

ICEBREAKER ONE

THE TIME

FOR

THEORY

IS OVER

IcebreakerOne.org

MMXIX



Addressing our  
climate and biodiversity  
emergencies requires  
sharing **trusted** data  
at scale



Vision

Make data work harder to deliver net zero

Mission

Empower decision-makers to mandate, measure and act upon the data-flows that enable net-zero

# Our advisory board has deep experience across finance, industry, climate, policy and data



Founder of Icebreaker One, Gavin Starks has created, funded and run over a dozen organisations including:

CEO, Open Data Institute  
co-Chair, Open Banking Standard  
CEO, AMEE (global environmental intelligence)



Celeste Connors has 20 years experience in economic, environment, energy, and international development policy. She was Director for Environment and Climate Change at the National Security Council and National Economic Council in the White House.



Irene Graham is the CEO of the ScaleUp Institute. She is a former senior banker at Standard Chartered Bank and was the Managing Director at the BBA responsible for Commercial Banking.



Volker Buscher is Arup's Data Leader (Chief Data Officer). He is a member of Arup's Group Board Digital Executive, with responsibility for developing Arup's creativity with data at scale and digital innovation across our industries.



Baroness Bryony Worthington is the a Director at Quadrature Climate Foundation. She is a leading expert on climate change and energy policy, and was instrumental to the adoption of the UK Climate Change Act.

# Understanding the Data Value Chain

DATA INFRASTRUCTURE

## Asset-level data

*Financial details, digital twins*

## Geospatial data

*Administrative, land usage, elevation*

## Environmental data

*In which assets exist - including physical infrastructure*

## Climate data

*Links to risk and hazards*

## Policy, regulatory and legal environment

*Global, national, regional*

DATA VALUE ADD

DATA IMPACT / USE

DATA CREATION

**Needs**  
*User, community, business, market, social*

DATA TRANSFORMATION

Analyse

Transform

User +  
Decisions  
⇒ Impact

Create

Acquire

Combine

AGRICULTURE

WATER

TRANSPORT

ENERGY

BUILT WORLD

IB1

IcebreakerOne.org  
Net-Zero Future



# Understanding the data value chain — what is a Data Ecosystem?

## Investment community

Public funding / Private equity / Venture capital / Development banks / Asset managers / Pension funds

### Data Suppliers

Millions of systems  
(e.g. assets)

Thousands of providers  
(e.g. energy ecosystem)

Aggregators

Market analysis

A decentralised network  
of supply and demand



### Data Users

Business applications

Financial applications

Engineering applications

Millions of systems  
(e.g. assets)

## Public and private sector

Regulation / Investment policy statements / Procurement rules / Policy positioning

# Understanding the data value chain

## What is a Trust Framework?



### Trust framework

**Cohesive:** clear and common rules that apply market-wide

**Interoperable:** standards & processes that unlock data sharing

**Legal:** frameworks for data rights, liability & redress

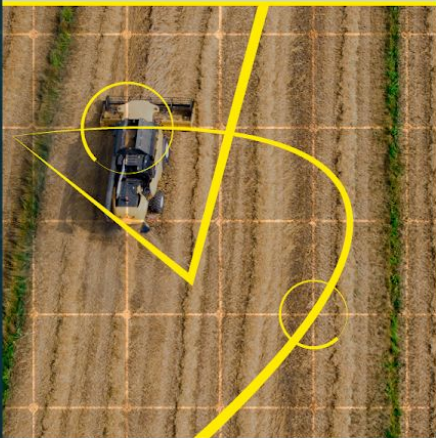
**Controlled:** rights-based consent management

**Co-developed:** developed through public-private collaboration

# Icebreaker One Clusters

Developing data infrastructure across sectors

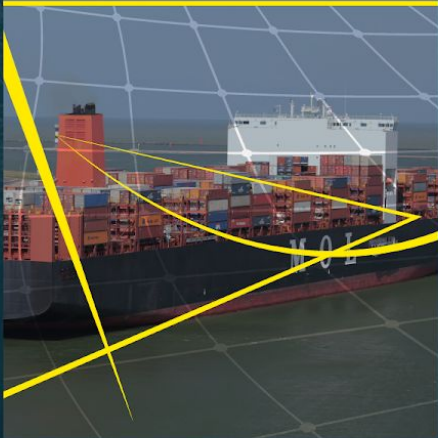
AGRICULTURE



BUILT WORLD



TRANSPORT



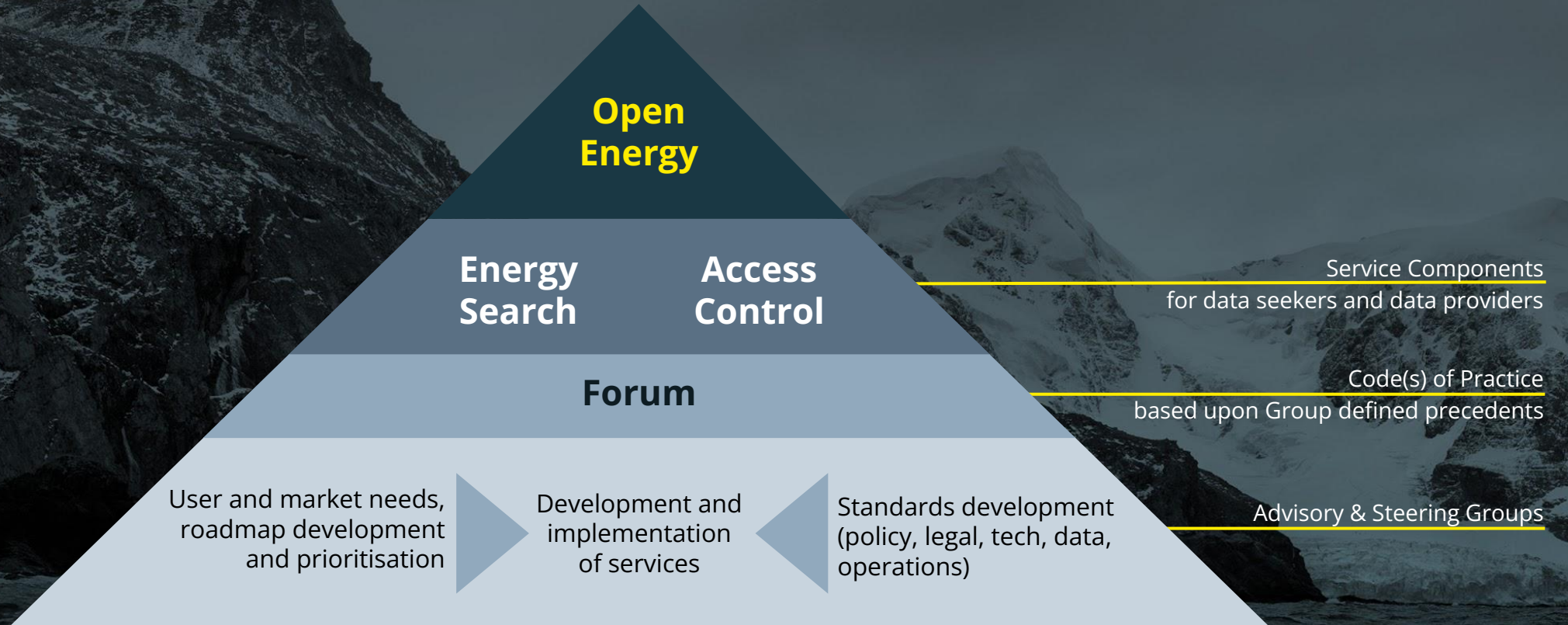
ENERGY



WATER



Photos © Rachel Susman - Antarctic Moss (5,500 years old, Elephant Island, Antarctica)





# Open Energy — Search and Access Control

**Discover energy data**  
Find, access and use Open and Shared energy data.

Current development status: *Pilot*  
Development updates and to get involved: <https://energy.icebreakerone.org>

Search...

Try: solar, charge points, realtime

**I'm looking for energy data**  
Find and use Open Data and commercial data.

**I have energy data to share**  
Increase the addressable market and usage of your data.

✓ Save time   ✓ Lower costs   ✓ Be compliant

A better way to find and share energy data, and be part of the net-zero transition

Search...

Dashboard   Datasets   Organisations   Request   About

solar

Tags (64)

- Solar (6)
- Subscribable (6)
- Energy (5)
- Forecast (4)
- Generation (4)
- Wind (4)
- Embedded (3)
- Demand (3)
- Opendata (3)
- Photovoltaic (2)
- Historic (2)
- I014 (2)
- Interconnectors (2)
- Biomass (2)
- Megawatts (2)
- Plannings (2)

Formats (10)

- CSV (10)
- HTML (5)
- ZIP (4)
- GEOJSON (3)
- DOC (3)
- XLS (2)
- PDF (2)
- JSON (1)
- XLSX (1)
- Unknown (1)

Usage License (6)

- UK Open Government Licence (OGL) (7)

Show 50 entries

Title	Owner	Updated
<b>Solar Photovoltaic Generation Forecast</b> Baseline solar photovoltaic generation forecast based on numerical weather predictions from the UK Met Office. 1 License not specified 12 Baseline, Forecast, Generation, Photovoltaic, Prediction, Solar GEOJSON	Queen Climate Fix	2021-06-17
<b>Solar PV D</b> A sample N	National Grid ESO	2021-04-29
<b>Embec</b> Electricity: document fo 2 ESO Embedded, F CSV DOC	Bristol City Council	2021-06-17
<b>Energy generation</b> Energy generation from Solar Panel PV arrays for selected Bristol buildings. Includes daily output from smart meters for the week commencing 14 Jan 2014, Feed-In-Tariff claims for the Solar Panel PV arrays for... 5 UK Open Government Licence (OGL) 12 CSV HTML	Department of Energy and Climate Change	2021-06-17
<b>Weekly solar PV installation &amp; capacity statistics</b> As deployment of solar PV under the FIT scheme has now stabilised the need for weekly statistics has reduced, DECC will therefore no longer be producing weekly solar PV statistics from 2 April 2014. This will... 31 UK Open Government Licence (OGL) 12 HTML		

Search results link either  
a) Directly to Open Data for immediate usage  
b) To Access Control system to enable permissioned usage of Commercial Data

# Open Energy — Search and Access Control

Organisations register with to unlock **permissioned** access based on rules defined by **industry** and/or **regulation**.

The screenshot shows the 'Organisation Details' page for 'Passiv Systems' (Organisation ID: 13562). The page includes fields for Organisation Name, Organisation ID, Date of Creation, Company Registrar, Status, and Registration Number. Below this is the 'Authorisation Servers' section with a table of active servers.

STATUS	CUSTOMER FRIENDLY NAME	AUTO-REGISTRATION SUPPORT	DEVELOPER PORTAL	ACTIONS
Active	Heatpump installations (Wales)	true	https://www.passivsystems.com/devPortal	[Edit] [Delete]
Active	Passiv System - EV charging point data	false	https://www.passivsystems.com/EV/devPortal	[Edit] [Delete]



Data provider

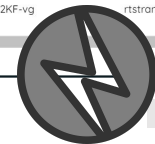
Open Energy holds validated credentials, roles, authorisations and rules. As **Codes of Practice** or **Regulation**.



Consent

The screenshot shows the 'Organisation Details' page for 'Retrofitly EDSP' (Organisation ID: 457836). It includes fields for Organisation Name, Organisation ID, Date of Creation, and Company Registrar. Below is the 'Software Statements' section with a table of active statements.

STATUS	CLIENT NAME	MODE	LOCKED	ACTIONS
Active	Heatpump	Live	true	[Edit] [Delete]



Authenticated data user

# Toolkits — Discover — help automate & scale environmental standards and reporting

Make it easy for **data users** to discover, learn about and calculate the GHG impact of anything.

Make it easy for **data providers** to publish emission factors, models and methodologies.

## Search

The screenshot shows the search results for 'water'. At the top, there is a search bar with 'water' entered and a magnifying glass icon. Below the search bar, the text reads 'You searched for 'water'' and 'Here's what we found...'. There are several search results listed, each with a title and a brief description:

- Water** [/home/water]: This category has been deprecated. The same DEFRA dataset and functionality (including historical data, i.e. data item value history) is available from this category This category ...
- Waste water** [/business/waste/water]: The category /business/waste/water contains data and methodologies for calculating greenhouse gas emissions associated with waste water, sourced from the IPCC Guidelines for Nation...
- Water Defra** [/home/water/defra]: This methodology allows the user to calculate life-cycle emissions from water. The methodology follows that from the latest Defra data and advice which in turn is sourced from Wate...
- Industry typical waste water** [/business/waste/water/industrial/industryfactors]: The category at /business/waste/water/industrial/industryfactors contains data on typical waste water characteristics of specific industries: (1) the typical volume of waste water ...
- Industrial waste water** [/business/waste/water/industrial]: The category /business/waste/water/industrial contains data and a methodology for calculating methane emissions associated with industrial waste water, sourced from the IPCC Guidel...
- Domestic waste water** [/business/waste/water/domestic]: The category /business/waste/water/domestic contains data and a methodology for calculating methane emissions associated with domestic waste water, sourced from the IPCC Guidelines...
- Waste water treatment anaerobic digestion** [/business/waste/water/anaerobicdigester]: The category at business/waste/water/anaerobicdigester provides a methodology for calculating the quantity of methane emissions from anaerobic digesters which are combusted at wate...
- Waste water treatment N2O** [/business/waste/water/n2o]: The category at business/waste/water/n2o provides a methodology for calculating the quantity of nitrous oxide (N2O) emissions from from waste water treatment plants. The methodolog...

## Learn

The screenshot shows the 'Learn' page for 'Waste water treatment anaerobic digestion'. At the top, there is a search bar with 'Search for emissions data' and a magnifying glass icon. Below the search bar, the title 'Waste water treatment anaerobic digestion' is displayed, followed by the URL '/business/waste/water/anaerobicdigester'. There are three tabs: 'SUMMARY' (selected), 'DATA', and 'CALCULATOR'. The main content area contains the following text:

The category at business/waste/water/anaerobicdigester provides a methodology for calculating the quantity of methane emissions from anaerobic digesters which are combusted at water treatment plants. The methodology is based on measurements of several plant-specific parameters relating to the flow of emissions from the digester, and is sourced from the [guidelines](#) associated with the US EPA's [mandatory reporting requirements](#).

### How to use this category

#### Selecting an emissions scenario

To use this category, simply create a profile item - there are no drill choices.

#### Specifying activity data

Next, specify the following profile item values:

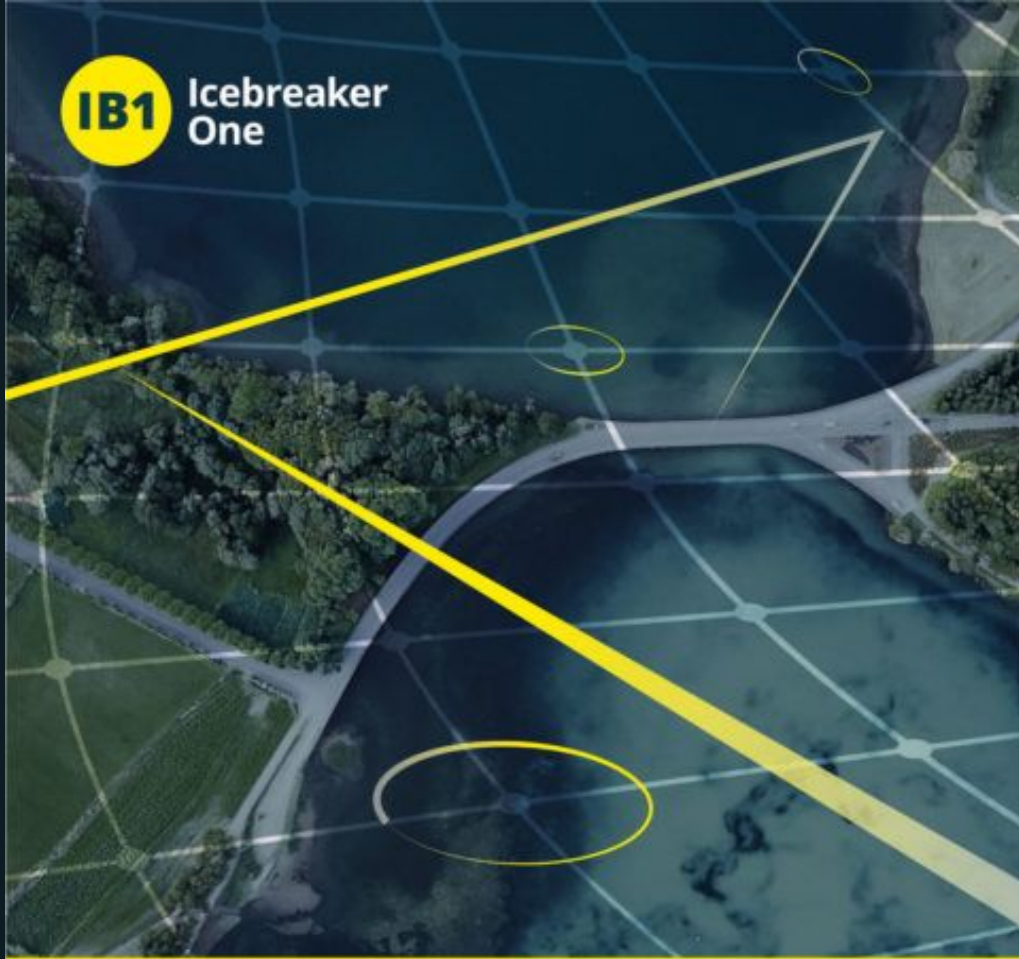
- volumetricFlow**: the measured volumetric flow rate (i.e. volume per time) of emissions from the digester
- CH4Concentration**: the measured concentration of CH<sub>4</sub> in the digester emissions (expressed as a whole percentage, i.e. 0-100)
- temperature**: the temperature at which flow measurements were made
- pressure**: the pressure at which flow measurements were made
- time**: the duration for which the facility was in operation

The assumes default values for the density of CH<sub>4</sub> and the destruction efficiency of combustion. Users can override these default values by specifying their own facility-specific values using the following profile item values:

## Use (access data, calculate)

The screenshot shows the 'Use' page for 'Waste water treatment anaerobic digestion'. At the top, there is a search bar with 'Search for emissions data' and a magnifying glass icon. Below the search bar, the title 'Waste water treatment anaerobic digestion' is displayed, followed by the URL '/business/waste/water/anaerobicdigester'. There are three tabs: 'SUMMARY', 'DATA', and 'CALCULATOR' (selected). The main content area contains a form with the following fields:

- UID: CPZ10E57UM1M
- CH4 concentration:
- CH4 destruction efficiency:   
Destruction efficiency of methane combustion
- Density of methane (at 60F):   
Density of methane
- Duration of operation under consideration:
- Pressure at which flow measured:   
Pressure at which flow measured
- Temperature at which flow measured:
- Total volumetric flow:   
Volumetric flow rate of emissions from the digester



## **DATA INFRASTRUCTURE**

Enabling secure and scalable  
non-financial reporting and data flows

## **Enabling secure and scalable non-financial reporting and data flows**

Exploring market designs  
to unlock cross-border  
Scope 3 data flows

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