



IEAGHG

Annual Review

2025

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Chairman's Message for 2025



"I remain convinced CCS is integral to a 'no regrets' approach. **It is time to be unashamedly bold about the crucial role of CCS in tackling the crises we face**"

Kelly Thambimuthu, IEAGHG Chair, at GHGT-17

Sadly, what could have been a stock take of achievements in closing a decade since COP 15 in Paris, we were confronted with disruption of the global consensus on climate policy to reduce GHG emissions to limit radiative forcing of the earth's climate to below 1.5 C.

As shocking as this was, the 2025 report card tracking progress in GHG emissions reduction by UNEP¹ has also concluded in the heading of their report, 'Off target - Continued collective inaction puts global temperature goal at risk'. A chart in this report projects that under current adopted policies, the goal of meeting an under 1.5C target over the 21st century is between 0 to 7% - and that before accounting for circumstances arising from the fractured consensus in global climate policy.

In parallel, the 2025 World Energy Outlook² by the IEA in its executive summary pinpoints, among

others, some key issues – a volatile world where energy security takes centre stage, security threats hanging over critical minerals supply chains, a growth in LNG demand, a continuing rise in renewable energy, a nuclear comeback, a faster growth in electricity demand over all other energy use scenarios, and access to modern energy sources that remains a core challenge for nearly 2 billion in the developing world.

Given the complexities arising from emerging energy demand and the shift in geopolitics from a multi-lateral to a multi-polar world already underway, we will have to confront a scenario of our continued reliance on all available energy resources to meet supply and demand.

¹ 'Emissions Gap Report 2025', United Nations Environmental Program (UNEP), <https://doi.org/10.59117/20.500.11822/48854>

² 'World Energy Outlook 2025', International Energy Agency (IEA), <https://www.iea.org/reports/world-energy-outlook-2025>

Chairman's Message for 2025

Nevertheless, this could be addressed in a 'no regrets' approach, i.e., one that promotes an increased reliance on electricity and hydrogen as end use energy vectors with low embedded carbon, net zero or net negative GHG emissions assessed on a cradle to grave life cycle basis.

The key to the increased utilisation of electricity and hydrogen as end-use energy vectors with low embedded carbon, net zero or net negative GHG emissions assessed on a cradle to grave life cycle basis is the energy efficiency of their transformation from primary energy resources to end use. Coupled with the energy efficiency that has a direct bearing on the scale of transformation required in energy infrastructure, mining, transport, transmission, storage and energy security, life cycle assessments (LCA) of GHG emissions of the energy pathways we choose is paramount. Currently, we have no known pathways for the conversion of primary energy to electricity/hydrogen where cradle to grave LCA for GHG emissions is zero. The energy transformation to a net zero world is an iterative journey of exploiting an increasing efficiency of energy conversion, coupled with the abatement and/or offsets of carbon emissions, whilst nations continue with the exploitation of all primary energy resources without fear or favour.

In my 2024 Chair's message³, I noted that CCS-equipped fossil fuel and biomass (BECCS) energy technologies have amongst the highest net time-averaged primary energy conversion efficiencies⁴ to electricity/hydrogen in comparison to other renewable and nuclear (fission) energy. In the case of hydrogen, the net efficiency for hydrogen production is significantly higher by margins that are up to an order of magnitude in difference. Time-averaged energy efficiencies determine the relative role, scope, scale, and environmental impact of deployment of all net zero energy technologies. More clarification was also made on the relative roles and scope of DACCS, BECCS, and CCUS in achieving net zero and negative emissions depending on where the energy supply for these schemes come from.

With a cautious eye on energy security issues and the schism that has emerged with consensus on global climate policy, I remain convinced CCS is integral to a 'no regrets' approach. Indeed, it is time to be unashamedly bold about the crucial role of CCS in tackling the crises we face in a new world order!

Prof. Kelly Thambimuthu, FTSE
Chairman



³ IEAGHG Annual Review 2024, <https://publications.ieaghg.org/docs/annual-reviews/IEAGHG%20Annual%20Review%202024>

⁴ Time averaged primary energy conversion efficiencies account for the intermittency of energy supply and/or the need for energy storage

General Manager's Summary of 2025



IEAGHG undertook many activities in 2025, progressing CCS and CDR developments and supporting the increase in CCS and CDR activities worldwide. This was set against the ongoing need for more action on climate change and increased geopolitical uncertainty.

As a non-GHGT conference year, we organised our other main events. The largest is our Post-Combustion Capture Conference, PCCC-8, hosted by TotalEnergies in Marseille, France. This was the largest PCCC to date, reflecting the growth in CCS and CDR activities worldwide. We also convened another of our Costs Network meetings, hosted by Bechtel in Houston. Our Risk Management Network and Monitoring Networks held a joint meeting in The Hague hosted by Shell, with an excellent visit to the Porthos CCS project. For the first time, we organised a workshop on artificial intelligence (AI) and CCS, which proved very popular as was the subsequent report from this event.

We held our 17th International Summer School in Regina, hosted again by our colleagues at the International CCS Knowledge Centre, with a site visit to Boundary Dam and Aquistore. Now 803 alumni from 60 countries are out in the world, many becoming CCS leaders, and many are the leaders of the future!

Organisation started on our major conference, GHGT-18, which will be held in Perth, Australia, in October 2026. Already there was high interest, building on from GHGT-17 which was the largest gathering of CCS professionals to date.

Our technical information continued with twelve technical reports being published, ranging from storage in basalts, to CO₂ flow metering, to CCS in power systems and hydrogen, and to AI applications.

In terms of our engagement with climate policy, we led the organisation of a UNFCCC Side-event at COP30 in Belem, Brazil. This was focussed on CCUS in Latin America and the Caribbean, with exciting developments especially in Brazil, as well as Mexico and Colombia. There was also success in the Article 6.4 area, with a "Standard" on Reversals from Removals being agreed. This area has been a focus of attention and input for IEAGHG over the last four years to try and ensure it was sensible and evidence based.

Also, the IPCC agreed a programme of work to develop an inventory methodology on CDR and updating the CCS methodology. IEAGHG input into these and we are following this closely.

The London Convention continues its work assessing permitting experiences for CO₂ geological storage and also in assessing marine geoengineering (scientifically and legally). IEAGHG

General Manager's Summary of 2025

are the only organisation representing CCS in the important annual meetings of the London Convention, and we can take issues of interest or concern from there and tackle these in our network meetings and Offshore Workshops and share the information back to the London Convention, thus ensuring it continues to be evidence-based.

Our work in UNFCCC, IPCC, London Convention and ISO means that our technical work and evidence base was being input directly into these relevant policy and regulatory active areas.

"Our work in UNFCCC, IPCC, London Convention and ISO means our technical work is input directly into these relevant policy and regulatory areas"

IEAGHG helped Morocco and Mexico with national workshops to help get CCS started in these countries. Both countries joined our new Network of National CCUS Centres of Excellence in the Global South, co-hosted with the University of Texas. Ten centres or prospective centres from nine countries are in this new network, which held its first meeting in July.

IEAGHG continued its efforts in helping to counter disinformation on CCS in the media this year.

An important activity was the development of a new strategy for the next five years, with two workshops being held and contributions from many members.

It is always good to see the IEAGHG team giving presentations at other conferences and meetings around the world. This year, over 25 presentations were given including at events in Japan, Norway, India, Brazil, Mexico, Morocco, USA, Poland, France, and Belgium. These were in-person, and in addition, given the ease of online meetings now, it is routine for the team to virtually attend meetings and present at events in several different countries in the same day.

Looking ahead to 2026, we will hold the High-Temperature Solid Looping Cycles Network on the 17-18 March in Lulea in Sweden, the 8th Offshore CCS Workshop on 20-23 April in Bergen, and supporting others such as Gassnova with their Knowledge Sharing Summit on 14-17 April in Sandefjord, Norway. For the first time, our International CCS Summer School will be hosted by Denmark in June. Of course, our major activity will be the GHGT-18 conference in Perth, Australia, on the 25-29 October, bringing the CCS world together and enabling innovation and new collaborations to progress CCS and CDR. These are in addition to our members meetings, taking place in Oslo in May and Perth in October.

So, we look forward to working with you and seeing very many of you in person in 2026.

Tim Dixon
General Manager



2025 in Numbers



230
PCCC-8
Conference
Attendance
(Record
High)



9
Technical
Reports



3
Insight
Papers



25 IEAGHG presentations
at **external conferences**



854
Attendees to
IEAGHG **webinars**



16
IEAGHG
Events



462 Attended IEAGHG
in-person events



5
Technical
Reviews



33
Blogs

IEAGHG Operations Report

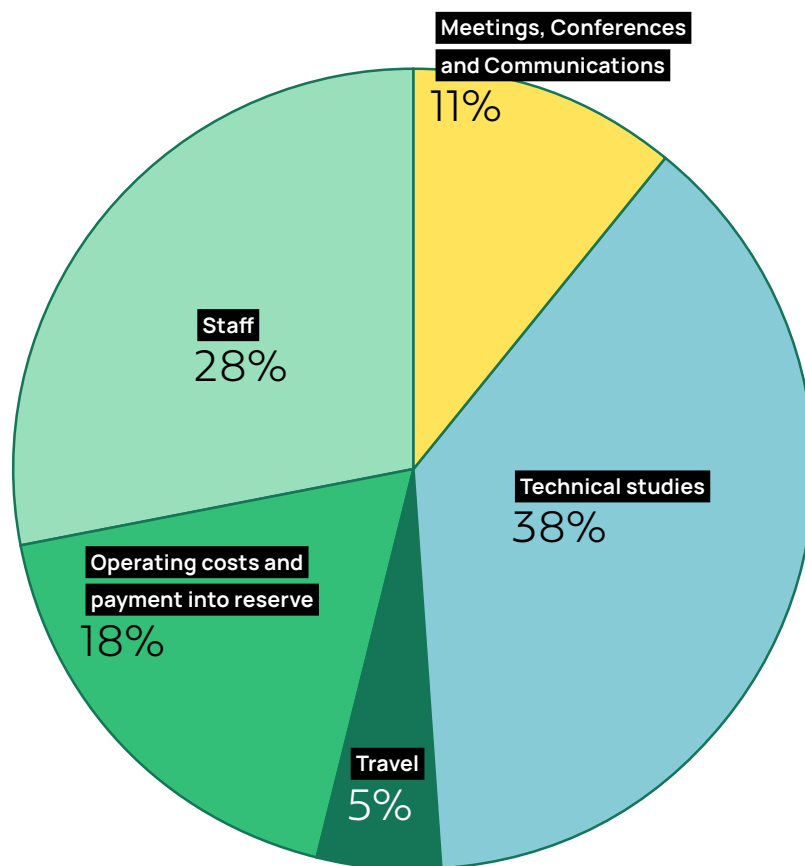
IEAGHG has 39 members. We welcomed Occidental Petroleum and GE Vernova as new members in 2025, and progressed enquiries from other organisations as global interest in CCS development and deployment continues to grow. Our total annual income was approximately £2.5m, and the budget was allocated as illustrated below.

The Executive Committee is comprised of our member representatives and acts as the governing body overseeing IEAGHG's activities, meeting twice a year. Both meetings were held in a hybrid format with most members attending in-person. ExCo 67 was hosted by the Netherlands

government member RVO in Rotterdam, with a visit to the Porthos CCS project. ExCo 68 was hosted by our member Southern Company in Birmingham, Alabama, with a site visit to their National Carbon Capture Center.

We welcomed three new members of staff to the IEAGHG team. Dr Frank Thomas and Dr MennatAllah Labib are our new Technology Analysts on storage and capture and energy systems respectively. We also welcomed Carys Blunt as the new Events Programme Manager. We wish Suzanne Killick and Dr Keith Burnard happy retirements and thank them for their great work over the years.

IEAGHG Expenditure 2025



Note 1: This spans over two financial years so values given here are approximated. Audited accounts are available to members.

Global Impact



The IEAGHG helps to facilitate the implementation and deployment of CCS by contributing to the technical evidence base for policymakers, regulators and other decision-makers. IEAGHG participates in key activities that support CCS policy and implementation strategies. Additionally, IEAGHG undertakes studies and organises events to provide essential insights that accelerate CCS deployment.

UNFCCC

COP30 was held in Belem, Brazil. The main outcome was the “Global Mutirao” decision. This contained positive and encouraging statements, including enhancing NDCs, keeping 1.5 °C within reach, and sharing best practices. Article 6.4 (Paris Agreement Crediting Mechanism - PACM) issued a second standard on Reversals from Removals and CCS. IEAGHG contributed to the evidence base, drawing from the hard work IEAGHG and others put into the Clean

Development Mechanism’s modalities and procedures for CCS (agreed in 2011 at COP17) and from the IPCC GHG Inventory Guidelines (2006).

IEAGHG Activities at COP30

IEAGHG was very active throughout the conference, providing science-based information on CCS to delegates. IEAGHG again led the organisation of a UNFCCC Side-Event on CCS, our 13th such at COPs. This event, on 15th November, was on ‘the Role of Non-State Actors in Delivering CCS in LATAM and Caribbean countries’. After a welcome by Patrick McDonald, Assistant Deputy Minister, Alberta Environment

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Global Impact

and Protected Areas, and a scene-setting by IEAGHG's Tim Dixon, there were presentations from Nathalia Weber from CCS Brasil, Prof. Katherine Romanak (University of Texas), Prof. Raffie Hosein (UWI, Trinidad and Tobago), Prof. Donnie Boodlal (University of Trinidad and Tobago), Olivia Powis (CCSA), Jazmin Mota (MeCCS, Mexico), Breanne O'Reilly (International CCS Knowledge Centre), Jonas Helseth (Bellona), Edgar Yanez (Icpet, Ecopetrol), Daniel Lopz (FS), and closing remarks by Professor Rachel Kyte, UK Special Representative on Climate UK FCDO. IISD media covered the event, and a good description of all the talks can be seen in their article at [What is the Role of Non-State Actors in Delivering Carbon Capture and Storage, Including in Latin American and Caribbean Countries? IISD Earth Negotiations Bulletin](#).

Other CCS and CDR events took place in pavilions, including by the CCSA, the International CCS Knowledge Centre, and Global CCS Institute. There was a Carbon Management Reception organised by CCS Brasil on the Friday evening, supported by IEAGHG, GCCSI and others, with a discussion panel which included IEAGHG, where we learnt more about CCS developments in Brazil and reflected on the COP. There was also a roundtable meeting of the Carbon Management Challenge, organised by GCCSI, in which IEAGHG participated. For the first time, COP had a pavilion dedicated to CDR, "CDR30", organised by the Negative Emissions Platform.

In the second week at COP30, IEAGHG moderated an event organised by UK DESNZ on CCUS Myth-busting Live. This event was well attended, with a very interactive audience using Slido to vote and ask questions in-person and online. It addressed four myths and did a poll at the end: the in-person audience thought it was helpful.

IEAGHG also joined in with UT, CCSA, and the International CCS Knowledge Centre to provide a UNFCCC Booth on CCS information in the second week. This was very popular, with a constant flow of delegates seeking it out to learn about CCS, indicating the continuing high level of positive interest in CCS.

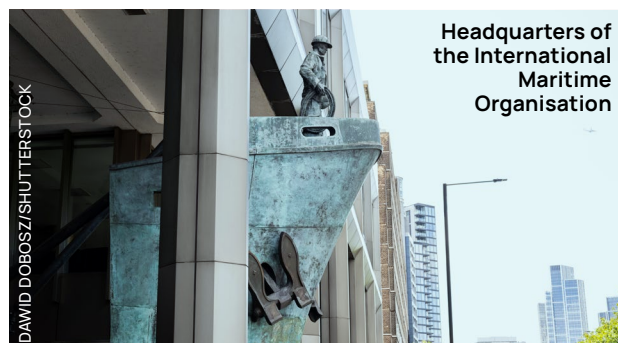
IEAGHG reported developments in three blogs: [COP30 Starts](#); [First week at COP30: negotiations, CCS and the CDR Roadmap](#); [COP30 second week and final outcomes – fire and water](#).

LONDON PROTOCOL

IEAGHG attended the London Convention and London Protocol Annual Meeting LC47/LP20 meeting 2025. IEAGHG is the only CCS organisation active in these meetings.

CCS

As usual, this meeting asked for updates on the acceptance and ratification of the 2009 CO₂ Export Amendment and use of the 2019 Provisional Application of the Export Amendment. There are now twelve countries that have submitted declarations of Provisional Application to the IMO. This is a very enabling legislative development and in which IEAGHG



Global Impact

Greenpeace welcomed IEAGHG's information and asked for more sharing of information on offshore CCS developments and experiences

played a role in providing evidence base. There was an ongoing work stream focused on sharing experiences with permitting offshore CO₂ storage, led by Japan and Australia, to survey the experiences in application of the CO₂ Specific Guidelines (2007 originally and 2012 version amended for export) for the issuing of permits (see IEAGHG blog of 20 April 2024). IEAGHG participates in this group.

IEAGHG gave an update on related IEAGHG activities, including the Offshore CCS Workshops organised jointly with the Gulf Coast Carbon Center at the University of Texas, with the report

of 7th Offshore Workshop available and the 8th Offshore Workshop being planned for April 2026 in Bergen with a visit to the Northern Lights projects (operational and enabled by the 2019 Provisional Application), the report on guidance on agreements and contracts for transboundary projects under the London Protocol (just presented to members and due to be published soon), the offshore content and conclusions of the 2025 Risk Management and Monitoring Networks meeting, the developments in Japan where four projects are being assessed which would export CO₂ to other countries, and the capacity building activities in the global south which included London Protocol information (in Colombia, Morocco and Mexico).

Greenpeace welcomed IEAGHG's information and asked for more sharing of information on offshore CCS developments and experiences. IEAGHG reported developments in a blog [London Convention and London Protocol Annual Meeting 2025](#).

ISO Headquarters



Global Impact

Marine Geoengineering

Much work is underway on marine geoengineering (MGE), and IEAGHG follows this. The 2013 amendment to the London Protocol intends to bring into force regulation of marine geoengineering, prohibiting it except for research purposes, and in those cases, needing an assessment framework for the issuing of permits. IEAGHG had provided an update on the IPCC work to develop a Methodology Report on CDR; this was going to have a volume on ocean CDR as well as other engineered and nature-based techniques (note that this is now not the case).

This meeting agreed to establish a Working Group on MGE for the duration of this meeting, under the chairmanship of the Netherlands and Panama, which IEAGHG joined. The conclusion of this Working Group was to re-establish an intersessional working group to develop further a draft resolution on the application of the London Protocol to MGE, better definitions of the four new MGE techniques, how to apply the draft assessment framework to these techniques, identify how to list further techniques, and consider the relevance of the new UN High Seas Treaty “Biodiversity Beyond National Jurisdiction” (BBNJ).

Public information on the London Convention is available at [Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter \(imo.org\)](#). For background on the CO₂ Export Amendment, Resolution and guidelines, see IEAGHG report 2021-TR02 [Exporting CO₂ for Offshore Storage – The London Protocol’s Export Amendment and Associated Guidelines and Guidance](#).

IPCC

The IPCC Task Force on Inventories (TFI) was asked to look at Carbon Dioxide Removal Technologies with a view to developing a methodology. After an ‘Expert Meeting’ on Carbon Dioxide Removal Technologies, Carbon Capture, Utilisation, and Storage in July 2024 and a Scoping meeting in October 2024 (both of which IEAGHG was directly involved in), the IPCC TFI proposed a Draft Terms of Reference for 2027 Methodology Report, Draft Table of Contents, Draft Instructions to Experts and Authors. These were finally approved in October 2025 by the IPCC-63 meeting. IEAGHG will follow this work and input evidence-base as necessary.

CEM-CCUS

The CEM CCUS Initiative has continued its strategy of providing key policy-relevant inputs to both the Clean Energy Ministerial process and other key groups, such as the G20. The Initiative has provided an active platform for its members to share best practices in CCUS policy and deployment. IEAGHG are an observer of CEM-CCUS and, throughout 2025, attended the monthly meetings of the initiative. Of particular note is the work on CCS insurance with the Geneva Association and OGCI, and IEAGHG participated in an in-person workshop hosted by



Global Impact

the Geneva Association in London in December. This continues to be a topic where IEAGHG's work is needed and ongoing.

The Mission Innovation CDR Mission gathers countries to advance CDR technologies across BiCRS, DAC and Enhanced Mineralisation. The objective of the Mission is to enable 100Mt of CO₂ removals per year by 2030. In 2025 the Mission Innovation CDR Mission organised a "SMART CDR Competition" for university students. The theme of the competition was MRV for CDR. The competition was finalised at the CLIMIT Summit in February 2025 in Larvik, Norway. IEAGHG's Jasmin Kemper was one of the mentors.

ISO TC265

This ISO Technical Committee was proposed by Canada and set up in 2012 with a Canadian Chair and a Canadian and Chinese Secretariat. There are 31 participating members, 17 observing members, and 10 liaison organisations (including IEAGHG).

The scope of the group is the '*standardization of design, construction, operation, environmental planning and management, risk management, quantification, monitoring and verification, and related activities in the field of carbon dioxide capture, transportation, and geological storage (CCS)*'.

IEAGHG is a Liaison Organisation to TC 265, and a member of Working Group 3, Storage (Tim Dixon / Sam Neades), WG 5, Cross-cutting issues (Tim Dixon / Sam Neades) and WG 7, Transportation of CO₂ by Ship (Sam Neades). The Committee have published 17 standards thus far, with 9 standards or reports in progress.

ISO TC265 plenaries were held in March and November 2025; IEAGHG attended virtually and submitted written and verbal presentations of the programme's recent activities, recent publications and upcoming reports.

INTERNATIONAL CIVIL AVIATION ORGANISATION (ICAO)

The UN's International Civil Aviation Organisation (ICAO) has a goal is to reduce international aviation emissions by 85% compared to 2019 in 2024-2035 and achieve net-zero emissions by 2050. using the Carbon Offsetting & Reduction Scheme for International Aviation (CORSIA). CORSIA has two routes. The first is to use carbon offsets, which create CORSIA Emission Units. The second is to use CORSIA Eligible Fuels (CEF), either Synthetic Aviation Fuel (SAF) or Lower Carbon Aviation Fuel from fossil-based fuels (LCAF). Consequently, CCS can play significant roles in the CEF supply. The ICAO's WG5 (formerly the Fuels Task Group) organised an Experts Panel on 14th May 2025 to examine Financial Assurance and Insurance Mechanisms for post-closure permanence. IEAGHG's General Manager was invited to be the expert Moderator. This follows ICAO's CCS Experts Panel in February 2024 in Geneva in which IEAGHG presented.

WORLD BANK GROUP – INTERNATIONAL FINANCE CORPORATION (IFC)

IEAGHG continued to liaise with IFC on its CCS-related activities, including presenting at IFC meetings in Warsaw and Indonesia, and having IFC involvement in the Network of National CCUS Centres of Excellence.

The 8th Post Combustion Capture Conference



The 8th Post Combustion Capture Conference (PCCC-8) was held 16-18th September 2025 in Marseille, France, and was co-hosted with TotalEnergies. There were five sponsors, including Mitsubishi Heavy Industries (MHI), ION Clean Energy, Shell, Technip Energies, Carbon Capture Alliance, Honeywell, and Axens.

Founded in 2000, PCCC is a gathering of post-combustion capture (PCC) experts to share knowledge and expertise. Since then, the conference has grown to become the world's leading technical forum for PCC.

The conference discusses wide-ranging issues related to PCC and gives technology providers, developers and implementers the opportunity to share experience and knowledge. All aspects of PCC developments are covered, with particular attention given to pilot and demonstration projects.

Attended by over 240 international delegates, PCCC-8 was the largest conference to date in this series, growing 33% since PCCC-7. The number of abstracts received (166) and technical presentations given (115) also reflected this, with the conference growing from two to three



The 8th Post Combustion Capture Conference

streams, allowing for an additional eight technical sessions, making a total of 24 sessions over the three days of the conference.

The Gala Dinner in the beautiful Palais de la Bourse was the backdrop for an evening of networking and unwinding over a four-course dinner, allowing for informal discussions. Dinner speeches included a thank you from Philip Llewellyn on behalf of the dinner sponsor TotalEnergies and from the General Manager of IEAGHG, Tim Dixon, who took the opportunity to thank Suzanne Killick (former IEAGHG Events Programme Manager) and Keith Burnard (IEAGHG and former PCCC Chair) for their outstanding contributions to IEAGHG.



Suzanne Killick at PCCC-8

“An extremely high quality of presentations, where several parallel sessions were tough to choose from (which is a very good sign).”

The conference opened with welcoming addresses from Keith Burnard, Chair of PCCC, IEAGHG, who outlined the objectives and context of the event. Philip Llewellyn, representing co-host and sponsor TotalEnergies, welcomed delegates to Marseille and highlighted the strategic importance of



Conference Plenary Session

SÉBASTIEN DELARQUE

The 8th Post Combustion Capture Conference

"I've been to many conferences, and this is by far the best-organised one. Great communication via email."

post-combustion capture within the company's decarbonisation efforts. The opening keynotes concluded with a talk by Eadhard Pernot of the Zero Emissions Platform (ZEP), who addressed "CCS in Europe – Where Are We Headed," setting the European policy and project landscape for subsequent discussions.

On the second day, the keynote speakers included Takashi Kamijo (Mitsubishi Heavy Industries), Gary Rochelle (University of Texas at Austin), and Manuel Jacques (Technip Energies). The third and final day featured keynote talks from Erik Meuleman (ION Clean Energy), Hanna Knuutila (NTNU), and Romain Roux (Axens). The conference concluded on the afternoon of the third day with closing

remarks from Keith Burnard, Gary Rochelle, and Jon Gibbins (University of Sheffield and UKCCSRC).

Over the three days, engaging technical sessions covered Carbon Capture topics including FEED and Commercial Deployment, Modelling, Technical Economic Evaluations, Testing and Validation methods and Direct Air Capture (DAC). These were balanced with plenty of discussions during the breaks and lunches, where the attendees were also treated to some great food and coffee!

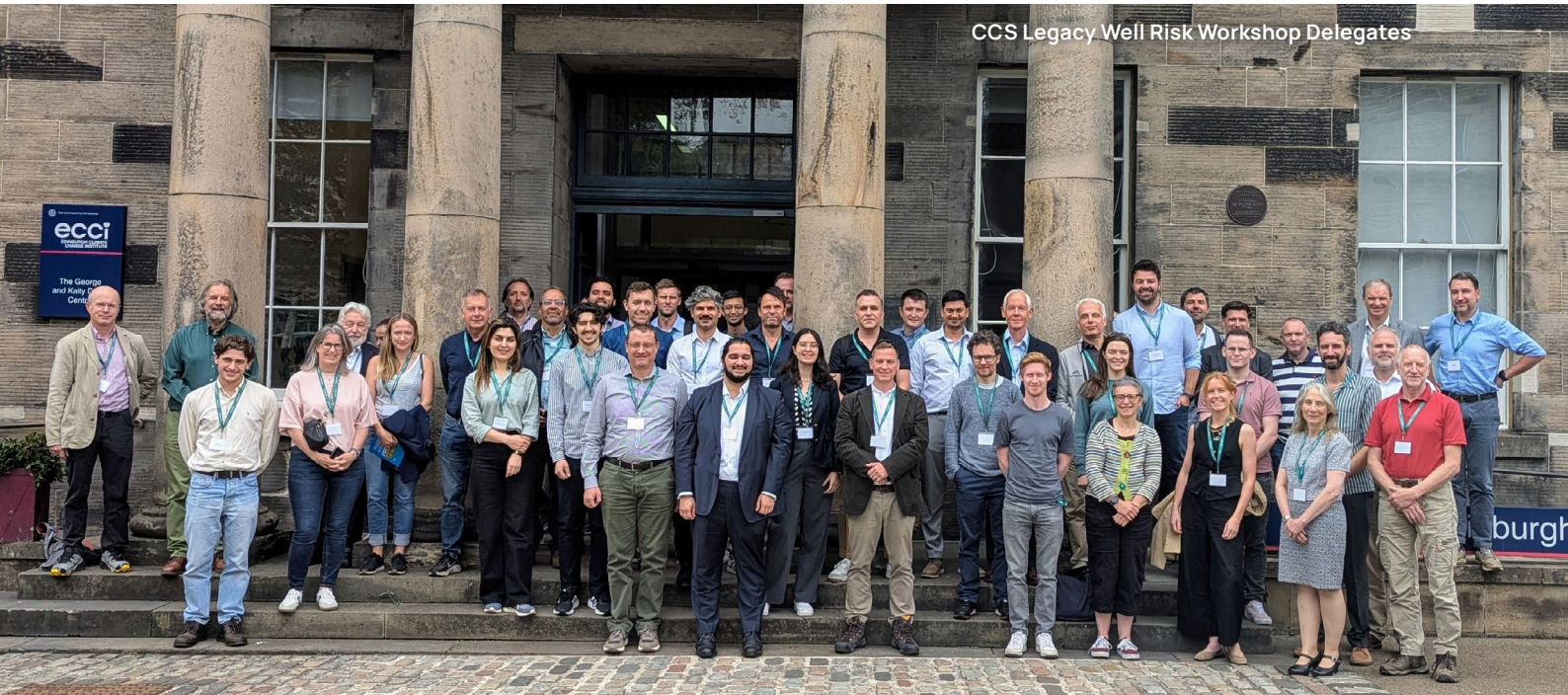
With PCCC-8 being the largest PCC conference to date, the location of the next PCCC will be announced in early 2026 and will be another highly anticipated date in the calendar for the carbon capture community.

"I could always find one talk that WAS **relevant to my work."**



PCCC-8 Conference Delegates

CCS Legacy Well Risk Workshop Explores Challenges and Innovations in CO₂ Storage



More than 50 experts from government, industry, regulation, and academia gathered in Edinburgh on 24–25 July 2025, for the CCS Legacy Well Risk Workshop, hosted by the IEAGHG in collaboration with Heriot-Watt University (HWU) and Scottish Carbon Capture and Storage (SCCS). Held at the Edinburgh Climate Change Institute, the event built on an ongoing IEAGHG research study led by HWU and SCCS, while also drawing on wider national and international perspectives. The workshop followed on from discussions initiated at the 2023 IEAGHG Risk Management Network meeting, further advancing the sector’s understanding of legacy well risks in carbon capture and storage (CCS) projects.

The workshop opened with remarks from Aaron Cahill (HWU), Nikki Clarke (IEAGHG), and Gillian White (SCCS), setting the stage for a day and a half of focused discussion. The first keynote, delivered by Freya Marks of the UK Department

for Energy Security and Net Zero (DESNZ), outlined the UK’s evolving CCUS landscape. Marks highlighted the dual nature of legacy wells as valuable sources of subsurface data and potential liabilities that can introduce risk, reduce storage capacity, and increase project costs. On the second day, Margaret Copland of the North Sea Transition Authority (NSTA) provided a regulatory perspective, emphasising that every well within a proposed storage site must demonstrate “no significant risk” of leakage or harm. This expectation goes beyond traditional oil and gas ALARP (as low as reasonably practicable) standards. Copland underscored the need to either avoid problematic wells or remediate them, acknowledging the technical and financial challenges this entails.

A central message from the keynotes was the importance of early well screening in CCS project development. While many legacy

CCS Legacy Well Risk Workshop Explores Challenges and Innovations in CO₂ Storage

wells meet historical plug and abandonment standards, these may not be sufficient for long-term CO₂ containment. As the UK advances its first commercial-scale storage projects, their success will play a crucial role in building public confidence and shaping future regulatory expectations.

Across three themed sessions, the workshop explored policy, risk factors, and emerging tools for assessing and managing legacy well risks. In the opening session, speakers from NSTA, Storegga, and DNV outlined the scale of the challenge, noting that over 1,400 legacy wells are located within the current UKCS CCS licences alone. Presentations highlighted the importance of robust data, cross-disciplinary alignment, and consistent risk frameworks, with DNV noting strong stakeholder interest in independent assurance.

The second session delved into technical risk factors. Researchers from HWU and SCCS shared early findings from the IEAGHG study, supported by a participant poll that identified environmental impacts, leakage rate estimates, and reputational risks as top concerns.

Contributions from SINTEF and Shell reinforced the need for rigorous screening workflows, effective monitoring, and the principle that “there is no capacity without containment.”

Innovation took centre stage in the final session, which showcased new modelling tools and quantitative risk assessment approaches. Presenters introduced QwellRate, an open-source model for rapid leakage assessment, and shared case studies from the North Sea and the US Gulf Coast. The concluding panel discussion highlighted the value of field data in validating models and acknowledged ongoing uncertainty around acceptable leakage thresholds.

Beyond the technical programme, delegates enjoyed opportunities to network in the Edinburgh Climate Change Institute’s atrium and at a dinner hosted by the Scotch Whisky Society. The event closed with thanks to the organising teams from HWU and SCCS, whose efforts ensured a productive and forward-looking workshop.

Special thanks go to the hosts from HWU and SCCS, particularly Aaron Cahill, Benjamin Pullen, and Sophie Cox (HWU), and Gillian White and Andrew Cavanagh (SCCS), for facilitating a successful and impactful event.



Risk Management and Monitoring Networks Combined Meeting

On the 27th and 28th August 2025, IEAGHG brought together two of its longest-running Expert Networks – Risk Management and Monitoring – for a combined meeting at Shell’s campus in The Hague, Netherlands. Over two days, over 70 experts from industry, academia, and regulatory bodies gathered to share the latest thinking, tools, and real-world experience on how to make CO₂ storage projects as safe, reliable and cost-effective as possible.

The sessions covered a wide mix of topics, but a few big themes stood out:

- **Keeping storage sites safe** – from site selection through to long-term stewardship.
- **Pressure risks underground** – understanding how CO₂ injection changes subsurface dynamics and regulatory implications.
- **Old wells and new challenges** – improving how we detect and manage risks posed by legacy wells.
- **Wells done right** – best practice in design and operations to reduce problems before they arise.

- **Faults and geology** – taking a closer look at how to assess risks linked to subsurface faults.
- **Risk over time** – how risks evolve (and hopefully reduce) as projects mature.
- **Smarter monitoring** – showcasing new techniques, from fibre optics to cutting-edge geophysics.
- **The money side** – a lively panel on what expertise insurance and finance need from a risk and monitoring perspective.

These conversations weren’t just theoretical – many presentations drew from lessons from operating projects, giving a real sense of “what works and what still needs work.”

Some key conclusions and recommendations that arose from the discussions included:

- Care in well abandonment is important, with CCS considerations kept in mind for both onshore and offshore settings.
- Many techniques are available for managing corrosion in wells.



Risk Management and Monitoring Networks Combined Meeting

- Machine learning is proving very useful, offering more true detections of seismicity, fewer false detections, and real-time analysis; however, while useful, it is still a work in progress.
- The concept of “baseline” is better expressed as a characterisation step rather than baseline terminology, with shallow conditions being more variable and deeper conditions more stable.
- Monitoring, measurement and verification (MMV) plans can evolve as operational knowledge of the project develops.
- Project value chains can involve different actors, who need to align on several aspects, including health and safety as well as risk tolerance.
- Pressure interference will be an inevitable challenge, and unitisation and allocation can help manage this risk, supported by pressure monitoring when multiple actors operate in close proximity.
- Formalised communication routes should be established for data sharing with stakeholders.
- MMV plans and risk management plans should evolve as operational knowledge of the project develops.
- Local stakeholders should be engaged early, with preparedness for any potential negative responses.
- There needs to be a dialogue between the insurance and technical communities on what

constitutes leakage, as definitions vary globally, and more precision is needed on whose definition is being used.

- CCS is increasingly recognised as the most permanent method of storing CO₂, with this realisation continuing to broaden.
- Field experiments with faults provide valuable insights, particularly in determining which directions of fault migration are most consequential.

Shell and EBN co-sponsored a memorable dinner at the beautiful Mauritshuis museum, where attendees could continue discussions surrounded by Dutch masterpieces.

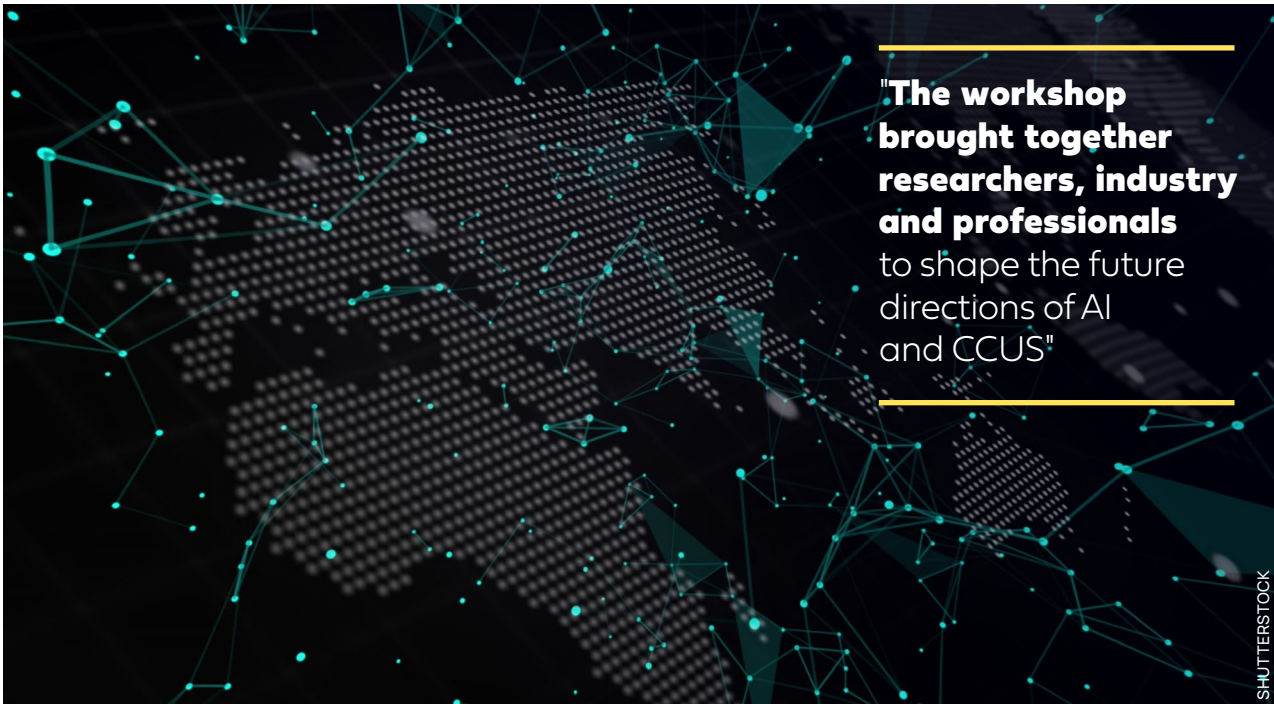
The group also visited Rotterdam Harbour to view the onshore and offshore facets of the Porthos CCS project (<https://www.porthosco2.nl/en/project/>) following the meeting – an exciting chance to see large-scale CCS infrastructure in construction.

Bringing the IEAGHG Risk Management and Monitoring networks together created some powerful crossovers. Monitoring technologies can directly feed into better risk assessment, and risk frameworks help prioritise where monitoring really matters. The conversations in The Hague showed just how interconnected these two areas are – and how much is gained when we tackle them side by side. For those who were there, the big takeaway was clear: collaboration between disciplines is the best way to progress CO₂ storage.

The published report from this meeting can be found here: <https://ieaghg.org/publications/risk-management-and-monitoring-networks-combined-meeting-report/>



AI in CCUS Workshop



"The workshop brought together researchers, industry and professionals to shape the future directions of AI and CCUS"

The IEAGHG AI in CCUS Workshop, held virtually on 29–30 April 2025, was convened to foster a deeper understanding of the role artificial intelligence (AI) can play in advancing carbon capture, utilisation and storage (CCUS). The workshop brought together researchers, industry and professionals to explore current developments, identify emerging challenges, and shape future directions at the intersection of AI and CCUS.

The first day, with 266 attendees, focused on fact-finding: reviewing the present status of AI applications across the CCUS value chain and showcasing case studies that demonstrate both the capabilities available today and the potential AI holds for the near future. The second day, with 43 invited experts, shifted to interactive, collaborative discussions that unpacked the risks, opportunities, and barriers associated with integrating AI into CCUS operations. Through this process, the workshop sought to identify

research gaps and strategic recommendations for addressing them.

Conclusions from the workshop are:

- **AI is a transformative enabler for CCUS.** Across the CCUS value chain – from capture and transport to storage and supply chain management – AI has demonstrated significant potential to accelerate innovation, improve operational efficiency, and reduce costs.
- **Real-world applications are emerging.** Case studies from industry and academic leaders show that AI is already being used to enhance material discovery, automate subsurface analysis, streamline permitting, and monitor CO₂ transport and storage.
- **Trust, transparency, and explainability are critical.** The adoption of AI in safety-critical and regulatory contexts requires models that are interpretable and auditable. Black-box systems face resistance, especially in permitting and public engagement.

AI in CCUS Workshop

"Across all sessions, speakers and participants agreed that **AI must support experts' decision-making rather than replace it entirely.**"

- **Data remains a major bottleneck.** High-quality, diverse, and standardised datasets are essential for training robust AI models. Proprietary concerns, siloed research, and a lack of interoperability hinder progress. Lack of high-quality data will likely lead to increased hallucinations/GIGO (garbage in, garbage out).
- **AI should augment – not replace – human expertise.** Across all sessions, speakers and participants agreed that AI must support experts' decision-making rather than replace it entirely. Human oversight is essential, especially in risk assessment and regulatory compliance.
- **Environmental and ethical considerations must be addressed.** The energy intensity of AI models, potential biases, and risks of overreliance were highlighted as concerns. Responsible AI development must include sustainability and ethical safeguards.

Recommendations include the following:

- Establishment of cross-sector data sharing frameworks between industry, academia, and government to unlock proprietary and siloed data.
- Investment in explainable and interpretable AI to ensure model transparency from the development phase.

- Development of benchmarking and validation protocols and alignment of AI validation with traditional engineering and scientific methods.
- Supporting interdisciplinary training and capacity building, i.e. training CCUS professionals in AI and vice versa.
- Accelerating permitting with AI tools to reduce review times and associated costs and improve completeness checks.
- Promotion of energy-efficient AI development by e.g. developing low-power models and investing in low-carbon energy-powered data centres.
- Embedding AI into digital twins and monitoring, reporting and verification (MRV) systems to enhance real-time monitoring, predictive maintenance and carbon credit issuance.
- Alignment of AI deployment with evolving policy frameworks, such as the EU AI Act and Article 6 of the Paris Agreement.

IEAGHG have produced a summary report of the workshop, which is available on the IEAGHG report website: <https://ieaghg.org/publications/ai-in-ccus-2025-workshop/>

A recording of the Day 1 presentation is available here: <https://ieaghg.org/events/ai-in-ccus-workshop/>

The Breakout Groups on Day 2 were not recorded due to Chatham House Rules, but have been summarised in the report.

2025 International CCS Summer School



Participants at the 2025 CCS Summer School

Hosted by the International CCS Knowledge Centre in Regina, Saskatchewan, the 2025 IEAGHG International CCS Summer School welcomed 50 early-career professionals from 31 countries. The IEAGHG Summer School is lucky enough to be able to return every other year to the Knowledge Centre and benefit from local lecturers, expert participation and fine facilities.

Over five immersive days, participants received a techno-economic and environmental deep dive into the entire CCS value chain from capture and transport to geological storage, along with sessions that included hydrogen, direct air capture (DAC), geoengineering, policy drivers, and stakeholder engagement. These were delivered through 40 lectures by a cohort of international experts.

“Over five immersive days, participants received a techno-economic and environmental deep dive into the entire CCS value chain”

The week began with a warm welcome from James Fann (International CCS Knowledge Centre), Tim Dixon (IEAGHG), and John Kaldi (University of Adelaide), setting the tone for a highly engaging programme of technical sessions, collaborative tasks, and real-world insights.

One of the most anticipated moments came midweek, when delegates boarded a bus for a 100-plus-mile journey, cutting across the flat, open plains of Saskatchewan, dotted with grain silos and pumpjacks, en route to SaskPower’s Boundary Dam CCS Project near Estevan. This wasn’t your typical field trip destination; it was a visit to the world’s first full-chain CCS facility on a coal-fired power plant. Since 2014, the capture plant has captured over 6.9 million tonnes of CO₂ and counting.

2025 International CCS Summer School

The visit also included a technical briefing at PTRC's Aquistore site, an ongoing CO₂ injection, measurement, monitoring, and verification (MMV) project that demonstrates the safe storage of CO₂ (captured from Boundary Dam) 3.4 km underground in a deep saline geological formation.

Back in the workroom, participants were grouped into six teams and engaged in a consultancy-style scenario, each tasked with making expert recommendations on different aspects of the Longship project, Norway's flagship CCS initiative and Europe's first complete value chain for carbon management. This hands-on exercise was also a clear highlight of the week, drawing together policy, technical, and financial perspectives in a collaborative setting. Well done to all the groups for their insight and enthusiasm, and congratulations to Team 2 ("Team CaCTUS"), who worked on transportation, for receiving the Group Award for Best Presentation.

Congratulations this year go to Aymeric Amand (Zero Emissions Platform), Aurélie Grebe (University of Sherbrooke), and Despoina Tsimprikidou (CCSA), who received the Most Outstanding Student Awards. Special recognition goes to Aurélie Grebe, who won the Best Poster Award for her work on supersonic carbon capture from industrial effluents.

We'd like to thank our ongoing Series Sponsors for the IEAGHG Summer School for their continued support and input to programme development: CSIRO, DESNZ, Drax, ExxonMobil, Gassnova, SFOE, Shell, and TotalEnergies. This was our 17th in-person Summer School, with alumni now totalling 802, many in CCS leadership positions now.

More information on the IEAGHG Summer School Series can be found here: <https://ieaghg.org/events/2026-ieaghg-international-ccs-summer-school/>



Participants at the Boundary Dam CCS capture project

Technical Reports

Contents

As a leader in CCS research our technical reports are a cornerstone of what we do. Produced in collaboration with world-leading institutions, these in-depth reports are accelerating the development and deployment of CCS projects across the globe.

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Reviewing the Implications of **Unlikely But Potential CO₂ Migration** to the Surface or Shallow Subsurface

2.

A Critical Study on **Waste to Low-Carbon (CCS-abated) Hydrogen**

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Review of CO₂ Storage Via **In-situ Mineralisation in Mafic-ultramafic Rocks**

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Market Models for CCUS/CDR – A Global Screening

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Proceedings: **CCS Cost Network 2025 Workshop** 5-6 March 2025, Houston, USA

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12.

1st Meeting of the **Network of National CCUS Centres of Excellence (NNCCE)**



1. Reviewing the Implications of Unlikely But Potential CO₂ Migration to the Surface or Shallow Subsurfacement

Managed by: Nicola Clarke | **Report ID:** 2025-01

CO₂ leakage from geological storage is considered unlikely from properly selected sites, and the potential impacts are small when compared to other anthropogenic and natural stressors. However, it is important to predict and understand potential environmental impacts and risks to human health from a range of leak scenarios to undertake the appropriate monitoring and mitigation necessary to meet both regulatory and societal expectations.

Migration of CO₂ to the surface, subsurface or into potable water reservoirs poses a risk, and although it is predicted to be rare and limited in quantity, it cannot be excluded completely, especially via abandoned wells, along fault

surfaces or via gas chimneys. A very strict interpretation of regulatory requirements may impose very high costs or limit the number and size of storage sites, unnecessarily reducing the regional and global storage resources.

A growing body of knowledge, gleaned over the past two decades into the environmental impact of leaked CO₂ have included studying the impact of CO₂ release in: natural settings, potable aquifers, via laboratory and controlled release experiments and modelling. It was desirable, therefore, that these learnings were summarised and evaluated in a clear and accessible document that would be of value to policymakers, project developers and regulators.



2. A Critical Study on Waste to Low-Carbon (CCS-abated) Hydrogen

Managed by: Abdul'Aziz Aliyu | Report ID: 2025-02

This study presents a systematic review of waste-to-hydrogen (WtH) technologies and analyses the technological, economic, and environmental aspects of the most promising waste-to-low-carbon-hydrogen technologies for near-term commercial deployment. The findings provide valuable insights into the opportunities, challenges, and potential solutions to foster and expedite the global adoption of waste-to-hydrogen projects.

Further, the report introduces a modular environmental justice (EJ) framework designed

to assess the fairness of waste-to-hydrogen projects, enabling a thorough evaluation of their potential environmental and social impacts.

Generating hydrogen from waste streams offers significant potential for the realisation of a sustainable hydrogen economy. In particular, municipal solid waste (MSW) is one of the potential waste feedstocks for hydrogen production. Utilising global MSW as feedstock (approximately 2 billion tonnes per year) has the potential to generate 60 million tonnes of hydrogen annually.



3. Review of CO₂ Storage Via In-situ Mineralisation in Mafic-ultramafic Rocks

Managed by: Nicola Clarke | **Report ID:** 2025-03

Mafic and ultramafic rocks, such as basalt and peridotite, are widely distributed across the globe. Their widespread distribution offers an alternative storage opportunity for the permanent sequestration of CO₂ compared to storage in a conventional sedimentary basin setting (i.e. saline aquifers or depleted oil and gas reservoirs). They largely rely on rapid in-situ mineralisation of injected CO₂.

Recent field experiments in mafic-ultramafic rocks demonstrate the potential for such storage opportunities. IEAGHG felt it timely to commission a critical evaluation of the technology at this point, to understand the

progress made to date and some of the factors necessary to scale up to the industrial volumes necessary to impact climate targets. Despite growing research, total injected CO₂ through subsurface mineralisation remains around 100,000 tonnes, primarily from CarbFix projects, but claims of total storage resources range upwards of gigatons to teratons.

This report evaluates progress, barriers, and knowledge gaps, and provides stakeholders, regulators, and investors with a comprehensive summary of current knowledge and understanding of subsurface carbon mineralisation in mafic-ultramafic reservoirs.



4. The Value of Direct Air Carbon Capture and Storage (DACCS)

Managed by: Jasmin Kemper | Report ID: 2025-05

This study aims to evaluate the value of direct air capture and storage (DACCS) in the energy transition (down to the regional level), accounting for key factors, including carbon removal efficiency, timeliness, durability, land footprint and techno-economic performance. The analysis focused on comparing the performance of liquid sorbent direct air capture (L-DAC) and solid sorbent direct air capture (S-DAC). Comparison of DACCS with other

mitigation technologies was outside the scope of this study.

This report presents a techno-environmental evaluation of direct air carbon capture (DAC) to understand its performance under region-specific deployment scenarios. Rather than attempting to provide a definitive cost or lifecycle estimate, this study explores how the effectiveness and value of DAC vary.



5. Market Models for CCUS/CDR – a Global Screening

Managed by: Jasmin Kemper | Report ID: 2025-06

This report provides a key pillar to interested parties including policy makers, regulators, and the technical carbon capture, utilisation and storage (CCUS) / carbon dioxide removal (CDR) community on potential successful market strategies, including their pros and cons and their suitability for different economic and political realities, which may lead to the fast development of an efficient, safe, and accepted CCUS/CDR market sector.

The potential market strategies identified in this report offer a roadmap for accelerating CCUS/CDR deployment.

These market strategies can be used by CCUS/CDR project developers as well as policymakers,

trade bodies and other interested parties to support the rapid deployment of CCUS/CDR technologies.

Adopting flexible ownership models, ensuring stable revenue mechanisms, and securing sustainable capital financing can all drive the deployment of CCUS/CDR technologies and facilitate the roll-out of infrastructure.

Collaboration among governments, industry leaders, and investors will be essential in overcoming challenges and driving widespread deployment of CCUS/CDR infrastructure to achieve net-zero emissions.



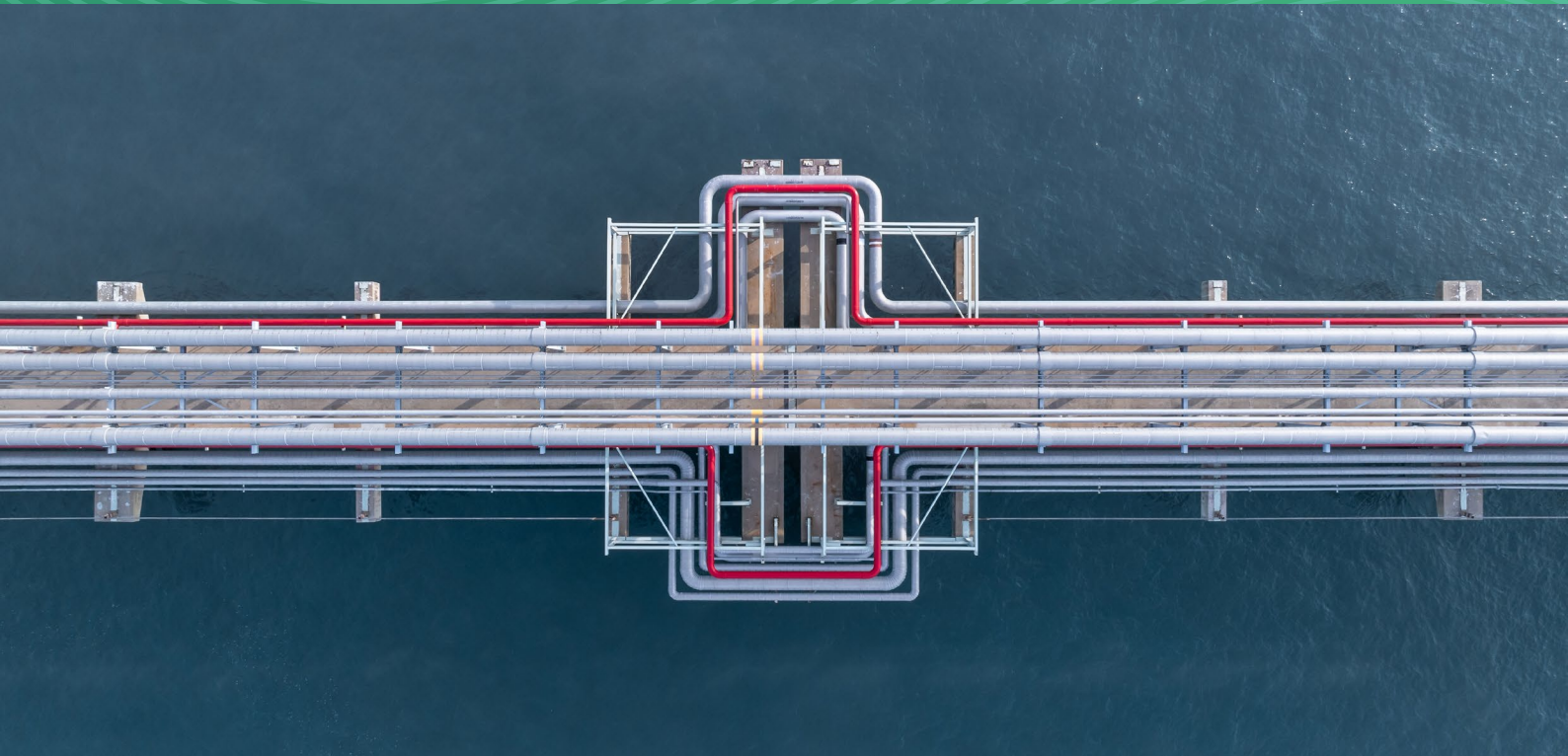
6. CO₂ Flow Metering Technologies

Managed by: Jasmin Kemper | Report ID: 2025-07

The main objective of this study is to raise awareness of the relevance, state of the art, challenges, and opportunities of flow metering for CCUS. Flow metering of CO₂ streams will be critical in supporting trade, protecting consumers, ensuring confidence, facilitating taxation, and meeting CO₂ reduction goals and treaty obligations. To date, standardised methods for accurately measuring CO₂ – ensuring traceability and accountability – have not yet been developed. This presents

challenges for process control, leak detection, and verification of emissions reporting.

Four technologies have been shown to have a high potential for use in CO₂ fiscal metering. Coriolis, Differential Pressure, Turbine, and Ultrasonic Meters have been tested for CO₂ and CO₂-rich mixtures. The tests, conducted by different groups, took place in laboratory environments and resulted in a TRL of 4/5 for non-EOR (enhanced oil recovery) CCUS applications.



7. CO₂ Transport and Storage Cost Review

Managed by: Keith Burnard | Report ID: 2025-08

The objective of the study was to review publicly available information on CO₂ transport and storage (T&S) costs, to provide insights into how typical cost estimates are built up and to inform on areas of risk. Current information on T&S costs and the need for new or improved data would be explored.

The cost of carbon capture and storage (CCS) has been a topic of investigation in both the public and private sectors for decades. Given the urgency of addressing climate change, the number of CCS projects that have been constructed and are operational is relatively low. In March 2023, there were 43 CCS plants in operation, capturing around 50 Mt CO₂. With more than 500 plants globally at various stages of development and construction, however, the pace of deployment is rising.

Developing cost estimates for large-scale investment decisions is an expensive process, often requiring tens to hundreds of millions of pounds to fully understand project costs and benefits. To avoid wasted effort and expenditure on stalled or halted projects, many developers use a gated approach to investment decision-making. In the early stages of project development, using costs of similar operational projects is a common method to determine the viability of the business case at a high level. This approach helps screen out low-value projects and avoids inefficient spending on development costs. It can also help stakeholders to compare the value of proposed projects later in the project cycle, once bespoke project costs are more developed or as government policies develop on the topic.



8. CO₂ Transport and Storage Availability

Managed by: Nicola Clarke | Report ID: 2025-09

High availability of CO₂ T&S networks will be essential for maximising the benefits of CCUS systems, and are an important aspect of commercial contracts between emitters and T&S operators. Planned or unexpected downtime in the T&S system has implications for the emitters, both commercially and potentially environmentally if they need to vent CO₂ to the atmosphere. There may also be venting/outage challenges when crossing state or national borders.

The objective of this study is to investigate realistic rates of CO₂ T&S operational availability that may be achievable for future systems, with a focus primarily on pipeline transportation and storage within sedimentary basins (saline aquifers and depleted fields). This study aims to:

- Review existing CO₂ transportation networks and CO₂ storage sites to assess achieved availability rates and approaches to maximise availability in offshore and onshore saline and depleted oil and gas fields.
- Review other relevant pipeline transportation networks and compare availability rates and best practices.
- Provide a detailed assessment of options for the design and operation of T&S networks to maximise availability.
- Review the current regulatory approaches across a range of jurisdictions and implications to venting/outages. This may also consider any challenges crossing state or national borders in the transport of CO₂.
- Consider the interaction between commercial and funding models.



9. 7th International Workshop on Offshore Geologic CO₂ Storage

Managed by: Nicola Clarke | Report ID: 2025-TR01

The 7th International Workshop on Offshore Geologic CO₂ storage was held in Port Arthur, TX, on September 17-18th, hosted by the Port Arthur Chamber of Commerce and co-organised by the University of Texas and the IEAGHG. There were around 60-70 in-person attendees, with over 200 participants joining online.

This workshop was established eight years ago to promote knowledge sharing about offshore CO₂ storage. Over the years, the workshop has grown to involve over 30 international CO₂ storage projects from countries like Norway, the Netherlands, and the United States.

There is a lot of storage potential offshore, and there are many benefits to offshore storage.

Often close to the industrial areas where a lot of the sources are, and many legal aspects, such as pore space ownership, are more straightforward. Port Arthur was chosen this year as it is a large energy hub with rapid developments in CCS.

With over 20 offshore CCS projects, both commercial and research-focused, discussed in presentations representing 12 countries, key topics included challenges and solutions related to depleted oil and gas fields, shipping for offshore injection, public engagement strategies, risk management concerning potential leakages, challenges associated with CO₂ phase changes, well risk management exercises, CO₂ stream analysis, and regulatory frameworks.



10 Proceedings: CCS Cost Network 2025 Workshop 5-6 March 2025, Houston, USA

Managed by: Keith Burnard & Abdul’Aziz Aliyu | **Report ID:** 2025-TR03

The 8th Workshop of the IEAGHG CCS Cost Network was hosted by Bechtel at their offices in Houston, Texas, on 5-6 March 2025. This in-person event convened around 50 invited experts from across industry, academia and finance for an expert-level dialogue on a range of topics relating to the cost of CCS.

The workshop aimed to explore and advance the understanding of real-world cost estimation across the CCS value chain, drawing on practical insights from ongoing projects, studies and deployment experiences. The workshop also served as a forum to identify emerging cost drivers, share lessons learned, and discuss

key enablers for reducing costs and de-risking investment in CCS systems globally.

Overall, the workshop underscored that scaling up CCS will require a pragmatic integration of commercially proven technologies, targeted innovation, and cohesive policy and financial frameworks. Success will hinge on early, cross-sector collaboration across the CCS value chain, improved transparency in cost and performance data, and the adoption of adaptive, site-specific project strategies. These elements are critical to de-risking investments, optimising capital allocation, and establishing CCS as a reliable and scalable solution for achieving global decarbonisation targets.



11. Artificial Intelligence in Carbon Capture, Utilisation and Storage 2025 Workshop

Managed by: Jasmin Kemper & Abdul'Aziz Aliyu | Report ID: 2025-TR04

The IEAGHG AI in CCUS Workshop, held virtually on 29–30 April 2025, was convened to foster a deeper understanding of the role artificial intelligence (AI) can play in advancing CCUS. The workshop brought together researchers, industry and professionals to explore current developments, identify emerging challenges, and shape future directions at the intersection of AI and CCUS.

The first day focused on fact-finding: reviewing the present status of AI applications across the CCUS value chain and showcasing case studies that demonstrate both the

capabilities available today and the potential AI holds for the near future. The second day shifted towards interactive, collaborative discussions aimed at unpacking the risks, opportunities, and barriers associated with integrating AI into CCUS operations.

Through this process, the workshop sought to identify research gaps and strategic recommendations for addressing them. The outcome is to define the 'grand challenges' in this evolving field and to generate insights that are actionable and valuable for researchers, the broader CCUS community and funding organisations.



12. 1st Meeting of the Network of National CCUS Centres of Excellence (NNCCE)

Managed by: Samantha Neades & Tim Dixon | Report ID: 2025-TR05

The inaugural meeting of the Network of National CCUS Centres of Excellence (NNCCE) was held virtually on 30 July 2025, bringing together over 20 representatives from leading CCUS institutions across the Global South. This Network is a joint program spearheaded by the IEAGHG and the Gulf Coast Carbon Centre (GCCC) to support innovation, capacity-building, and collaboration in CCUS across developing regions.

The meeting marked the formal launch of the NNCCE, following a successful exploratory meeting in 2024 hosted at the International CCS Knowledge Centre in Regina, Saskatchewan, Canada, in conjunction with a tour to the Boundary Dam capture facility. At this launch

meeting, participants shared progress updates, discussed common challenges, and identified opportunities for collaboration across research, policy, and implementation of CCUS technologies.

Key insights from the meeting highlighted that while funding remains a widely shared barrier, centres also face technical and regulatory obstacles, including limited access to subsurface data, a lack of permitting frameworks, and difficulty building bankable project pipelines. Nevertheless, several centres have demonstrated success by leveraging academic-industry partnerships, developing national storage atlases, launching pilot projects, and initiating national policy dialogues.

IEAGHG Communications

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*Foot notes:** All website metrics since July have only tracked consented users. We only obtain consent from 70% of users. Aggregated website metrics have been adjusted upwards to compensate for this.

Webinars

Webinars are an essential part of our knowledge-sharing activity. Each event is recorded and publicly available on the IEAGHG YouTube channel. For details of upcoming webinars, you can subscribe to our email list at <http://www.ieaghg.org/contact>.

Total 2025: Webinar attendance:	IEAGHG YouTube Channel in 2025 Total Views	Hours Watched:
1200	3970	498

Geological storage of CO₂: Seal integrity review 22 January 2025	AI in CCUS Workshop 01 May 2025	
Managing the transition of depleted oil and gas fields to CO₂ storage 24 March 2025	CO₂ DataShare webinar - new seismic dataset from the Svelvik Field Laboratory 01 May 2025	Review of CO₂ storage via in situ mineralisation in mafic-ultramafic rocks 23 October 2025
The implications of unlikely but potential CO₂ migration to the surface or shallow subsurface 28 March 2025	Analysis of electrolytic hydrogen technologies with a comparative perspective on low-carbon (CCS-abated) hydrogen pathways 17th June 2025	The value of direct air carbon capture and storage (DACCS) 04 November 2025
	CO₂ utilisation through the production of carbonated salt nanoparticles in a rotating packed bed 08 July 2025	COP30: Essential takeaways from Belem 17 December 2025

Publication Lists

TECHNICAL REPORTS

Report Title	Report Manager	Report ID	Publication Date
Reviewing the implications of unlikely but potential CO ₂ migration to the surface or shallow subsurface	Nicola Clarke	2025-01	2025/01/29
A critical study on waste to low carbon (ccs-abated) hydrogen	Abdul'Aziz Aliyu	2025-02	2025/01/29
Review of CO ₂ storage via in-situ mineralisation in mafic-ultramafic rocks	Nicola Clarke	2025-03	2025/04/16
Compatibility of CCUS with Near-Zero Emissions from Power - Focus on CO ₂ Capture (Confidential)	Jasmin Kemper	2025-04	2025/08/22
The Value of Direct Air Carbon Capture and Storage (DACCS)	Jasmin Kemper	2025-05	2025/09/04
Market Models for CCUS/CDR - A Global Screening	Jasmin Kemper	2025-06	2025/09/04
CO ₂ Flow Metering Technologies	Keith Burnard	2025-07	2025/09/04
CO ₂ Transport and Storage Cost Review	Nicola Clarke	2025-08	2025/10/09
CO ₂ Transport and Storage Availability	Nicola Clarke	2025-09	2025/11/28

TECHNICAL REVIEWS

Report Title	Report Manager	Report ID	Publication Date
7th International Workshop on Offshore Geologic CO ₂ Storage	Abdul'Aziz Aliyu	2025-TR01	2025/01/23
(CONFIDENTIAL) IEAGHG Monitoring Selection Tool Updates 2024-2025	Nicola Clarke	2025-TR02	2025/08/05
CCS Cost Network Proceedings 2025	Abdul'Aziz Aliyu	2025-TR03	2025/10/02
AI in CCUS Workshop	Jasmin Kemper	2025-TR04	2025/10/30
1st Meeting of the Network of National CCUS Centres of Excellence (NNCCE)	Samantha Neades	2025-TR05	2025/11/03

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INSIGHT PAPERS

Report Title	Author	Report ID	Publication Date
The Role and Importance of CO ₂ Specification on Transport and Storage Networks	Keith Burnard	2025-IP01	2025/04/16
IEA Working Party on Industrial Decarbonisation (Confidential)	Tim Dixon	2025-IP02	2025/05/02
Rethinking Coal's Role in Low-Carbon Hydrogen	Abdul'Aziz Aliyu	2025-IP03	2025/06/01

BLOGS

Blog Title	Author	Publication Date
UKCCSRC Direct Air Carbon Capture and Storage (DACCS) Workshop	Tim Dixon	2025/12/18
CO ₂ DataShare reaches over 65,000 downloads and launches 3 new datasets	Nicola Clarke	2025/11/27
COP30: Second week and final outcomes - fire and water	Tim Dixon	2025/11/24
IEA Energy Innovation Forum 2025	Keith Burnard	2025/11/19
The first week at COP30: Negotiations, CCS Events, and the Carbon Removals Roadmap	Tim Dixon	2025/11/18
383 million tonnes of CO ₂ have been permanently stored underground, a new report shows	Nicola Clarke	2025/11/17
COP30 Starts	Tim Dixon	2025/11/12
London Convention and London Protocol Annual Meeting LC47/LP20 meeting 2025	Tim Dixon	2025/11/03
National Carbon Capture Centre	Keith Burnard	2025/10/24
Delivering the Next Phase of CCUS: Key Takeaways from Day One of the CCUS 2025 Conference	Frank Thomas	2025/10/22
Decarbonizing the Power Demands of Data Centers with CCS – New York Climate Week	Tim Dixon	2025/09/25
Reflections from PCCC-8 in Marseille	Abdul'Aziz Aliyu	2025/09/23
Joining the inaugural World CCUS Conference	Carys Blunt	2025/09/12

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BLOGS

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Reflecting on the 4th CCS Symposium: Effective Characterisation of Storage Sites`	Nicola Clarke	2025/09/09
Bridging Risk Management and Monitoring: Highlights from The Hague	Samantha Neades	2025/09/02
1st Meeting of the Network of National CCUS Centers of Excellence in the Global South	Tim Dixon	2025/08/03
CCS Legacy Well Risk Workshop, Edinburgh	Nicola Clarke	2025/08/01
Highlights from the IEAGHG 2025 International CCS Summer School	Samantha Neades	2025/07/24
Longship Project Launch Event – a dream becomes reality - a celebration of CO ₂ collaboration.	Nicola Clarke	2025/07/08
IEAGHG Executive Committee Site Visit to ExxonMobil and Porthos CO ₂ Transport & Storage Project blog (1)	Abdul'Aziz Aliyu	2025/06/10
Showcasing Dutch Leadership in CCUS	Abdul'Aziz Aliyu	2025/06/06
Dutch CCS CDR Innovation Showcase blog	Abdul'Aziz Aliyu	2025/06/03
CCUS in Mexico - Carbon Visions MX	Tim Dixon	2025/05/12
Occidental's Blue Point Ammonia Project	Abdul'Aziz Aliyu	2025/05/06
Workshop on Carbon Management, Hiroshima	Tim Dixon	
The Project Poseidon Joint Venture	Nicola Clarke	2025/06/14
Reflections on IEAGHG's 8th CCS Cost Network Workshop	Abdul'Aziz Aliyu	2025/03/13
The SPE, AAPG & SEG CCUS Conference 2025	Samantha Neades	2025/03/07
India's Carbon Management Revolution: Key Insights from the IITB-IEA CCUS and CDR Workshop	Keith Burnard	2025/03/06
Visits to the Longship project and the 20th anniversary of the CLIMIT programme.	Tim Dixon	2025/03/04
CLIMIT Summit CDR Conference	Jasmin Kemper	2025/02/26
ZEP Workshop: CO ₂ Storage Monitoring: Technologies and Lessons Learned	Nicola Clarke	2025/02/15
Africa CCUS Forum in Morocco	Tim Dixon	2025/02/10

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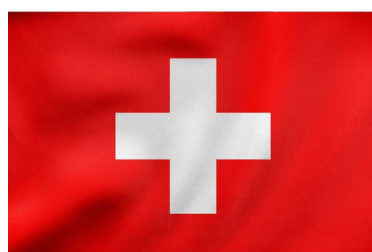
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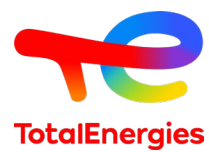
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