Who Element Energy are and what we do in the CCUS space
+ why you might want to join us

UKCCSRC ERC Careers Fair 2021

Element Energy
an ERM Group company

Elian Pusceddu, Principal Consultant
elian.pusceddu@element-energy.co.uk

ccusindustry@element-energy.co.uk
www.element-energy.co.uk
Element Energy is driven by a strong vision for a net-zero world

Founding principles

- We bring together dedicated, intelligent people to solve the problem of climate change.
- We ensure our analysis is fully evidence based and provide grounded advice on what is really needed to achieve the change to zero carbon energy systems.
- We focus on enabling technological, social and policy solutions to the problem of climate change.
- We believe that to solve the climate change problem there is a need to mature a critical set of technologies to the point where they can be deployed to the mainstream.

Key vision statement

To see net zero carbon achieved as rapidly as needed to avoid damage to human and environmental well-being:

- By bringing rigorous analysis and sharp insight for key decision makers.
- By being prepared to tackle complex questions using expertise across the most carbon intensive sectors.
- By initiating zero-carbon projects with the right scale and ambition.
- By working on a complete portfolio of technologies and societal solutions which are required for deep decarbonisation.
Element Energy is driven by a strong vision for a net-zero world

Founding principles

• We bring together dedicated, intelligent people to solve the problem of climate change.
• We ensure our analysis is fully evidence-based and provide grounded advice on what is really needed to achieve net-zero carbon energy systems.
• We focus on enabling technological, social and policy solutions to the problem of climate change.
• We believe that to solve the climate change problem there is a need to mature a critical set of technologies to the point where they can be deployed to the mainstream.

Key vision statement

To see net zero carbon achieved as rapidly as needed to avoid damage to human and environmental well-being – by bringing rigorous analysis and sharp insight for key decision makers; – by being prepared to tackle complex questions using expertise across the most carbon intensive sectors; – by initiating zero-carbon projects with the right scale and ambition; – by working on a complete portfolio of technologies and societal solutions which are required for deep decarbonisation.

At Element Energy, we

1. really care about the environment
2. think hard and smart about how to get to net zero
3. focus on the big picture
Element Energy is a consultancy focused on low-carbon energy and net zero
We offer end-to-end consultancy services to the entire value chain

**Government policy design and national strategy development**
Stakeholder engagement and management, rollout strategy development, policy design modelling and guidance.

**Business strategy development**
Market sizing, business model and pricing strategies, financial forecasts, etc.

**Understanding the technology**
Due diligence, performance and economic assessments, market assessment, competitor analysis, etc.

**Project funding and development**
Consortium forming, project creation, national and EU funding applications.

**Implementation and management**
Project management, safety assessments, planning applications, budget management, performance analysis, etc.
When it comes to industry, we know what technologies will be needed for net zero
But there are still important decisions to make

Compatibility with other business models and technologies in the cluster – e.g. power CCS, H2GTs, H₂ for heat, H₂ for transport?

Process switching, process substitution?

Other industrial sectors (e.g. engineering, vehicles, etc.) and dispersed industrial sites?

Biomass availability, supply risks and storage costs?

Biomass for negative emissions only?

Grid upgrades and increased demand?

Industrial conversion and supply risks?

Incentives for negative emissions via H₂ production, industrial CCS or power CCS?

International trading of carbon credits?

Carbon capture business model?

CO₂ T&S business model? (e.g. RAB, Public ownership)

Carbon capture business model?

CO₂ utilisation?

H₂ production business model?

Hydrogen infrastructure?

Industrial conversion and risks?
Our industrial decarbonisation & CCUS team offers a 360° perspective on what it takes to decarbonise industry.

**National-level industrial decarbonisation pathways** and policy recommendations for enabling their fulfilment.

**Net zero roadmaps for corporate and industry clients** across industry and many other sectors.

**Concept & strategy development for net zero clusters** including technology, infrastructure, financing, and business case.

**Integrating negative emission technologies** to reach net zero in hard-to-abate sectors.

**SECTORS COVERED**

- **CO₂ capture from:**
  - Industry, refining & upstream
  - Hydrogen production
  - Power & BECCS
  - Direct Air Capture

- **Industrial decarbonisation:**
  - Electrification, hydrogen, biomass
  - CCUS implementation
  - Energy & resource efficiency
  - Cluster analysis

- **CCUS full chain:**
  - CO₂ transport (shipping & pipeline)
  - CO₂ storage offshore and onshore
  - CO₂ utilisation routes
  - Business models

- **Hydrogen supply chain:**
  - Hydrogen production (green & blue)
  - Conversion to ammonia
  - Transport and storage
  - End-use across all economy sectors
Overview of recent studies involving CCUS

DAC Global Assessment for IEAGHG, 2021
Technology review (liquid, solid etc.), collation of techno-economic data, environmental LCA (CO2, land, water etc.), policy & regulation.

GGRs technical potential for BEIS, 2021
Technology review (DACCS, BECCS, nature-based), collation of techno-economic data, environmental constraints, energy requirements; development of plausible scenarios.

Blue hydrogen pathways for IEAGHG, 2021
Technology review (hydrogen from gas, oil), techno-economic assessment, barriers & enablers.
Overview of recent studies involving CCUS

UK CO₂ Shipping Market Opportunities for confidential private investor, 2021
Mapping potential demand for CO₂ shipping, infrastructure requirements, options, risks & mitigations, policy & business models.

European CCS market assessment for confidential private investor, 2021
Understanding sectoral uptake potential (industry, power, blue hydrogen, DAC, BECCS); explaining CCS to a non-technical audience.
Overview of recent studies involving CCUS

UK 2050: The benefits unlocked by hydrogen and CCS under three ambition scenarios

- Industry decarbonisation: Introducing blue hydrogen and CCS to UK’s industry could rejuvenate industrial areas.
- Decarbonised UK economy: Adopting hydrogen and CCS in industry, power, heating and mobility at a national level could quadruple economic benefits.
- World leading decarbonisation: Decarbonising the UK economy and consolidating production of hydrogen for exports could help other economies decarbonise with additional UK benefits.

- £4 billion annual CVA*: £16 billion annual CVA
- 43,000 jobs created

Hy-Impact series for Equinor, 2019
Mapping potential demand for H2 in the UK and evaluating the associated economic impacts.
Overview of recent studies involving CCUS

Deep decarbonisation pathways for UK industry for the CCC, 2020
Industry-wide pathways considering all technology options; fed into 6th Carbon Budget.

Deep decarbonisation pathways for Scottish industries for the Scottish Government, 2020
Industry-wide pathways considering all technology options; fed into Scotland’s updated Climate Change Plan (CCP).
Overview of recent studies involving CCUS

**Industrial carbon capture business models for BEIS, 2018**
Optioneering for policy approaches; fed into (ongoing) development of CCS business models.

**Climate policy playbook for Breakthrough Energy, 2021**
Review policy requirements & options for electricity, transportation, manufacturing, buildings, agriculture.
Clients seem to like our work, so we are hiring

We are hiring now

- We have open positions for **all levels of experience**.
- **All sectors** – not limited to CCUS & industrial decarbonisation.
- **Flexible** working arrangements possible. Thanks to ERM, we can also offer greater **geographical** flexibility.

About you

- You **care** as much as we do.
- You have a **curious**, critical and open mind.
- You enjoy working with **numbers** and **people**.

*Knowledge of any aspect of the CCUS value chain is valuable!*

FIND OUT MORE ABOUT OPEN VACANCIES:

[http://www.element-energy.co.uk/careers/vacancies/](http://www.element-energy.co.uk/careers/vacancies/)

For further information please contact:

ccusindustry@element-energy.co.uk
eliан.pusceddu@element-energy.co.uk
THANK YOU!

For further information please contact:
ccusindustry@element-energy.co.uk
elian.pusceddu@element-energy.co.uk