1. Develop an open standard that enables open marketplaces for data-sharing to flourish

2. Lay the foundations for interoperable and cohesive energy data infrastructure

3. Build on existing work and investments in existing initiatives to enable discovery and use
To enable sharing our **data infrastructure** must address (at least)

- Rights
- Liability models
- Dispute resolution and redress
- Consent & consent management
- Security & privacy
- Legal frameworks
- Usability
- Logistics
- Technology architecture
- Operating principles

Similar approaches are being undertaken across sectors including banking, insurance, pensions, transport and health
Market design — comparing data ecosystem models

**IMPLEMENTATION ENTITY**

**MULTI-API ECONOMY**

**DATA TRUST**

**SHARED STANDARDS**

**PLATFORM ECONOMY**

**BILATERAL SHARING**

**Centralisation**

**Low friction**

**Open**

**Market Openness**

**Closed**

**Pros**

- Open marketplaces
- Shared integration / interoperability framework
- Close regulatory linkage & feedback loops
- Enables market-participants to self-organise
- Low transaction cost (common approach)
- Makes clear what should be ‘competition’
- Multi-point, whole-system value creation
- Fast to integrate once in-place (adherence to standards and processes)
- Builds on architecture of the web

**Cons**

- Higher initial effort to reach consensus
- Requires cultural alignment
- Requires cohesion between regulation and market actors

- Centralised administration
- Governance a key focus
- Single integration point
- Single contracting point

- Lack of willingness to share into it
- Hard to address diversity of needs
- May struggle to meet diverse user needs
- Difficult to adapt in an agile manner/brittle

- Market-driven
- Quick-to-market
- Competitive at all levels

- Multiple rules & integrations
- Complex
- High cost to enter
- Monopoly-gating points emerge easily

- High single-point value creation
- Centralises control
- Faster-to-market
- Structurally attractive to reflect existing bureaucracies

- Lack of willingness to share into it
- Value flows easy to skew to monopolies
- Doesn’t scale long-term
- Commercial friction on data value
- Not a ‘web-first’ strategy (reflects legacy thinking not 4th industrial revolution)

- High single-point value creation
- Centralises control
- Faster-to-market
- Structurally attractive to reflect existing bureaucracies

- High friction process (repeat for each relationship)
- Low/no reuse (unique to each use)
- Market inhibiting
- High cost
- Slow (3-9 month contract cycle)
Stakeholder research covered ~9,000 companies across the energy system.

One-on-one interviews and webinars:
- DNOs & TOs
- Energy suppliers
- Service providers
- Regulatory & policy
- Research, innovation & disrupters
- Local authorities
- Investors & other data users

Confirmed the need for a common data standard to underpin future energy trends:
- Decentralisation
- Decarbonisation
- Digital transformation
- Democratisation
User needs — feedback from ~50 interviews

Stakeholders interviewed: breakdown

Interviewee roles

- Academic / Advisory: 15.2%
- Executives / Leaders: 39.1%
- Managers / Employees: 6.5%
- Managers of managers: 39.1%

Interview feedback: energy data blockers

- Technical / IT / Data Quality
- Data Standards
- Incentives
- Cultural
- Privacy / GDPR / Cyber Security
2019 saw Climate Emergency Declarations by cities, towns, universities, communities, prompted by the CCC net-zero report & citizen climate change activism

Climate change plans have been adopted with ambitious targets for the 2020’s and 2030’s

- Unlocking access to core DNO capacity data to *proactively plan for Low Carbon Transport* and *migrate towards Low Carbon Heating Systems* was a consistent message from stakeholders

- *Removing manual intervention* will enable Local Authorities to take faster action to tackle Air Quality in cities and towns

- *Accelerating decarbonisation* of the UK’s cities, towns and rural areas will create new skilled green jobs essential to post Covid -19 recovery
Culture change is necessary within large organisations to progress towards a more open approach to making data accessible and usable.

Enabling a new trusted governance framework—agile enough to bring together energy, heat, transport and the built environment—will be a gamechanger for the Net Zero Economy.

Accelerating the adoption of M2M interfaces rather than seeking to reverse engineer legacy IS systems will save £M’s and years of effort.
Experience gained in Open Banking shows governance is key to the success of decentralised data sharing.

This approach can be repurposed for to provide an Open Governance Platform for Open Energy:

- Common rules, controls and processes needed for security, commercial reasons, privacy & regulatory compliance.
- Automated, controllable access to distributed data as already successfully deployed in the Open Banking Directory.
  - Participant identity service; list of trusted participants; access control; signposting data (API endpoints).
- Standards designed around end-user and market needs, enabling a wide range of solutions.
- Future-ready, able to accommodate complex provisioning chains and support future regulatory developments.

Enables a highly innovative, dynamic ecosystem to evolve, where the market self-organises and applies resource efficiently.

- Unlocks interoperability with data from outside the energy sector.

Open Energy will unlock latent potential, just as Open Banking has done.

Two and a half years after launch, hundreds of companies authorised, almost two million consumers and growing fast.

Firmly positioned the UK as the world's benchmark for Open Banking, and consolidated our leading position in FinTech.
● Flexibility markets could save the UK up to £40B by 2050*

● In 2019, we spent £1bn balancing the electricity system.
  ○ Better data sharing could materially reduce this — even a 1% improvement would save £10M

● The UK energy data landscape is *really* complex...

Vision of the future: Electricity balancing

1) Optimise buildings' energy

2) Local balancing

3) DSO balancing

4) ESO balancing

Analysis

- MILLIONS OF DATA CONNECTIONS
- THOUSANDS OF CONNECTED ORGANISATIONS
- MILLIONS OF ASSETS / COMPLEX PROVISIONING (GDPR)
Two components for Phase Two development

1) **Working groups**
   - User, market and societal needs
   - Policy & regulation (role of regulator, certification)
   - Legal (data rights, privacy, IP, liability)
   - Operational (access and consent management, redress, SLA)
   - Technical (authentication, security, tech)
   - Data (schemas, structures)

2) **Open Governance Platform (infrastructure already in place for proof of concept)**
   - Sandbox & production
   - Directory implementation
   - Automated, controllable access to distributed data
   - Machine-certification
   - Interoperability with data from outside the energy sector

We propose that these are done in parallel to data platform implementation(s) with other MEDA participants.
“Ensuring consistency and interoperability between the built environment and the energy sector with an Open Energy approach is essential to the development of our national data infrastructure”, Dame Wendy Hall

“Open Energy will help support delivery of our legally binding net-zero targets and enable regulatory interventions across sectors”, Baroness Worthington, House of Lords

“Building a digital ecosystem for the planet, to help us address our net-zero and SDG targets, will require groundbreaking initiatives such as Open Energy”, David Jensen, Digital Transformation Task Force, UNEP

“Ensuring consistency and interoperability between Open Banking, Open Finance and the energy sector with an Open Energy approach would be a huge win for the UK”, Imran Gulamhuseinwala, Trustee, Open Banking Implementation Entity (OBIE)

“Building on Open Banking, Open Energy will help us deliver a robust data infrastructure. This will help the UK to improve efficiency, meet our net-zero targets as well as stimulate innovation to enable companies to scale up.”, Irene Graham OBE, CEO, Scale Up Institute

“We recognise the benefits this could bring to the energy system, in enabling the transition to net zero, customer choice and operational effectiveness - and we support the further exploration of this approach.”, James Mulliner, Energy & Utilities Industries, IBM

“Open Energy should provide consumers (and their intermediaries) with more detail about their consumption habits, and this in turn should give people more confidence to choose the products and service options that might best suit them.”, Dhara Vyas, Head of Future Energy Services, Citizens Advice

“Prioritizing interoperability will allow open data ecosystems to gain more immediate traction whilst maintaining security standards...Raidiam strongly endorses any initiative that will broaden support from vendors, reduce costs of implementation and help to accelerate the digital future.”, Tim Johnson, Raidiam

“I’ve sat in on several of these consultations about energy data now. There is simply no comparison. The Icebreaker One team really understands the complexity of the system they are looking to provide a solution for. I completely trust them to deliver a solution across the whole sector.”, Dr Alastair Buckley, Sheffield University

“Icebreaker One is the most exciting thing to come out of MEDA”, Marc Bartlett, Head of DSO Transformation, Electralink