

CCS Market Review

June 2022

Global CCS Institute

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 Global CCS Institute



THE GLOBAL CCS INSTITUTE

- International climate change think tank
- Headquartered in Melbourne
- Offices in Washington, Houston, London, Brussels, Beijing, Tokyo and Abu Dhabi
- Member-led organization
- Diverse international membership consists of governments, global corporations, small companies, and NGOs
- Specialist expertise covers the complete CCS/CCUS chain

OUR VISION

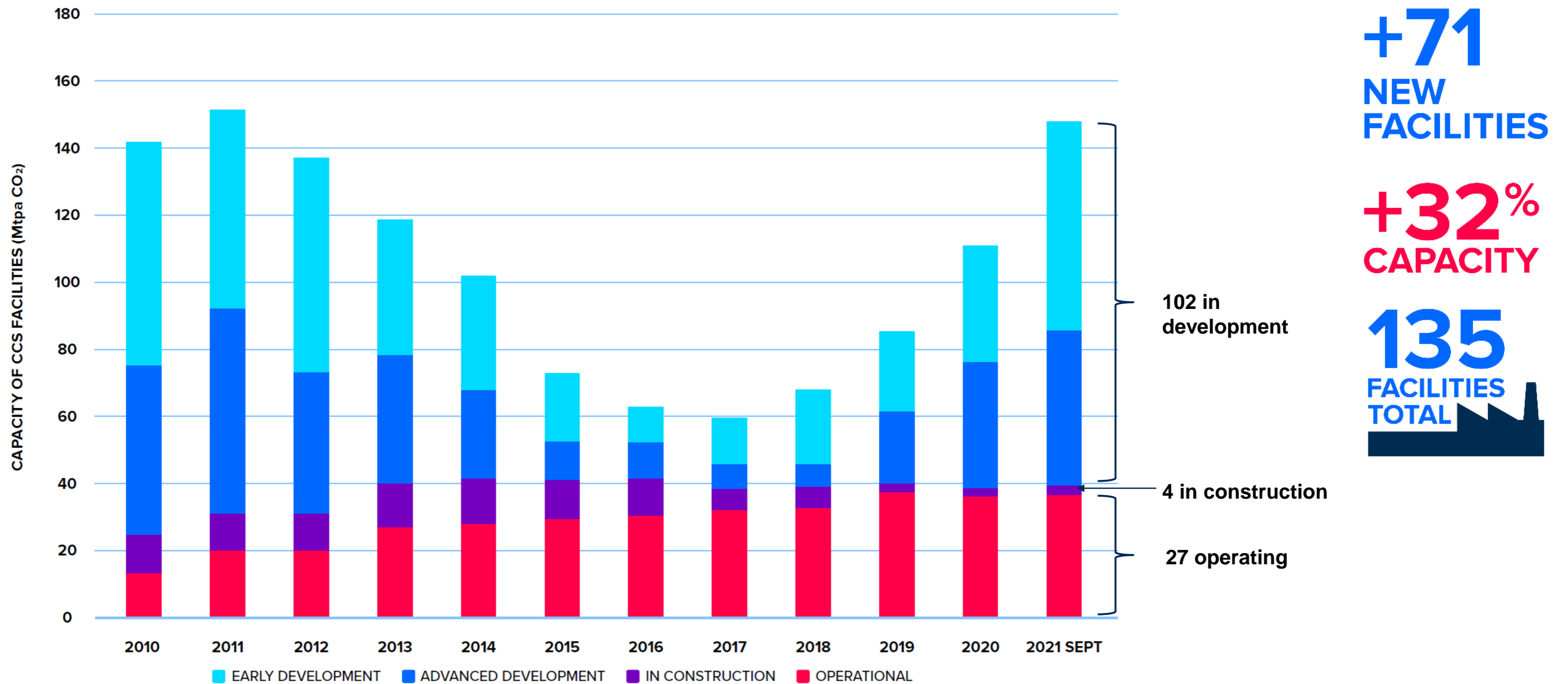
CCS is an integral part of a low emission future

OUR MISSION

To accelerate the deployment of CCS globally



GLOBAL SNAPSHOT – MOMENTUM



* 135 total includes 2 facilities that have suspended operations – not shown on the chart

TRENDS – WHERE IS THE MARKET HEADING?

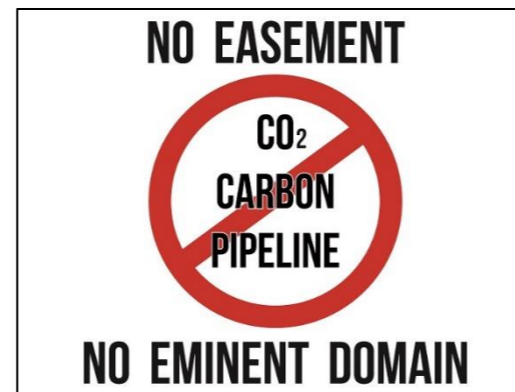


- Networks
- Power Plants
- Hydrogen
- Direct Air Capture
- CO2 Storage
- Opposition to CCS



TRENDS – OPPOSITION TO CCS

- As support strengthens, so does opposition
 - Academics/NGOs
 - Europe – onshore/offshore
 - USA – pipelines
- Institute Information
 - CCS Fact Sheets
 - Expert voices
 - Hydrogen facts and math



It's Time to End Carbon Capture of Climate Policy

An Open Letter to US and Canadian Leaders

On behalf of our millions of members and supporters across the United States and Canada, we call on policymakers to recognize that carbon capture and storage (CCS) is **not** a climate solution. It is a dangerous distraction driven by the same big polluters who created the climate emergency.

CCS is unnecessary. Renewable energy sources like solar and wind are cheaper and cleaner than fossil fuels. CCS just makes dirty energy more expensive and more energy-intensive.

CCS **does not work**. CCS projects have systematically overpromised and underdelivered. Despite the billions of taxpayer dollars wasted on CCS to date, the technology has not made a dent in CO2 emissions.

CCS **will do little to reduce industrial emissions**. Deploying CCS at scale is not economically viable for most heavy-emitting industries, such as plastic or chemical manufacturing. It diverts resources from available and scalable alternatives such as replacing fossil fuels with clean renewable energy sources to supply power and heat, and reusing inputs to reduce the production of virgin material.

CCS **makes dirty energy even more dangerous for frontline communities**. Facilities equipped with carbon capture technology have to burn more fossil fuel to get the same energy output, resulting in increased emissions of toxic and hazardous pollutants, like fine particulates (PM2.5).

CCS **imposes even more risks on communities from CO2 pipelines and storage**. Transporting, injecting, and storing CO2 presents new environmental, health, and safety hazards in communities targeted for CCS infrastructure. Pipelines can leak or rupture, and injection can contaminate water sources. These risks fall disproportionately on Black, Brown, Indigenous, and low-income communities, further entrenching a bleak history of environmental racism.

Most CCS **benefits polluters**. Nearly 80% of captured carbon is used to pump more oil out of the ground through "enhanced oil recovery." Polluting industries are using the myth of CCS to justify business-as-usual operations that are dangerous for the climate and communities. Pumping even more public funds into new CCS subsidies for fossil fuel and petrochemical industries will just prop up unsustainable business models.

We don't need to fix fossil fuels; we need to ditch them. Instead of capturing carbon to pump it back underground, we should keep fossil fuels in the ground in the first place. And instead of bankrolling CCS, public funds should be boosting sustainable, job-creating solutions to the climate crisis, for fossil-dependent workers and communities: phasing out oil, gas, and coal; investing in energy efficiency and non-combustion renewable energy sources; and protecting forests and other ecosystems that naturally capture and store carbon.

It's time for decision-makers to abandon the dirty, dangerous myth of CCS. We call on you to:

- Stop subsidizing CCS. Stop permitting CCS. Stop using CCS to justify climate inaction.
- And don't pretend you're a climate leader if CCS is part of your climate plan.

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THE MARKET – ACCELERATORS AND BRAKES

Accelerators

- London Protocol amendment
 - EU ETS non-pipeline transport
 - Net Zero Commitments/Climate Urgency
 - Successful deployment/operation
 - Technology/cost advances
 - Rise of networks
- Strengthening policy support:
- Incentives – 45Q, LCFS, ETS, carbon tax
 - Grants and loan guarantees
- Investor focus on ESG (climate change)
 - Technology based Carbon Dioxide Removal
 - Voluntary carbon markets

Brakes

- Permitting duration/uncertainty
- Open-ended liability
- Carbon leakage
- Transport chicken-egg problem
- Cost uncertainty
- Capital intensiveness
- Lack of incentives (beyond NA/Europe)
- Anti-pipeline activists
- Anti-fossil activists
- Environmental Justice concerns

THE MARKET – EXPECTATIONS FOR GROWTH

Near/Mid-term

- 71 new projects added to Institute database in 2021
- Net Zero 2050 requires strong action by 2030

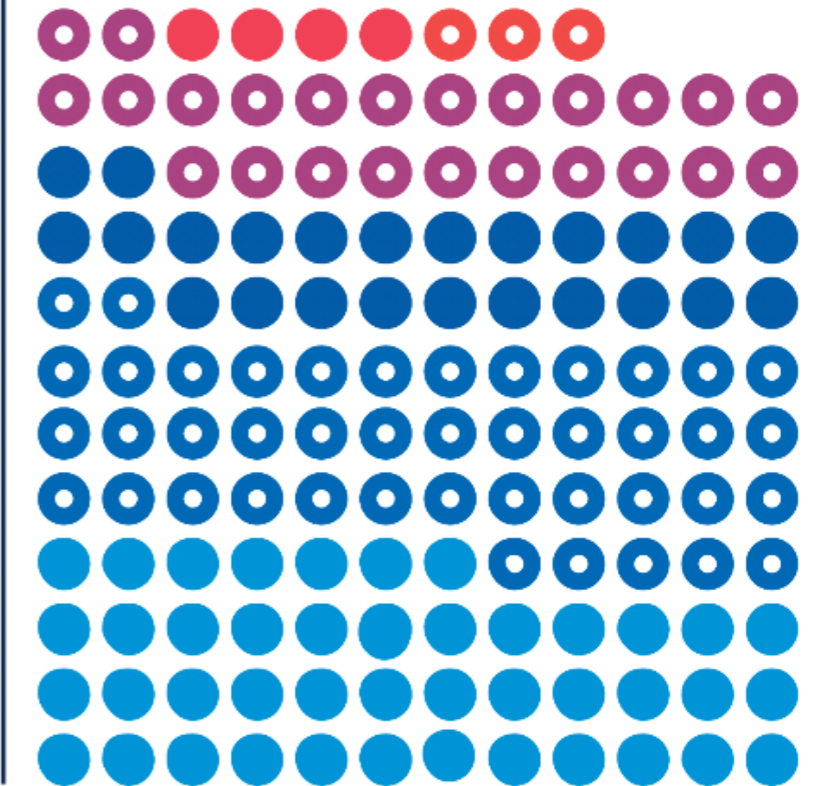
By 2050:

- 100x growth required to meet Paris goals
- 70-100 new CCS facilities per year
- \$655 billion - \$1.28 trillion in capital investment
- Size equivalent to NG industry by 2050
- N. America CO2 pipelines: from 8,000 to 40,000 km

2020
40 Mtpa



2050
5,635 Mtpa



THANK YOU

Download our Global Status of CCS report



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