



2023-IP08: World Bank report: Decarbonising natural gas through carbon capture, utilisation and storage

On 20 April 2023, the World Bank launched its report on 'Decarbonising natural gas (NG) through carbon capture, utilisation and storage (CCUS)', which was prepared by Carbon Limits and Rystad Energy. The launch event was opened by Nataliya Kulichenko with a presentation about the World Bank CCS Trust Fund and then Susana Moreira presented the results of the new report.

Key messages:

- There is a strong consensus that CCUS will be needed to achieve net zero emissions (see IPCC's AR6 and SR1.5, IEA's Net Zero by 2050 report and scenario, and IRENA's Reaching Zero with Renewables report).
- Many countries stated continued use of NG in their Nationally Determined Contributions (NDCs), thus CCUS is expected to play a key role to mitigate emissions from NG, in particular in hard-to-abate sectors.
- CCUS on NG could avoid up to 5 GtCO₂ in 2050 (in a 1.75°C scenario) and industry will likely account for the largest share.

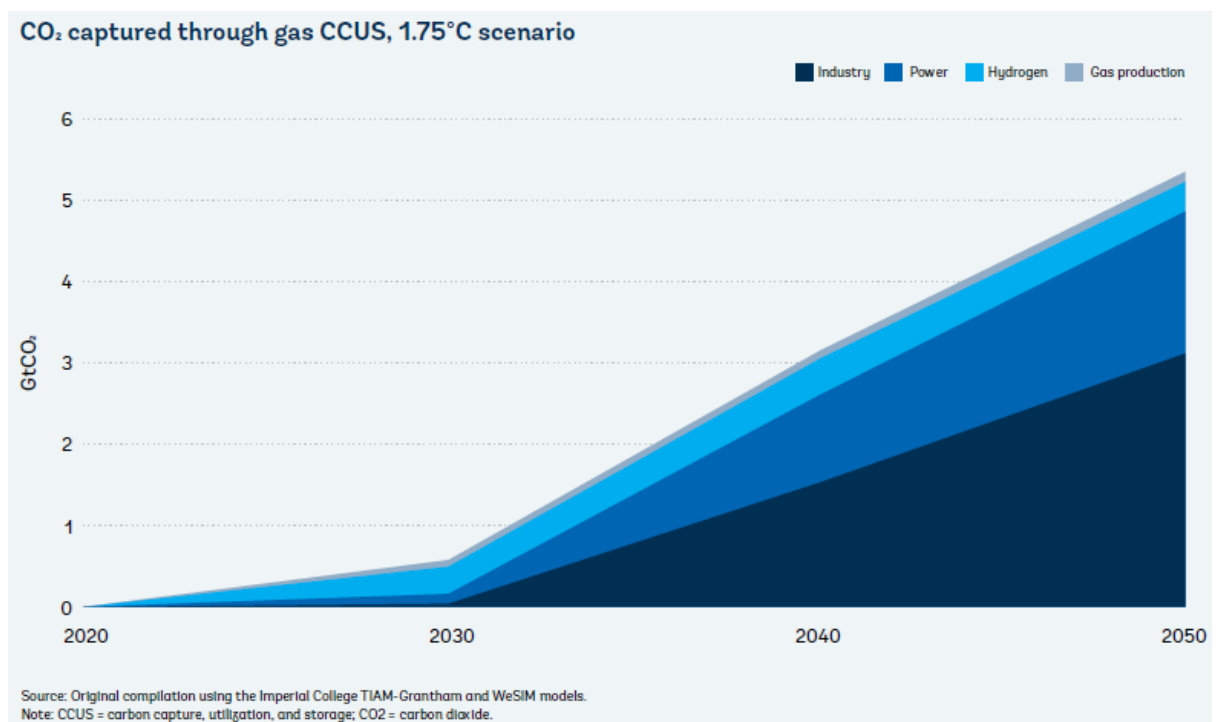


Figure 1 CO₂ captured through gas CCUS, 1.75°C scenario, World Bank 2023

- The role of CCUS on NG will be very country dependent. NG with CCUS in the power sector will likely only/mainly happen in regions with low NG prices.
- Renewable and low-carbon H₂ can replace some NG but not all of it immediately.
- Emissions from NG production and distribution also need to be reduced. The CCUS abatement potential for upstream NG emission is 50 – 180 MtCO₂ in 2050.
- If CCUS on NG is not available for meeting the goals of the Paris Agreement, then the costs will likely increase by up to USD 400 billion.



- The need for CCUS on NG is a consistent finding across multiple scenarios despite strong prospects for alternative technologies, including increased climate ambition and NG price assumptions.
- CCUS on NG is likely to be relevant in developing and emerging countries, in particular large gas users and exporters. International financial institutions like the World Bank, Asian Development Bank and Green Climate Fund will have a crucial role to play in supporting them.

The report cites several IEAGHG reports (see reference list) on topics such as CCUS costs and efficiencies for NG and coal, effects of improving CO₂ capture rates, and global abatement potential of CCUS on NG.

References

The World Bank report can be downloaded here:

<https://www.carbonlimits.no/project/decarbonizing-natural-gas-through-ccus/>

Cited IEAGHG reports can be found here:

<https://ieaghg.org/publications/technical-reports>

2008-13 'CCS in the CDM: Assessing Market Effects of Inclusion'

2018-05 'The Carbon Capture Project at Air Product's Port Arthur H₂ Production Facility'

2019-02 'Towards Zero Emissions: CCS in Power Plants Using Higher Capture Rates or Biomass'

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