



Industrial Energy Transition and Decarbonization (IETD) Consortium

2024

A Membership-Directed Program



Formerly known as the CO₂ Capture and Conversion (CO₂CC) Program.

No one company will reach Net Zero alone. It takes collaboration and commitment.

An industry in transition...

Over the coming decades, the **Energy Transition** will shift our world away from heavy hydrocarbons towards lighter or even hydrocarbon-free feedstocks, to produce energy, electricity and products.

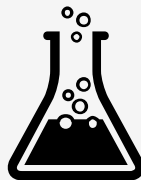
Significant efforts for **decarbonization** that reduce carbon feedstock usage and mitigate greenhouse gas (GHG) emissions are already underway, but trillions of dollars in technology and capital investments are required to reach net-zero goals.

TCGR's IETD Consortium will help you meet those Net-Zero goals.



Our unique consortium approach allows members to cost-effectively track market developments and access real technology in the innovative world of industrial decarbonization and energy transition.

The collaborative approach encourages members to contribute study topics, shape deliverables and form lasting partnership opportunities.



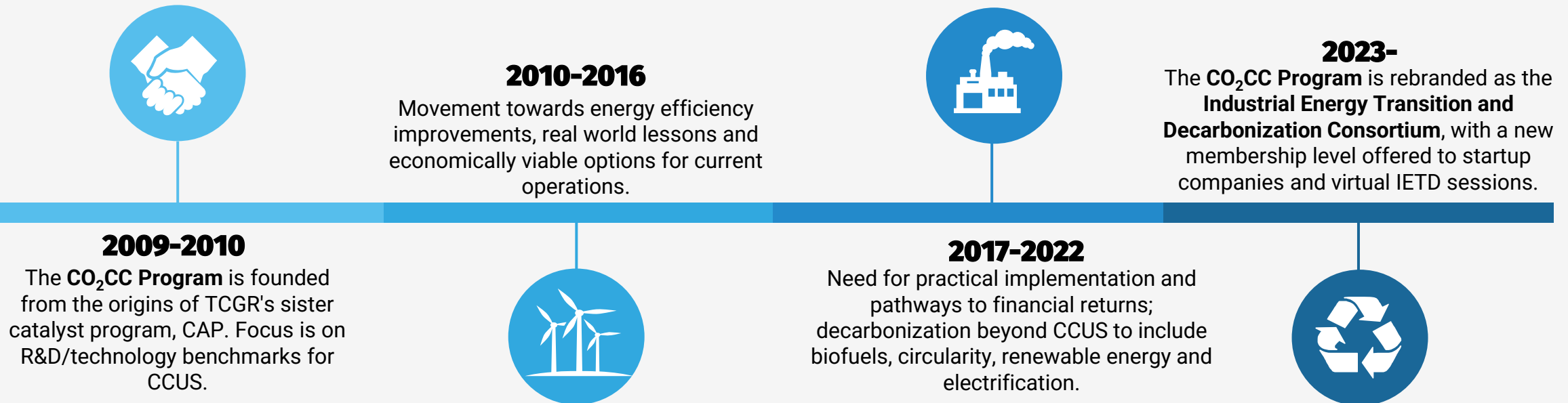
Members evaluate options that fit their timescale for emission reduction goals in real-world scenarios, built on sustainable business cases.

The Industrial Energy Transition and Decarbonization (IETD) Consortium

15 years in the making

The **IETD Consortium** is a membership-driven consortium of industrial organizations and research institutes seeking technological and commercial progress for pathways that reduce, capture, utilize and/or permanently store greenhouse gas emissions. The program documents technically and commercially viable options for carbon capture, utilization and storage (CCUS), the hydrogen economy, power-to-x, biomass, waste, circular routes to fuels/chemicals and many more topics that are significant in energy transition.

TCGR's **IETD Consortium** is a uniquely value-added service, different from government-run efforts, in which members receive timely and insightful industrially focused information, analyses and commentary. This program, "for the industry, by the industry," can be installed corporate-wide/globally to benefit resourcing and internal/external collaboration. This results in a value-added relationship with TCG/TCGR.



Value Added



Consortium Members

Energy transition growth segments

CCUS, biofuels, hydrogen economy, power to x, circular economy

Time and cost savings

We aggregate news and technological progress into weekly updates and annual techno-economic reports.

Access to top talent and information

Deliverables are written by the world's leading scientists and consultants.

Grow your network

Connect with like-minded industrial peers that share pain points and can expand your business development opportunities.



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IETD Consortium Scope

- ✓ Industrial decarbonization via process improvements and energy-saving initiatives which mitigate CO₂ generation
- ✓ Green/blue hydrogen and green/blue ammonia developments
- ✓ CO₂ capture and/or separation
- ✓ Biofuels and bioenergy (biomass conversion to RD/SAF, biogas/biomethane)
- ✓ Energy storage (batteries, CAES, hydropower, etc.) and fuel cells
- ✓ Energy requirements and/or penalties (plus other costs) including energy efficiency
- ✓ Power-to-X (PtX)
- ✓ Low carbon feedstocks, carbon displacement and novel pathways to more sustainable molecules

- ✓ Life-cycle assessments (LCAs) and sustainability of CO₂ applications
- ✓ Government-sponsored demonstration and scale-up activities
- ✓ CO₂ utilization/conversion (e.g., CO₂ as a feedstock) for use as a fuel or intermediate, including enhanced oil recovery (EOR) applications
- ✓ CO₂ concentration, purification and/or other post-treatment
- ✓ CO₂ transport and establishment of “hubs”
- ✓ Bottom-line financial (income) impacts resulting from decarbonization and energy transition programs



Consortium Deliverables

Benefits from the five-tiered deliverable approach



Weekly Communications

Stay up to date and save time with weekly *Decarbonization Dispatch* and *Energy Transition Tribune* newsletters, which aggregate and highlight technology and commercial developments from over 30+ sources.



Market & Technology Research Reports

Topics and report scope are determined by the members and are authored by leveraging our network of 150+ commercial and technical leaders around the world.



TCGR Advisory Services

Announcements in the weekly communications can be supplemented by reaching out to receive TCGR's reporting on, and analysis of, your questions.



Member Initiated Projects

Confidentially pose challenges to meet net-zero targets and locate collaborative partners, encouraging future JV opportunities.



Annual Meeting and Virtual Sessions

Join peers at the annual meeting and new for 2024, virtual IETD sessions throughout the year, bringing hot topics to the forefront and establishing networking channels for collaboration.

TCGR Advisory Services

Leverage access to TCG consultants as a differentiated benefit of membership

Members take advantage of TCGR's advisory services offered as part of the consortium.

These services are intended to provide additional information on topics that are covered under the scope of the consortium.

Below are examples of questions that were asked to TCGR through IETD:

- *"Would it be possible to get a list of DAC and carbon capture technology companies?"*
- *"Could you please help to give me some more details if there are any examples of key movements or implications in CCUS that have changed the direction or led to a new way of execution?"*
- *"We would like to understand more about Energy Internet Corporation's reputation, technology, business collaboration and other comments."*
- *"Would you be able to provide us with all articles included in the newsletters dating back to 2018 which included biosurfactants?"*

Announcements in the IETD newsletters can be supplemented by reaching out to us to receive TCGR's reporting on, and analysis of, your questions. We leverage access to TCG's DIALOG GROUP® of over 150 experts worldwide with industrial experience.



Representative Techno-economic Study Topics

Selected by members, for members since 2010.

- Analysis of CO₂ Sources and Demand for CO₂-Derived Products
- Lessons Learned: Case Studies of Successful and Failed Carbon Capture, Utilization, and Storage (CCUS) Projects
- Techno-economic Analysis (TEA) Case Study Series – Vol 1: Biomass to Renewable Fuel, CO₂ to Methanol, and Refinery Carbon Capture
- State of the Art and Future Prospects for Catalytic and Electrochemical Routes to CO₂ Conversion
- Advanced Materials for CO₂ Capture and Separation
- Catalogue of Most Important Scientific Advances in CCUS Over the Past 3 Years
- Permanent Sequestration of CO₂ in Industrial Wastes/Byproducts
- Life Cycle Assessment (LCA) for Sustainable Chemical and Polymer Production
- Technical and Commercial Progress Towards Viable CO₂ Storage
- Compact Light-Weight CO₂ Capture Technologies for Small- to Medium-scale CO₂ Emitters
- Advances in Direct Air Capture of CO₂
- State of the Art and Future Prospects for Electrochemical CO₂ Conversion Routes
- CO₂ Conversion Startups for Venture Capital
- Progress Towards Cost-Effective and Sustainable H₂ Production



Market & Techno-economic Reports Underway for 2024:

1. Alternative Feedstocks for Lower Carbon Intensity
2. Advances in Electrolyzer Technologies and Scale-up for "Green" Hydrogen
3. Topic #3 to be determined via member ballot

See the full library of reports completed since 2010



New Start-Up Level Membership Option



Quarterly Meetings

Virtual and in-person events with established industrial membership, providing exposure to their needs and an opportunity to indicate how your start-up should be evaluated.



TCGR Advisory Services

Leverage access to TCG consultants, of up to 4 hours of service per quarter related to technology scale-up, funding and resources and market developments in the energy transition.



Member Initiated Projects

Confidentially propose questions, through TCGR, to Patron and Sponsor members, leaders in the industrial energy transition, about partnerships of the consortium.



Weekly Communication

Stay up to date on new funding sources, technological and commercial developments and insights into competition with TCGR's *Start-Up Edition Newsletter*, delivered only to members at the Start-Up level.



Current Investment Range

\$20-\$200MIL



3rd Party Base Screen

Completed mass balance, energy balance, etc.

Start-Up Membership Criteria



DOE TRL

4-8 (must be scientifically proven)



Operating

<5 years

Consortium Options and Fees

The *Industrial Energy Transition and Decarbonization (IETD) Consortium* is an annual consortium with three levels of participation in 2024:

- **Patron Membership** at \$42,500 per year;
- **Sponsor Membership** at \$33,500 per year;
- **Start-Up Membership** at \$12,500 per year.

Each member company signs a Corporate Membership Agreement, which fully documents the program content and deliverable details.

The **Patron** membership entitles the subscriber to all three (3) techno-economic reports produced each year. At the **Sponsor** level, the company selects two (2) of the three (3) techno-economic reports produced each year. Interested **Start-Up** Members should contact TCGR for more information on those separate deliverables.

Once a company has committed to joining the consortium for two consecutive years (e.g., 2024-25), they may elect to exchange report selections each year for previously completed reports. [See the full report library](#) for available trading options.



The Catalyst Group Resources (TCGR) is known for its visionary stance in the identification of new technologies that lead to the development of new markets and industries. The clients who join our programs and studies benefit by being leaders in these new opportunities, leveraging competitive advantage.

Reach out to us!

We will answer questions and discuss program options and upcoming initiatives.

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**The Industrial Energy Transition and Decarbonization (IETD)
Consortium is available on a membership
basis from The Catalyst Group Resources (TCGR).**

Further details can be obtained at:
<https://www.catalystgrp.com/IETD>