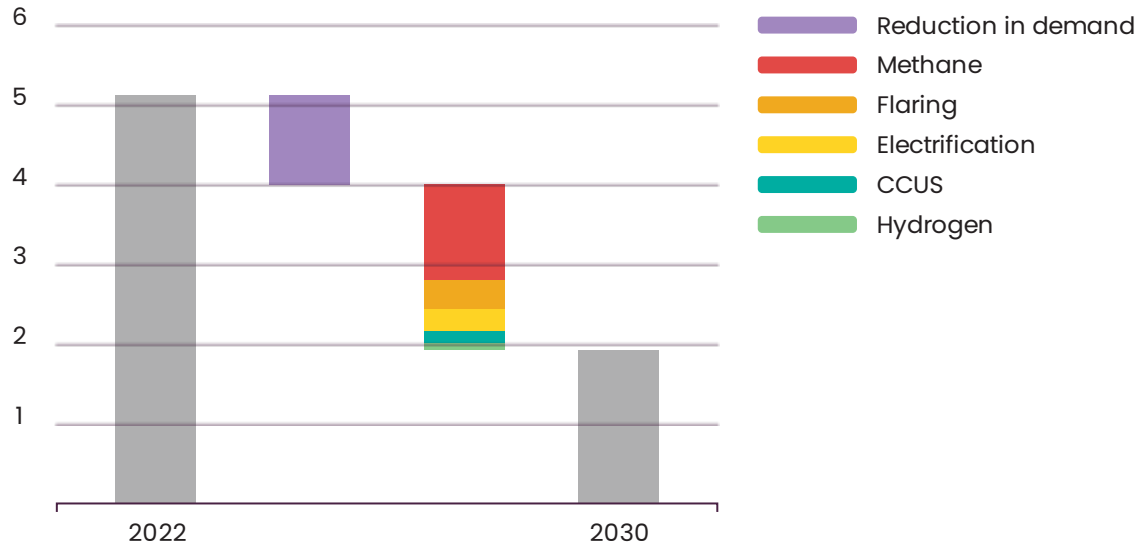


How could Tech-based Carbon Credits contribute to the net zero commitment of the energy industry in MENA.



01 | The challenge for MENA and its Hydrocarbon Industry

- Fundamentally the emissions in MENA are huge – amongst the world’s largest on a per capita level. MENA emissions are 3.5bnCO2e per year (WB 2019)
- O&G MACC suggests 40% of emissions are unabatable. Clearly this is where offsets come in.
- If CCS is not used the percentage of unabatable emissions jumps to 75%
- Weighted average cost of decarbonization broken down by country. Compare this to the cost of a high quality NBS credit...



	Abatement potential
Saudi Arabia	24%
United Arab Emirates	24%
Kuwait	19.21%
Qatar	17.7%
Oman	33.38%
Bahrain	24.5%
Average	23.73%
Weighted cost	116.32
Abatement with CCS	100%
Weighted cost	\$208.51

02 | Compliance and Voluntary markets: Different but Complementary

	Type of credits	Liquidity	Market Dynamics
Compliance market	<p>Credits obtained by regulated entities to meet predetermined regulatory targets</p> <p>Primarily cap and trade schemes</p>	<p>Relatively high liquidity with direct relationship with the power, gas and coal prices</p>	<p>Highly regulated, with close monitoring, reporting and clear quality verification standards</p>
Voluntary Carbon Markets	<p>Credits voluntarily purchased by companies and individuals. Credits are mainly available from private project developers and OTC brokers.</p>	<p>Low liquidity with limited trading potential in secondary markets where most buyers retire and use the credits</p>	<p>Fragmented, unregulated and sophisticated markets, with no standardisation between the various registries, each registry having its own standards, accounting and auditing/assessment methodologies. Significant efforts towards integrity of the carbon projects and carbon credits</p>

03 | Voluntary Market: In search of high-quality offsets

The Compliance and the Voluntary Markets shall complement each other:

- the compliance market providing a carbon price and a decarbonization trajectory and
- the voluntary market offering a large range of options to offset unavoidable emissions through investment in nature-based or technology-based GHG reduction/avoidance and removal offsets

While the compliance market has demonstrated real effectiveness to reduce emissions, the voluntary market has been in crisis for the last two years

Building the market infrastructure and upgrading the integrity of the voluntary carbon market have become the primary concern of the market players with the ultimate objective to make them compatible with the compliance market

Offsets from technology-based solutions are attracting huge interest from market players, particularly removal/carbon capture offsets because they satisfy all the criteria of high-quality offsets in terms of permanence, additionality, measurability and low risk of leakage

04 | High Quality Carbon Offsets: The sweet spots of carbon capture and long-term carbon storage

	Avoided emissions without storage	Avoided emissions with short term storage	Point source carbon capture with long term storage	Atmospheric carbon capture with short-term storage	Atmospheric carbon capture with long-term storage
	Renewable energy, efficiency...	Avoided deforestation...	CCS on industrial plants...	Reforestation, soil carbon...	DACC, BECCS
Removal from atmosphere	No	No	No	Yes	Yes
Storage	No	Yes	Yes	Yes	Yes
Permanent storage	No	No	Yes	No	Yes

05 | The GCC region shall become a key source of technology-based carbon capture projects

- CCS and CCUS will be a must for the GCC countries to fulfill their NDCs
- The Oil and Gas industry will comfort its position of “last man standing” as carbon neutral producer
- CCS, CCUS and other carbon removal technologies would trigger attractive economic opportunities for the GCC countries:
 - Boost export competitiveness and overcome the challenges that arise from carbon border adjustments mechanisms through production of clean hydrogen, low carbon petrochemicals, low carbon steel, low carbon fuels etc.
 - Build a new industry of Carbon Capture, taking advantage of:
 - Geological advantage to store carbon
 - Climate advantage to generate cheap renewable power in windy desert location (DACC)

06 | For scale up, a viable business model, shall emerge

- Cost reduction is paramount as potential in that regard is massive
- Technology based Carbon Capture projects shall become the pillar of the circular carbon economy in the GCC
- Most probable business models are as follows:
 - The IPP model would work in situations where a single buyer model can be used: electricity production, hydrogen production and direct air capture
 - For other industries, direct payments linked to the volume of CO2 captured
 - In all cases, transport and storage to be the responsibility of NOCs

07 | Where Carbon Markets come into play

- Offset buyers can contribute to the financing of technology-based carbon projects through the purchase of carbon offsets that such projects can generate
- Only condition is for these projects to be part of the voluntary market ecosystem, either local, regional or international, through the development of appropriate methodologies by standards and registries
- Also, Article 6 could become a useful lever, as it provides principles for how countries can “pursue voluntary cooperation” to reach their climate targets
 - Article 6.2 allows countries to trade emission reductions and removals with one another through bilateral or multilateral agreements
 - Article 6.4 creates a global carbon market overseen by a United Nations entity, the Supervisory Body. Project developers will request to register their projects with the Supervisory Body. A project must be approved by both the country where it is implemented, and the Supervisory Body, before it can start issuing UN-recognised credits. These credits can be bought by countries, companies, or even individuals.