

Carbon Capture, Utilisation & Storage

2024

ERCE Statement of Capabilities



ERCE



Supporting Effective Decision Making & Communication

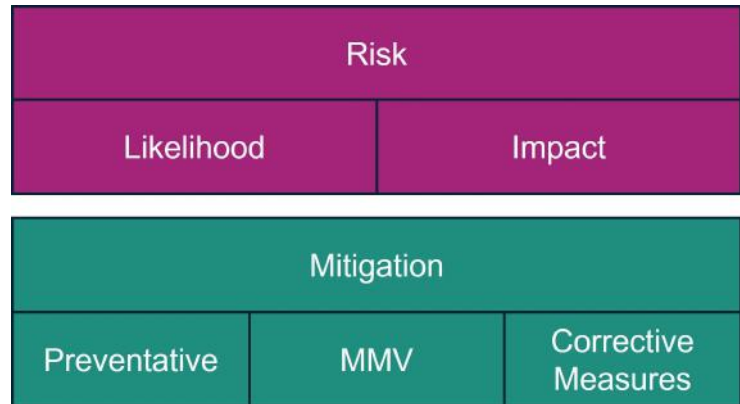
Six Main Service Offerings

ERCE provides comprehensive support for CCUS through six core services, as depicted in the above infographic. In all CCUS projects, our aims remain consistent:

1. Conducting thorough and adaptable studies to keep pace with the evolving CCUS industry.
2. Providing stakeholders with insight into risk and uncertainty, drawing from our extensive experience in global CCUS projects and other sub-surface industries.
3. Effectively communicating complex concepts to facilitate informed business decisions.



The Assessment, Mitigation Plans, and Communication of Risks are Critical to Overall CCUS Project Success



When we take a decision to grant a permit, the operator in the permit application will have shown through modelling what they expect the CO₂ to do in the reservoir and how it will stay there for 1000s of years. We agree a monitoring plan during and post-injection, and for a 20 year period post closure.

It's a pretty robust process actually, to get the permit, and of course if we think it's going to leak, then there won't be a permit.



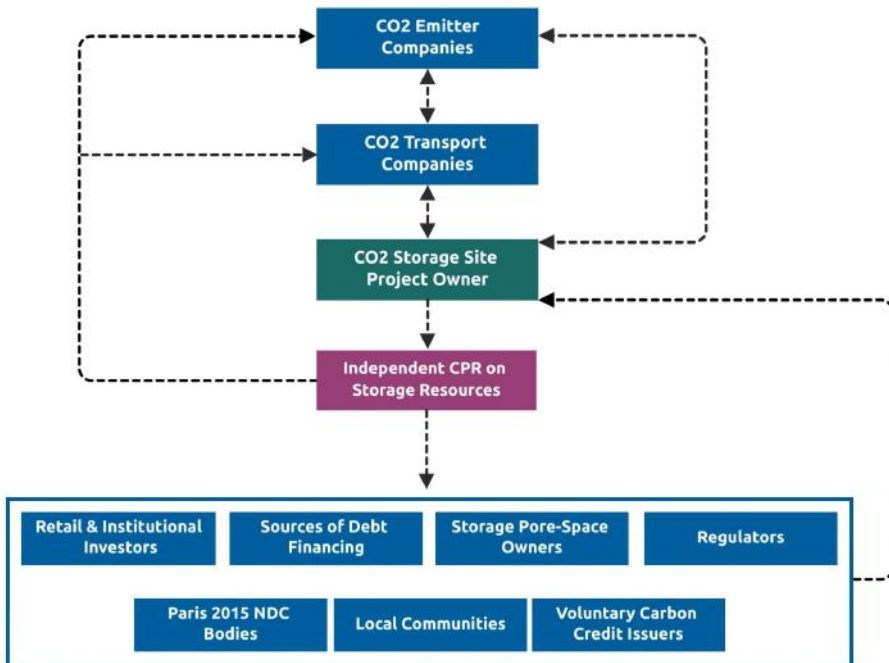
Alistair Macfarlane, NSTA
May 2023

When it comes to risk, stakeholder groups have different questions...

STAKEHOLDER	EXAMPLE QUESTIONS
Storage Company	What is best practice regarding Risk and Mitigation?
Regulator	How robust is your Risk System, MMV Plan and Corrective Measures Plan?
Customers	What are the risks regarding your site? Operational risks? Execution risks? Timing risks?
Lending Banks	What is the financial impact if things don't work according to plan?
Insurers	What events do you want insured, and for how much? Why that amount?

At ERCE we have worked with all five of these stakeholder groups, helping them evaluate and address risks and mitigation plans.

Effective Communication Builds Trust



How does a new industry build trust, especially a complex one like CCS? In this industry, many stakeholders, from regulators to the public to emitters, need to trust that a storage site will be both effective and safe.



Paul Chernik
General Manager, ERCE

*"Effective Communication in an Emerging CCS Industry - An Application of the SPE SRMS to Convey Contingencies, Uncertainties, Commerciality, and Progress to Project Approval",
Frontiers in Energy Research*

ERCE has been providing trusted reports to support business decisions since the 1970s.

In CCS we are an industry leader in writing Competent Person Reports. Our reports are relied upon by:

- Equity Markets
- Regulators
- M&A partners in farm-ins
- Private Investors
- NOC Management
- Lenders

ERCE uses guidelines such as the SPE SRMS and ISO 27914 in order to complete our CPRs.

However, as this emerging industry is so new, we have also supplemented these guidelines with new methods developed in-house. Our reports are built with end-users in mind.

Subsurface Uncertainties Impact Capacity and Injectivity

As a Service Provider, how much should you promise to your customers?

In ERCE's experience, it is important to understand the uncertainty in Capacity and Injectivity early on.

As the project progresses from preliminary screening to a Final Investment Decision (FID), decisions will need to be made on the amount of capital to invest in order to achieve the desired storage rates and contracted volumes.

ERCE has been involved in projects from the prospect stage through to FID, working with aquifers and depleted gas & oil fields. We have observed how assumptions about operating pressures, aquifer strength, rock compressibility, and Joule Thompson effects can significantly impact estimates of injection rates and capacity throughout the project life.

Our experience is available to support decision making.

Regulators Need to Understand the Containment Risks

CO2 Storage is a Long-Term Liability

In CCS, the owner of the pore space will assume the long-term risks associated with CO2 storage.

Due to this, regulators are playing an active role in assessing containment risk. It is crucial to have a clear and comprehensive risk management system in place to gain the trust of regulators.

At ERCE, we have encountered various risk management systems. We have been requested to develop them and have also been asked by regulators to conduct independent evaluations. Our extensive experience in this area is available to clients

Insurers and Sources of Finance Will Want to See Your MMV and Corrective Measures Plans

Don't forget: Downside Planning plays a vital role in accessing external financial resources.

To access external finance, storage developers need to demonstrate mastery of the downside.

Identification of downsides, presentation of MMV methods, and costing of realistic remediation activities build trust with sources of finance.

At ERCE we have advised these sources of finance. We also have Principals who have worked at Regulators, defining what is needed in MMV and Corrective Measure plans.

These plans represent a critical hurdle to achieving a licence to inject and to take FID.





CCUS is Supported by Debt and Equity

ERCE specializes in accessing financial support through two key services:

Firstly, we excel as the Lender's Advisor in debt processes, offering expert guidance and insights to facilitate due diligence processes.

Secondly, we produce 3rd party assurance reports, which are instrumental in facilitating public and private equity raises as well as M&A activities.

Notably, we made history by crafting the inaugural report for European Equity markets to the SPE SRMS standard, delivering for Harbour Energy in 2023.

Additionally, we have played a pivotal role as the Lender's Advisor for numerous CCS projects in Europe. We understand that the CCS industry is still emerging, and we approach each project with a tailored, boutique mindset.

While drawing from our wealth of experience, we recognize the unique nature of every endeavor, collaborating closely with project proponents to gain a detailed understanding of their development.

In our capacity as the Lender's Advisor, we customize reports in collaboration with the lead technical and commercial banks, ensuring a comprehensive evaluation of project risks and uncertainties, and addressing their questions with care.

In the equity markets, our consistent and reliable approach empowers confident investment decisions, cementing our reputation as a trusted source of information.



The private sector must be incentivised to invest in CCS because the capital requirement far outstrips what governments are willing to pay in the timeframe required.

This means most of the funding for CCS is to come from debt, capital markets, and other sources such as sovereign wealth funds, which currently do not directly fund CCS at a meaningful scale.



Bespoke Education Drawing Upon International Experience

Unlock Your Potential with ERCE Customized Courses

At ERCE, we understand the value of tailored learning experiences. Our client-focused workshops draw on our extensive expertise in CCUS, delivering valuable insights and proven strategies. Benefit from the knowledge of our highly experienced lecturers, who have a demonstrated track record of teaching at renowned institutions such as Imperial College London, Royal Holloway University of London, and the University of Leeds.

Our introductory workshops are designed to equip non-subsurface staff with a solid understanding of CCS subsurface challenges, while our bespoke workshops are crafted to address specific areas of interest, ensuring maximum relevance and impact.





Building Frameworks for CCS Success

Creating frameworks to facilitate CCS development is a task faced by many governments and regulators.

ERCE is fortunate to have varied experience in CCS Regulation. Members of our team have worked for the NSTA, building CCS regulatory frameworks. Others have worked in the EU and UK steel industry, impacted by regulations as CO2 emitters.

Furthermore, others have worked on assets in countries like the UK and Australia, supporting projects as regulation has been released and evolved.

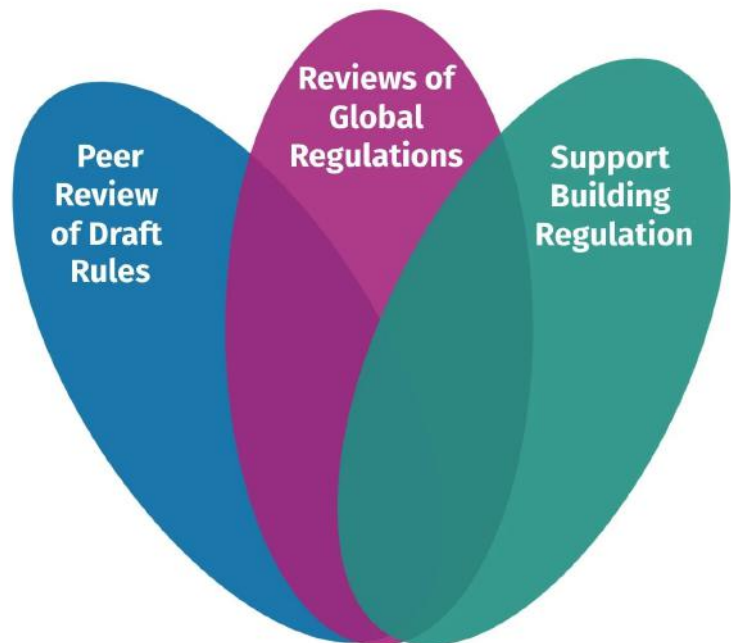
Our expertise is available to global regulators on request.



The role of state regulation for the positive implementation of CCS projects cannot be overestimated...CCS activities should be permanent, systematic, and balanced; they should be based on other countries' CCS background.



Natalia Romasheva, Alina Ilinova
"CCS Projects: How Regulatory Framework Influences Their Deployment"
Resources, 2019





ERCE is passionate about the future of CCS and looks forward to working with you to solve CCS challenges. Reach out to our CCS team, to explore opportunities to work with us.

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