

G-Cloud 15

Digital energy

G-Cloud 15
Service definition document

Arup is a global collective of designers, consultants and experts dedicated to sustainable development, and to using imagination, technology and rigour to shape a better world

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Our aims

The aims and principles laid out by Sir Ove Arup in his Key Speech, continue to underpin our firm today

-  Social usefulness
-  Total architecture
-  Humane organisation
-  Straight and honourable dealings
-  Quality of work
-  Reasonable prosperity

Who we are

We combine digital expertise with market knowledge to advise on the role of digital and data in the built and natural environment

We deliver services and solutions that solve complex challenges for our clients



Our strategy

We work with clients, partner
and practitioners who share
our commitment to create a
sustainable future for
everyone



Our partnerships

From climate change to city resilience, our long-term collaborations help us to tackle some of the world's toughest problems



Some of our clients



Our G-Cloud 15 services

Digital service design and development

Discovery phase

Alpha phase

Beta phase

Digital Asset Information Management

Digital Strategy and Architecture

Built Environment Data Advisory

Digital Transformation

Digital Energy

Digital Water

Digital Transport

Experience Design

Digital for Sustainability

Digital Twins

Digital Planning

Co-Design

GIS (Geographic Information System)

Digital Energy

Digital Energy

Introduction

Arup works with public and private organisations around the world to qualify and quantify the potential of digitalisation in the energy sector and develop and implement advanced digital systems.

This service offers opportunities for more sustainable, reliable, efficient, and affordable power systems, and contributes to achieving climate goals.

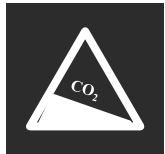
To reap the full benefit of digitalisation, the energy sector must start to design and implement virtual energy systems in the same way as the physical assets themselves. The key to this is combining deep technical knowledge with digital expertise.



Digital Energy

Service areas & offerings

Service areas



Accelerating decarbonisation



Transition to renewable energy



Managing nuclear assets



Exploiting emerging energy



Future electricity system

Service offerings



Digital advisory

Provide comprehensive strategic advice on the role of data and digital technology to support sustainable development and transformation.



Digital services & products

Combine domain expertise, digital and data to provide new higher-value offerings that support and enable our advisory capabilities



Digital twin approach

Use data throughout the lifecycle of the asset, process or system to derive insights & create inter-connected digital-physical systems

Features

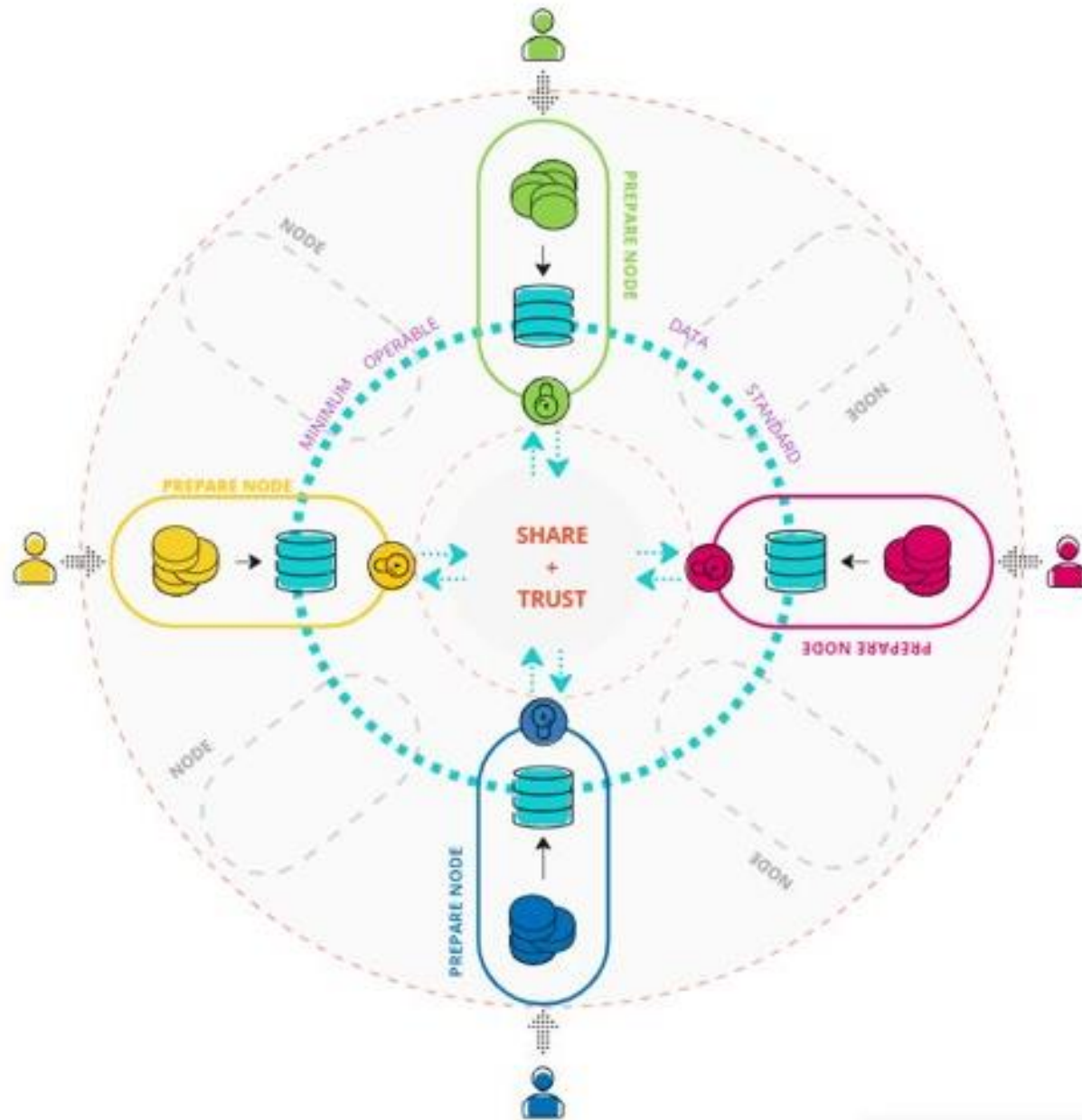
Features

- Holistic approach underpinned by energy and digital expertise to support a net-zero future by enabling a faster decarbonisation through digitalisation of the energy system
- Digital advisory, consulting and transformation to guide organisations in harnessing digital tools effectively
- Breadth of digital expertise including data modelling, data science, solution architecture and UI/UX
- Data insights and data governance to transform raw data into actionable insights in a sustainable and scalable way
- Digital Asset Management informed by right-time monitoring and analysis improve asset performance over their entire lifespan
- Digital tool development and deployment specifically focused on core needs and informed by energy domain knowledge
- Our multidisciplinary expertise allows us to tackle complex challenges combining analytics, automation, digital creativity, and emerging technologies

Benefits

Benefits

- Actionable insights that maximise business potential
- Established expertise working on government digital and innovation programmes at national and regional levels
- Depth and breadth of expertise in all aspects of the energy sector, including renewables, nuclear, energy networks, and decarbonisation
- Overcoming challenges and enhancing digital energy maturity level, enabling to maximise business potential
- Achieve efficient, reliable and resilience outcomes through solutions bespoke to client need
- Agile practitioners used to working within large infrastructure organisations
- Experienced collaborators in complex and wide-ranging consortia
- Extensive experience in the GDS process to enable efficient project management



Digital Spine Feasibility Project, DESNZ

Creating the energy sector data sharing infrastructure

A feasibility study investigating how secure and resilient data sharing at scale can be enabled for the energy sector.



Flexibility Markets Unlocked, DESNZ

Breaking down the barriers for electricity flexibility markets

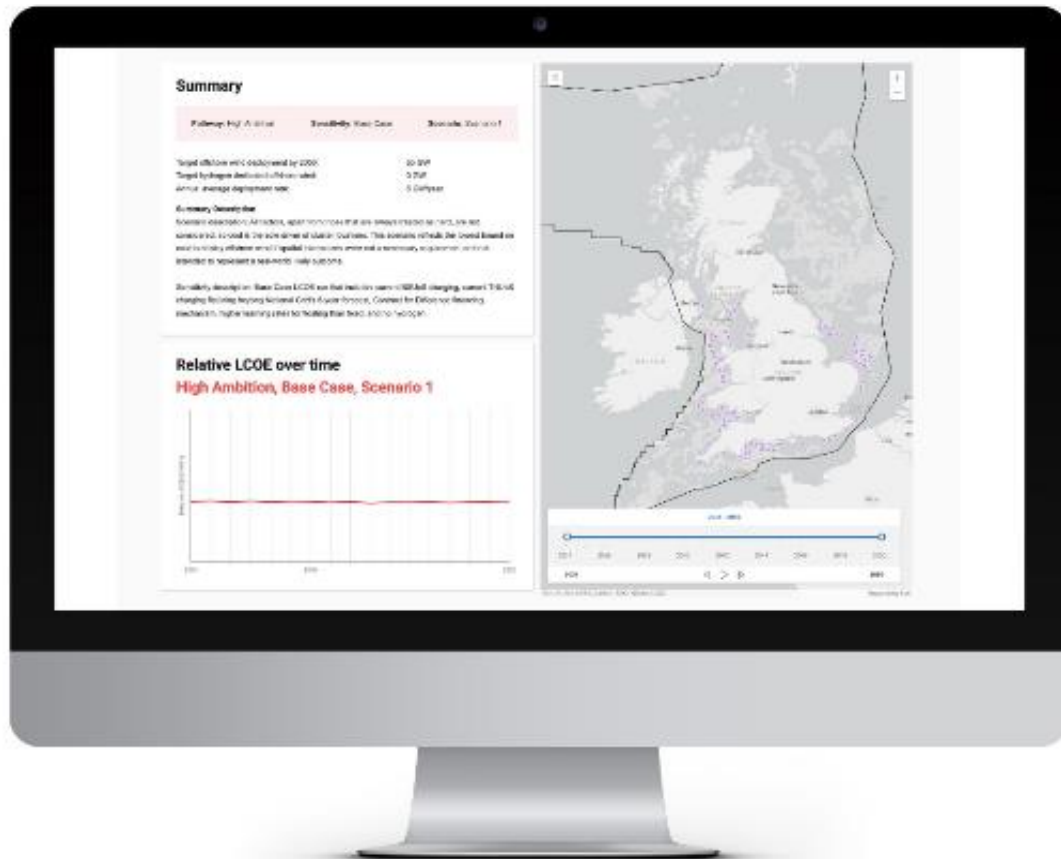
Demonstrating a holistic flexibility solution which substantially reduced the friction of new and existing flexibility service providers to access the breadth flexibility markets, including local DSO markets, national flexibility markets and Balancing Mechanism.

[Arup, Electron, and Energy Systems Catapult partner to conduct 'flexibility markets unlocked' feasibility study - Arup](#)

Future Offshore Wind Scenarios (FOWS), BEIS, TCE, CES

Exploring the future of wind development in UK waters

Delivered the Future Offshore Wind Scenarios (FOWS) for BEIS, The Crown Estate, and Crown Estate Scotland. Exploring what an offshore wind portfolio to 2050 could look like, and understand the impact different decisions and system changes could have on the location and relative cost of the offshore wind.





Virtual Energy System, ESO

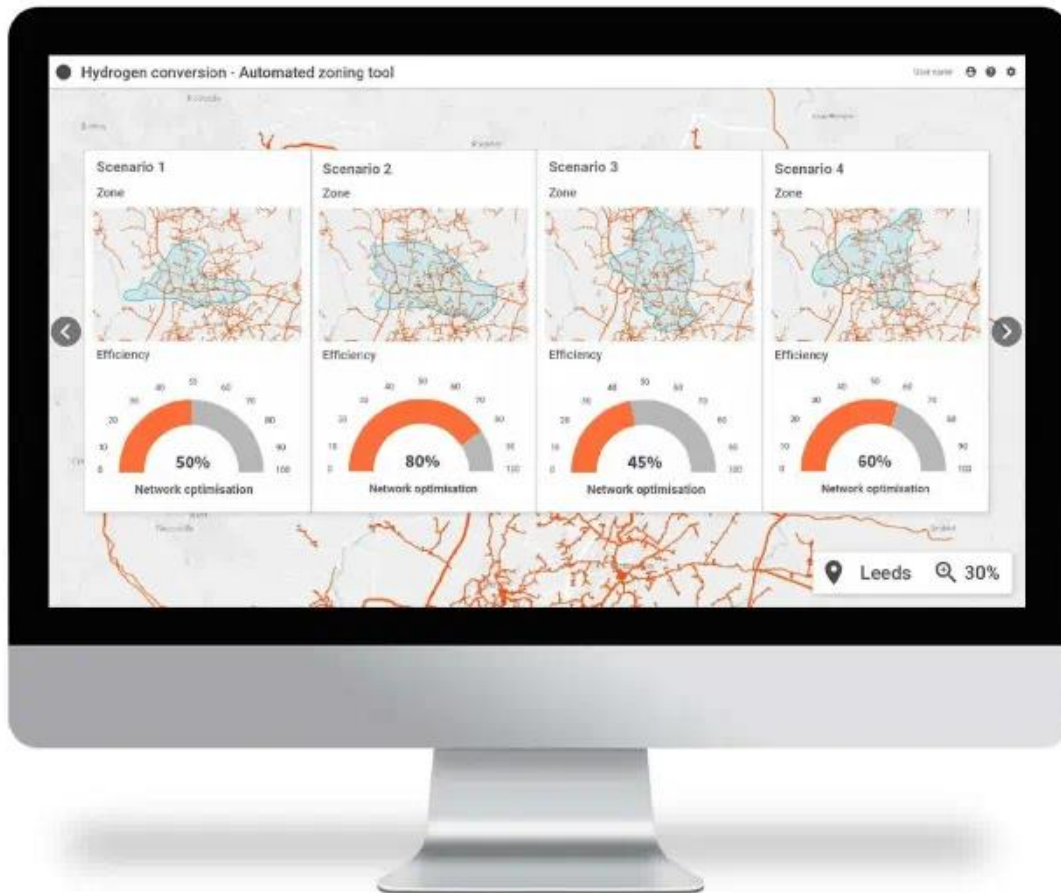
Enabling an ecosystem of interconnected energy digital twins

This project is the world's first digital replica of an energy system. Arup is helping define the common framework of a digital twin of Britain's entire energy landscape to connect systems, improve services and accelerate the path to net zero.

Hydrogen Network Conversion, Cadent Gas

Exploration of how digital and data can facilitate hydrogen network conversion

Arup explored how digital and data could streamline the time-consuming and repetitive task of planning the hydrogen conversion and removing uncertainty from the journey.



ARUP

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