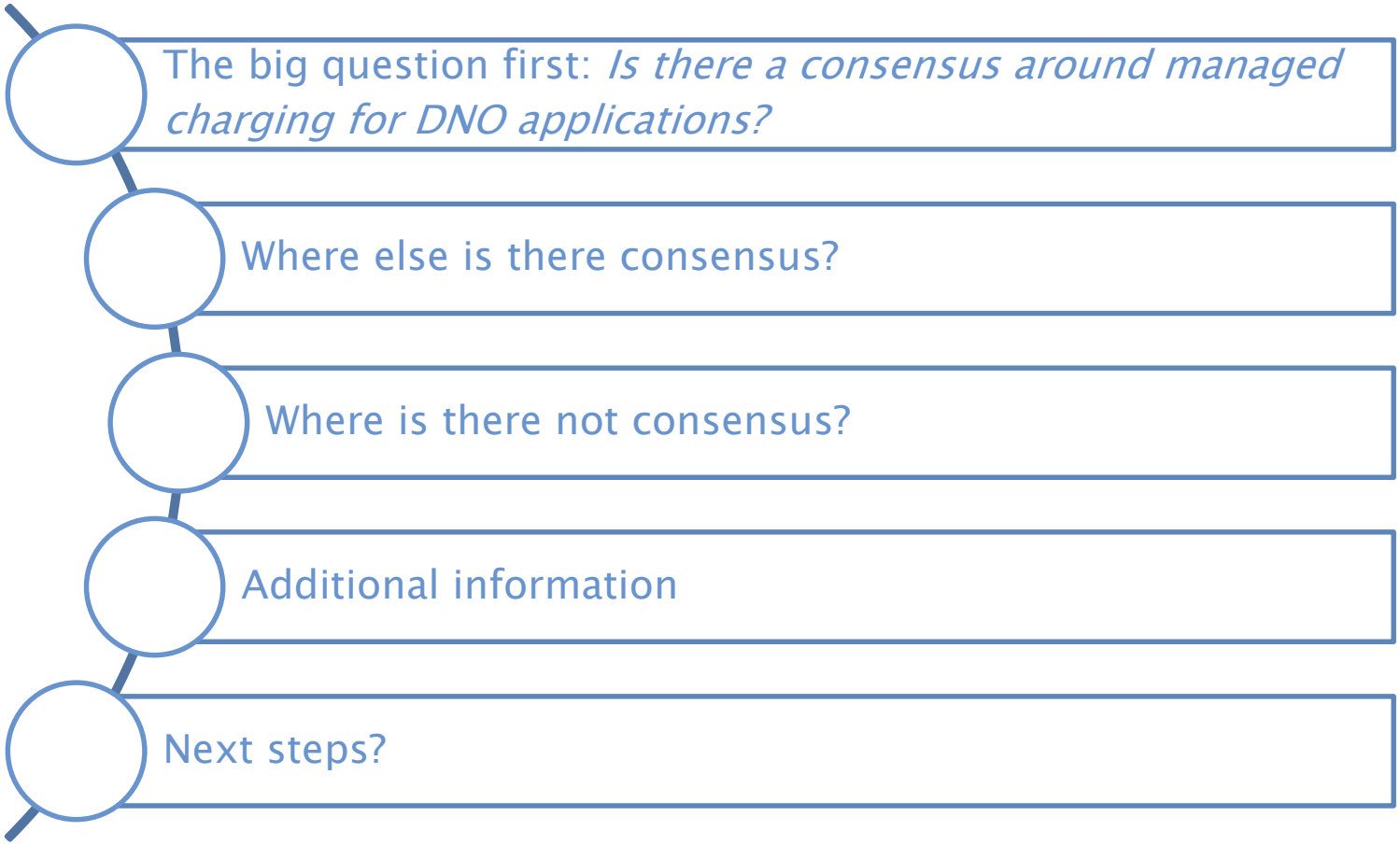
DNOs: 5 responses

Energy Suppliers: 1 representative group, 2 of the ‘big six’

Public sector organisations: 3 organisations

# Results from the consultation

## Structure of this presentation



# Is managed charging desirable?

# Is managed charging desirable?
## Response: Yes (in some form)

- 93% respondents agreed that managed charging would be beneficial to the UK energy system in some form (vs 4% disagree)

But disagreement on:

- Role of DNO
- Role of market
- Safeguards for customers
- Responsibility for cost (EV driver vs socialised)
- And others

*There is consensus that GB would be better off with a managed charging capability*

*Lots of debate on use cases and approach*

# DNO Use Cases

## A mixed consultation response…

- Respondents defined three broad use cases that a DNO could enact
- Each use case produced different answers to the consultation questions regarding safeguards, acceptable use, consumer control and reward
- Different consensus around each use case

# Approach to managed charging

## Some consensus

| DNO Use Case | Likely Mechanism | Consensus |
| --- | --- | --- |
| Widespread network needs – managing demand across large areas | Market | 89%/4% |
| Local network needs – EV charging causes reinforcement which can be avoided | ? | |
| Network Emergencies – Restoring Power to Customers | DNO led | 36%/14% |

# Areas of consensus

# Consensus

## Market for managed charging

- The consumer must be central
- In the long term, EVs should be treated in the same way as other household demands such as heat
- Lots of space needs to be left for innovation and market operation
- The customer should only need to interact with one ‘purchaser’ of flexibility – this is not the DNO
- If DNO were able to mandate response, it must not interfere with the wider market for flexibility
- What we deliver now will not be a permanent solution

# Consensus
## Technology for managed charging

- Smart charging points are the likely means to manage EV charging
- Customer choice is desirable but would seriously undermine the ability to support local DNO networks
- Increased reward, flexibility and choice will increase overall cost of a managed charging solution
- The needs of the many different customer groups will be almost impossible to anticipate

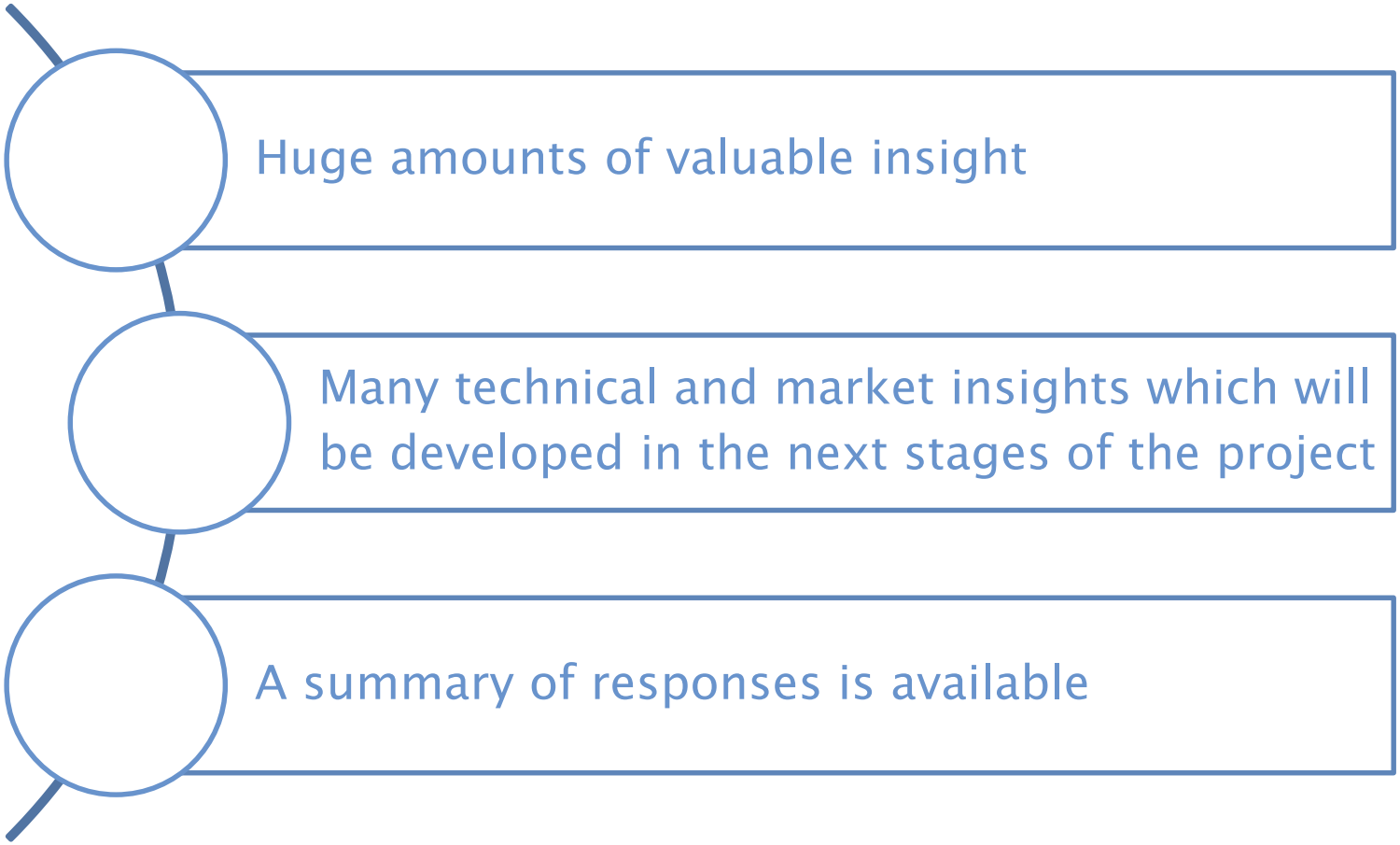
# Areas without consensus

# No consensus on…

- Have DNOs provided sufficient evidence to support any mandated managed EV charging?
- Should EV charging be managed separately from home consumption in the short/medium term?
- Whether managed EV charging should be mandated and to what level
- What manages the smart EV charger?
- Should the EV driver carry the increased infrastructure costs?
- How would mandated managed EV charging impact customer acceptance?

# Other consultation responses

# What about the other consultation responses?



# Examples of great input…

*Ideally, customer flexibility would be at the home-level not the appliance level*

*Increasing generation capacity to manage peak EV demand is expected to cost more than network reinforcement*

*Standardisation routes for technologies are well established and the Smart EV output should make use of them*

*The Smart EV output may well only be a stop-gap measure which will be updated and superseded. But there is great value in ensuring the infrastructure requirements we understand can be met*

*UK and international initiatives that the Smart EV output must complement*

*Little is known about customer EV usage, once mainstream*

# Next Steps

# Specific Next Steps
## For the Smart EV Project

- Define DNO managed charging use case and the associated customer experience
- Begin customer engagement work to ensure that customers remain central to the Smart EV Project
- Smart EV project team will draft specific technical requirements which (if adopted) would allow DNOs to manage EV charging in *network emergencies*
- Engage with key stakeholders during drafting process
- Consult on draft technical requirements
- Publish final technical requirements

# Specific Next Steps

## Beyond the Smart EV Project

Engage existing standardisation bodies to ensure the Smart EV requirements can be translated into standards

Review the regulatory limitations to ensure that any recommended mandate falls within existing DNO authority

# Thank you

For further information

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