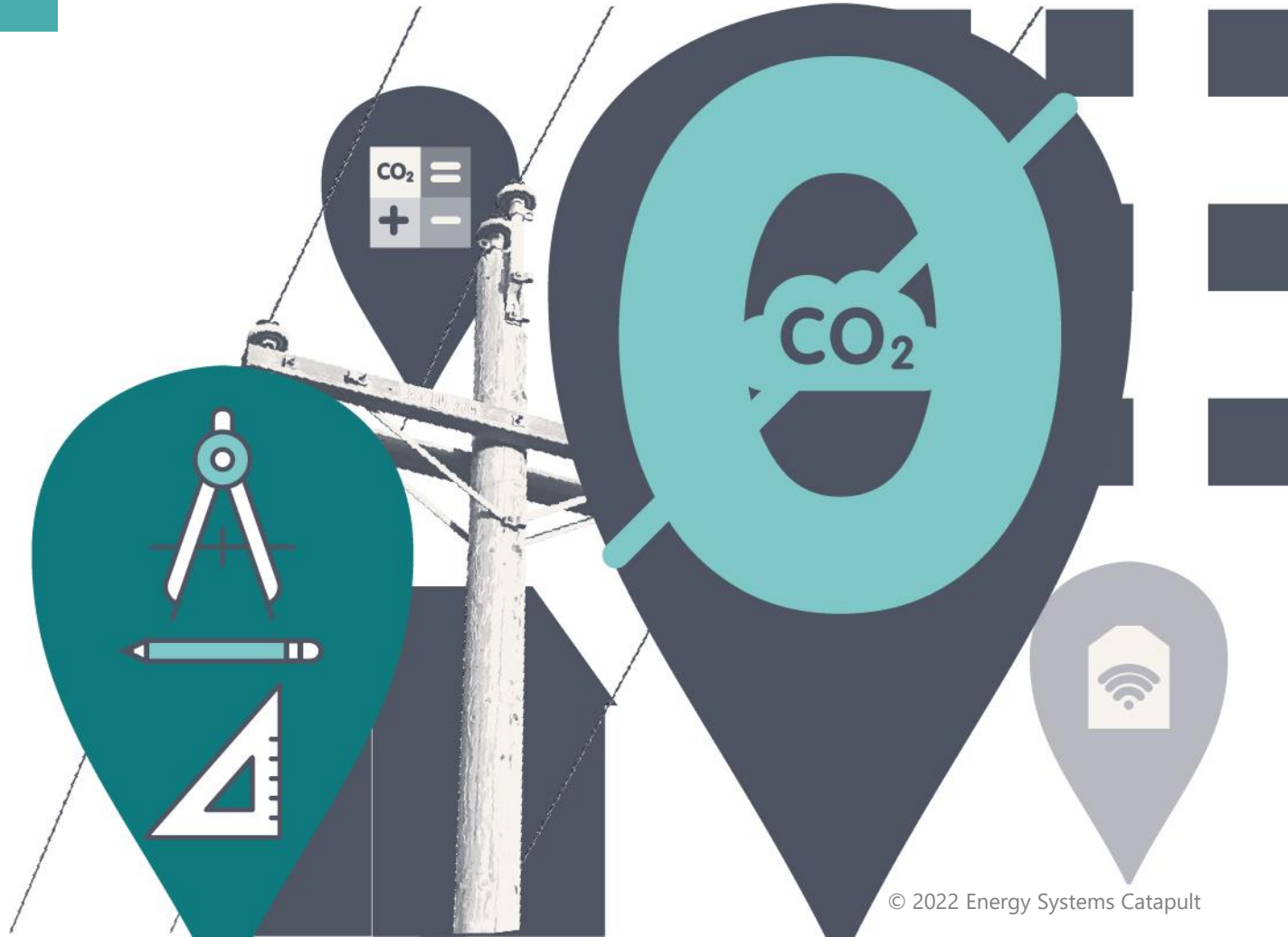
IRED2022 – UK MAJOR PROGRAMMES & INITIATIVES



ANDREW PEASE

TECHNOLOGY ACCELERATION MANAGER

MONDAY 24TH OCTOBER 2022

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CATAPULT NETWORK.

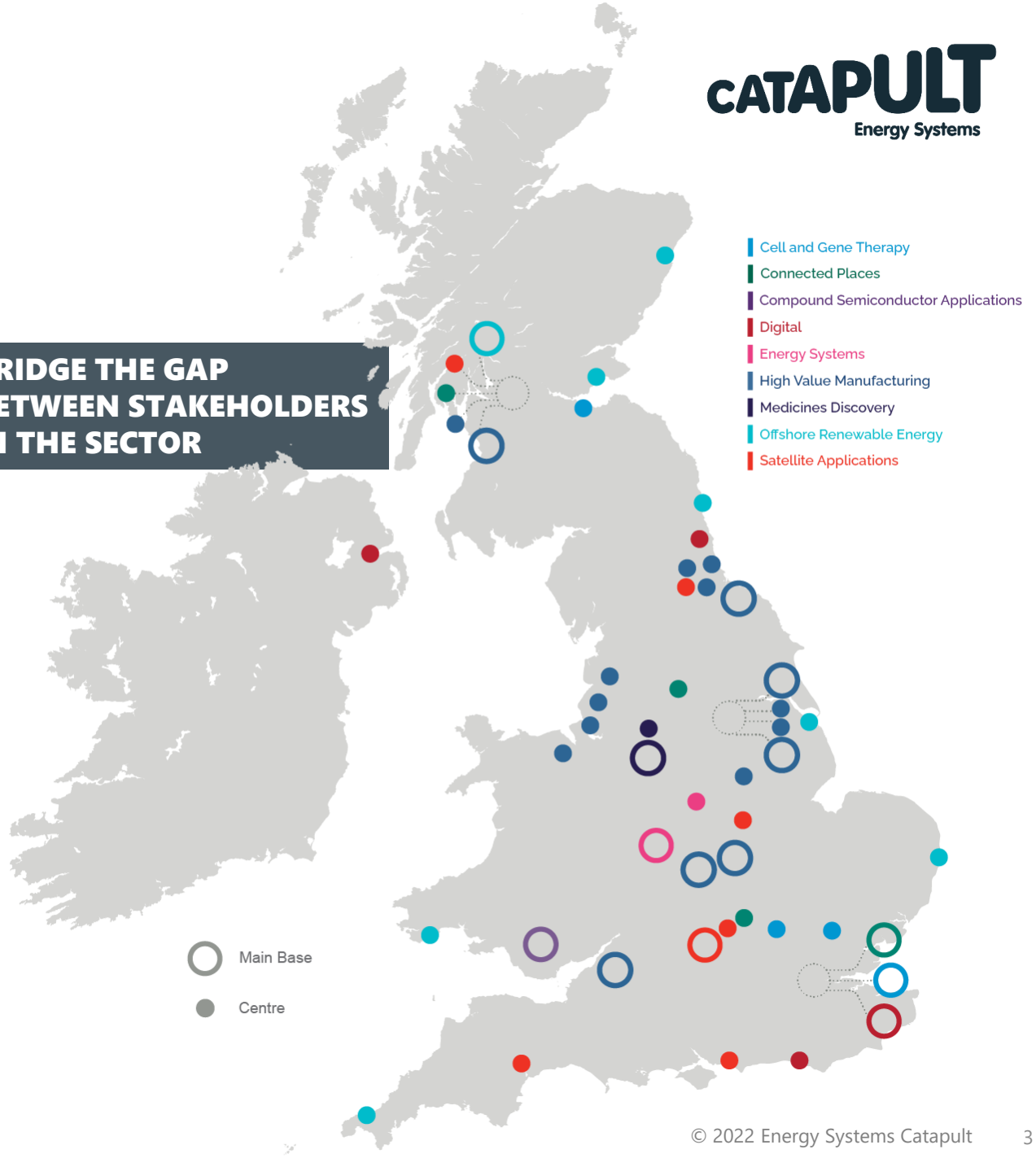
SUPPORTING BUSINESS IN TRANSFORMING GREAT IDEAS INTO VALUABLE PRODUCTS AND SERVICES.

TECHNICAL CAPABILITIES, EQUIPMENT, AND OTHER RESOURCES

BRIDGE THE GAP BETWEEN STAKEHOLDERS IN THE SECTOR

OPEN UP OPPORTUNITIES FOR INNOVATORS, IN THE UK AND GLOBALLY

SOLVE KEY PROBLEMS AND DEVELOP NEW PRODUCTS AND SERVICES



We work with Innovate UK

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OUR EXPERTISE.

WHOLE SYSTEMS THINKING.

JOINING UP THE SYSTEM FROM SOURCES OF ENERGY TO THE CONSUMER

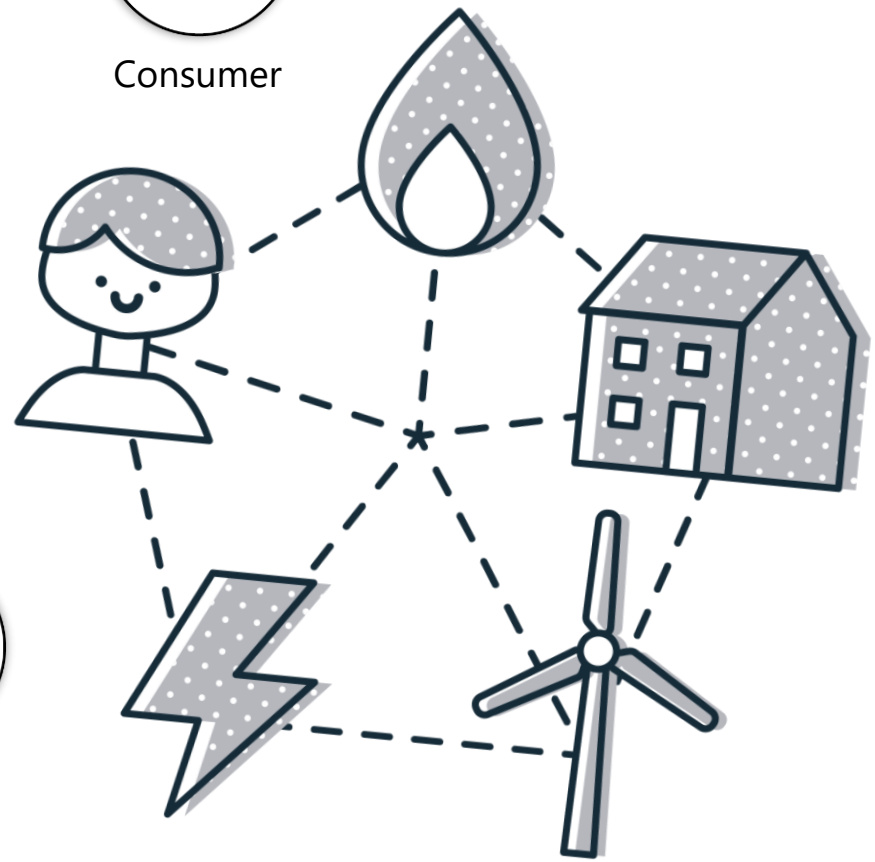
Generation + Transmission + Distribution + Buildings + Consumer

BREAKING DOWN SILOS BETWEEN DIFFERENT PARTS OF THE ENERGY SYSTEM

Electricity + Heat + Transport

JOINING UP PHYSICAL REQUIREMENTS OF THE SYSTEM, WITH POLICY, MARKET AND DIGITAL ARRANGEMENTS

Physical System + Digital System + Market System + Policy



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ABOUT US.

WHAT WE DO.

Supporting innovators to commercialise

- TEST AND DEMONSTRATION
- CONSUMER INSIGHT AND PROPOSITION DESIGN
- BUSINESS MODEL INNOVATION
- HARNESSING DIGITAL AND DATA
- DELIVERING LARGE SCALE INNOVATION TRIALS

Helping to design the future energy system to unlock innovation

- WHOLE SYSTEM MODELLING
- SYSTEM ENGINEERING
- CLEAN TECH ENGINEERING
- INTEGRATING THE TRANSPORT AND ENERGY SYSTEMS
- DECARBONISING LOCAL PLACES
- MARKETS, POLICY AND REGULATION
- DECARBONISING CAMPUSES, BUSINESS PARKS AND INDUSTRIAL ESTATES
- DECARBONISING THE PUBLIC SECTOR ESTATE

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MAJOR PROGRAMMES

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PROSPERING FROM THE ENERGY REVOLUTION

SMART LOCAL ENERGY SYSTEMS

- In 2018 UK Government launched the Prospering from the Energy Revolution programme (PfER)
  - https://www.ukri.org/what-we-offer/our-main-funds/industrial-strategy-challenge-fund/clean-growth/prospering-from-the-energy-revolution-challenge/

- A series of projects were approved at differing levels of readiness: Concept, Design, Demonstration. The demonstration projects are scheduled to wrap up in 2023.

- ESC provided an interconnecting service between projects to support a Whole Systems view of the energy system, to encourage the projects to think beyond their own distinct service.

- From this programme the initial work was laid to identify the benefits of Smart Local Energy Systems (SLES)
  - https://es.catapult.org.uk/what-we-do/future-energy-system/decarbonising-local-places/smart-local-energy-systems/

- The focus is on bringing together different energy assets and infrastructure in a local area helping them to work more efficiently and smarter.

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MODERNISING ENERGY DATA

MODERNISING WAYS THE ENERGY SECTOR USE DATA

- **Modernising Energy Data Access**
  - Data is the single biggest enabler of the future energy system.
  - Many challenges including visibility of data and the ability to share effectively and securely.
  - MED Access looks to understand how to build a Common Data Architecture
  - https://es.catapult.org.uk/project/modernising-energy-data-access/

- **Modernising Energy Data Applications**
  - In March 2021 UKRI announced funding for nine innovative digital energy projects
  - Projects have to demonstrate benefits to users, scalable commercial opportunities and utilize the Open Energy data architecture under development.
  - https://www.ukri.org/news/ukri-announces-net-zero-driven-energy-data-application-winners/

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MODERN ENERGY PARTNERS

DECARBONISING THE PUBLIC SECTOR ESTATE

- Completed in September 2021, a wide range of insights and tools were developed to guide public sector organisations.

- Methodologies were deployed within a testbed of 42 sites.

- Three aspects of decarbonization were tested:
  - Rapid deployment of sub-metering and data analysis
  - The creation of Concept Designs that offered each site a pathway
  - Taking forward some no-regret measures on site.

- https://es.catapult.org.uk/project/mep/

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INDUSTRIAL DECARBONISATION REASEARCH AND INNOVATION CENTRE (IDRIC)

ACCELERATING THE GREEN FUTURES OF OUR INDUSTRIES

- Backed by over £20m in funding.
- A collaborative programme focused on decarbonizing the UK's industrial clusters.
- Working towards creating two low carbon clusters by the mid-2020s and a further two by 2030.
- Goal to create world's first Net Zero carbon industrial cluster by 2040.
- Formed of a series of integrated programmes but always focused on a whole system approach.
- https://idric.org/

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AUTOMATED ASSET REGISTRATION

ENHANCING VISIBILITY OF DER IN THE ENERGY NETWORK

- UK Government funded programme to support development of an asset registration database for Distributed Energy Resources (DER)

- Critical for networks and with impact on consumers, energy retailers and new business models.

- Three projects have been approved in the feasibility stage, due to deliver in December 2022.

- One project ESC is collaborating with an Australian SME – GreenSync.
  - The feasibility study focuses on how to adopt the Australian solution within the UK's regulatory framework.

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INNOVATING FOR CLEAN AIR

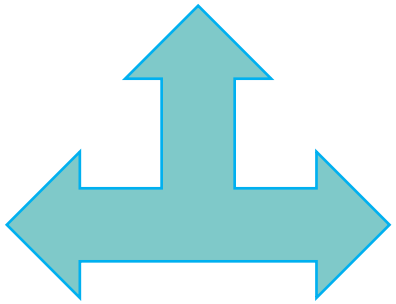
A CROSS CATAPULT PROGRAMME

Air pollution and supporting **electric vehicle uptake** are crucial and interrelated challenges for cities worldwide. Replacing petrol/diesel cars with electric vehicles could have a huge positive impact on air quality and health, as well as supporting climate goals.

To address these challenges, in 2019 three UK Catapults, with collaborative partners in India, launched the **Innovating for Clean Air** project. The project was a two year initiative funded by UK Research and Innovation and focuses on the city of Bengaluru.

Objective: Promote best practice innovation and technology exchange, stimulate the local business ecosystem, and create a sustainable platform for ongoing UK-India cooperation.

Air Quality Innovation Stream	Electric Vehicle Innovation Stream
Support promising innovations that tackle pollution at source and explore how experimentation can help Bengaluru realise its clean air strategic goals	Support the uptake and integration of electric vehicles in Bengaluru and India as a whole by sharing knowledge and trialling innovations



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THOUGHT LEADERSHIP

- **Net Zero Carbon Policy**
  - How can the UK form an innovation-friendly, economy-wide framework for Net Zero
  - https://es.catapult.org.uk/project/net-zero-carbon-policy/

- **Clean Energy Retail**
  - What role do energy retailers have in the Net Zero?
  - https://es.catapult.org.uk/report/clean-energy-retail-the-role-of-energy-retailers-in-the-net-zero-transition/

- **Metered Energy Savings**
  - Unlocking home retrofit financing by reliably measuring energy savings
  - https://es.catapult.org.uk/report/metered-energy-savings/

- **Resilient Electric Vehicle Charging**
  - Exploring the risk to the grid of Electric Vehicle Charging and Vehicle to Grid generation
  - https://es.catapult.org.uk/report/resilient-electric-vehicle-charging/

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OUR MISSION

TO UNLEASH INNOVATION AND OPEN NEW MARKETS TO CAPTURE THE CLEAN GROWTH OPPORTUNITY.

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