

CHEMISTRY THAT MATTERS™



THE APPLICATION OF ISCC CFC FOR SABIC'S DECARBONIZATION ACTIVITIES

EXTERNAL DECK

Jan Kaptijn

Leader Low Carbon Product development

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CHALLENGES & MEGADRIVERS

WASTE AND OPPORTUNITY

PUBLIC OPINION



NEGATIVE ATTENTION TO PLASTICS AND TRADITIONAL FEEDSTOCK IN MEDIA. WASTE ISSUE OVERSHADOW ADVANTAGES OF CHEMICAL AND PLASTIC PRODUCTS

EXISTING BENEFITS

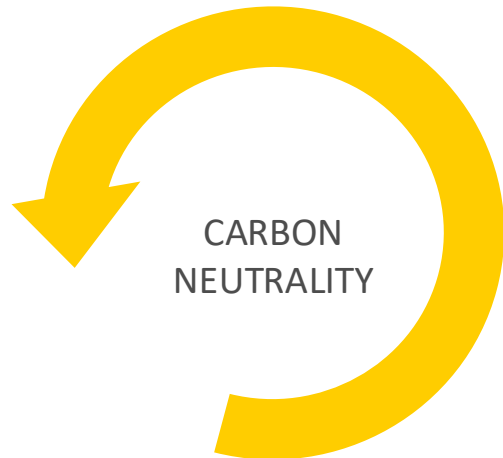
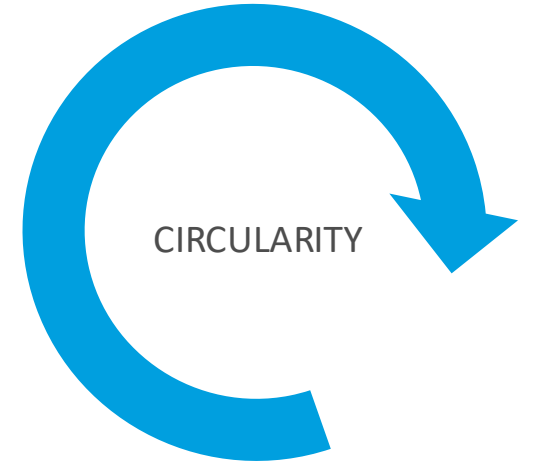


BENEFITS INCLUDING LIGHTWEIGHT, STIFFNESS, IMPACT, DURABILITY, COST, SAFETY, APPEARANCE, ETC.

MEGA DRIVERS CIRCULARITY & CARBON NEUTRALITY

KEEPING CARBON IN THE LOOP

- Closing material loops with recycling
- Reducing plastics pollution
- Optimizing reusability
- Avoiding the carbon emissions from incineration at End of Life of plastics
- **Conversion of captured CO₂ into durable products (Carbon Capture and Use)**



TRANSITION TO A CIRCULAR CARBON ECONOMY

- Achieving carbon neutrality through the value chain
- Reducing Scope 1 & 2 emissions through the value chain

STRATEGY AND ROADMAP

SABIC'S RESPONSE TO CARBON NEUTRALITY

SABIC CARBON NEUTRALITY STRATEGY AND COMMITMENT



“ SABIC is uniquely contributing to the Saudi Green Initiative goals and taking bold actions that support the Kingdom’s ambitions for the circular carbon economy. Our global carbon neutrality strategy reaffirms our commitment to the Paris Agreement goals and the continuous pursuit of solutions that can reduce greenhouse gas emissions.

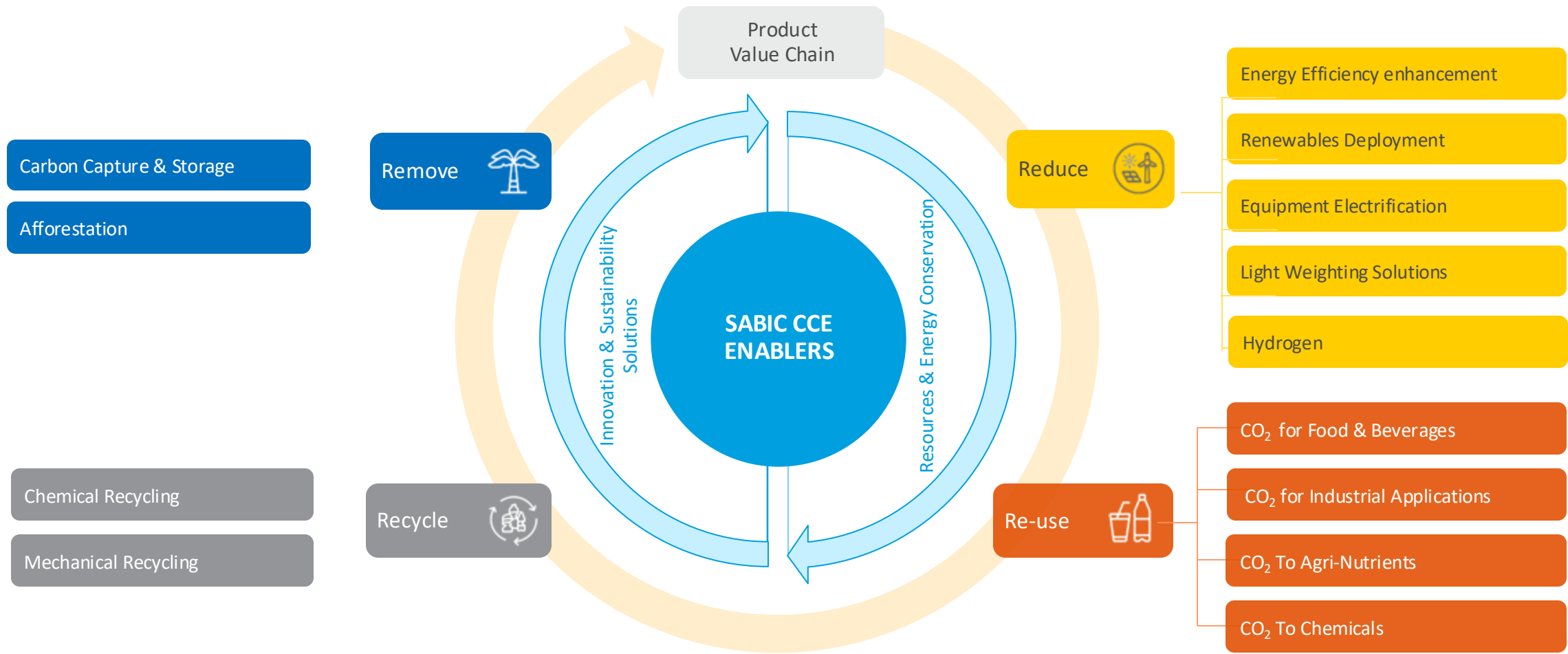
” *

ABDULRAHMAN AL-FAGEEH

Chief Executive Officer

(SABIC is committed to the Paris Agreement goals and will continually pursue efforts and explore solutions to meet carbon **neutrality from operations under our control by 2050**, taking into account the different regional and national ambitions, commitments and initiatives. Focusing on our direct and indirect emissions generated by our own production (Scope 1 & Scope 2), **we aim to reduce our greenhouse gas emissions by 2030 worldwide by 20% compared to 2018**. In addition, we aim to collaborate with our partners in initiatives that aspire to reduce our indirect Scope 3 emissions along the value chain) **

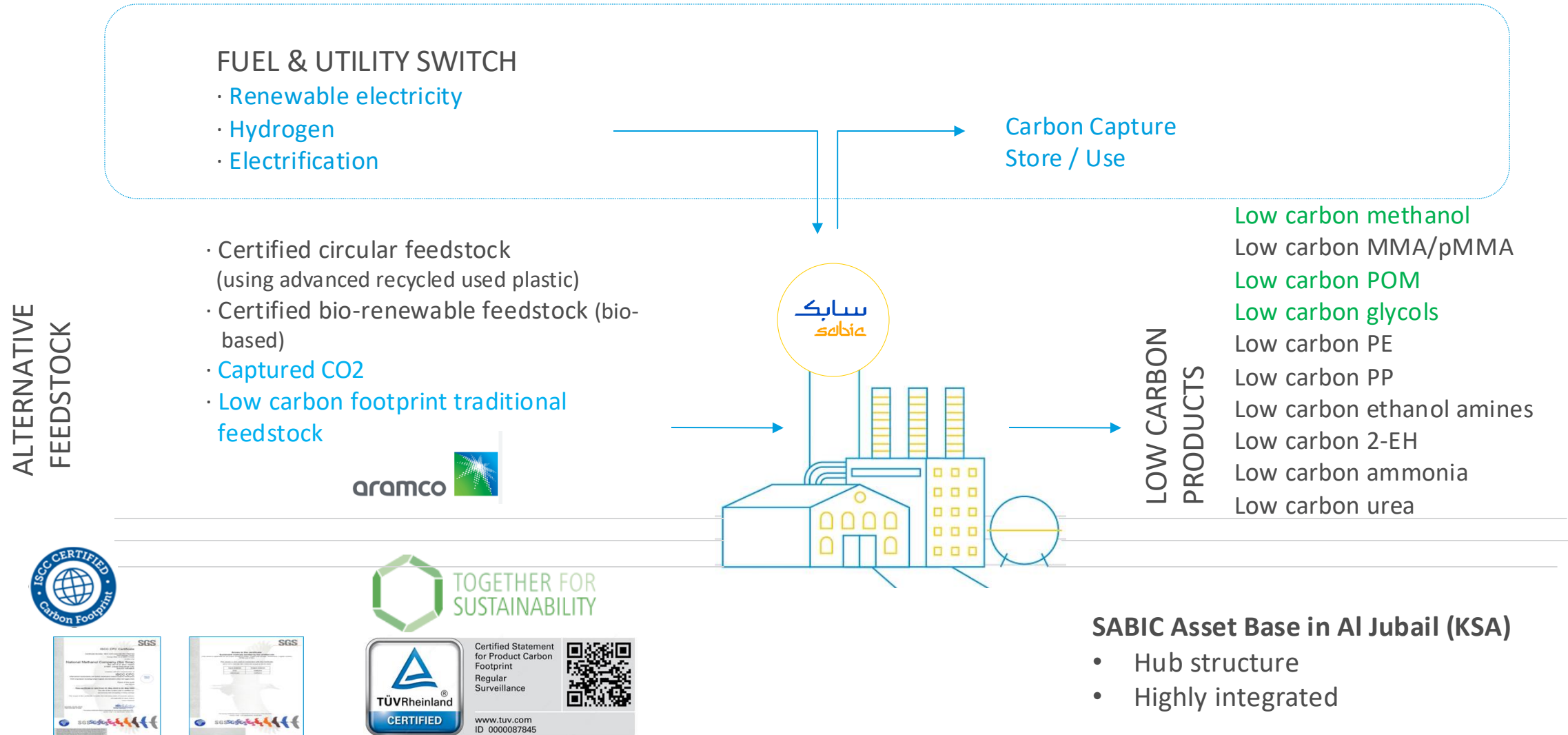
SABIC EMBRACES CIRCULAR CARBON ECONOMY (CCE) 4R,S FRAMEWORK



LOW CARBON PRODUCT OFFERING

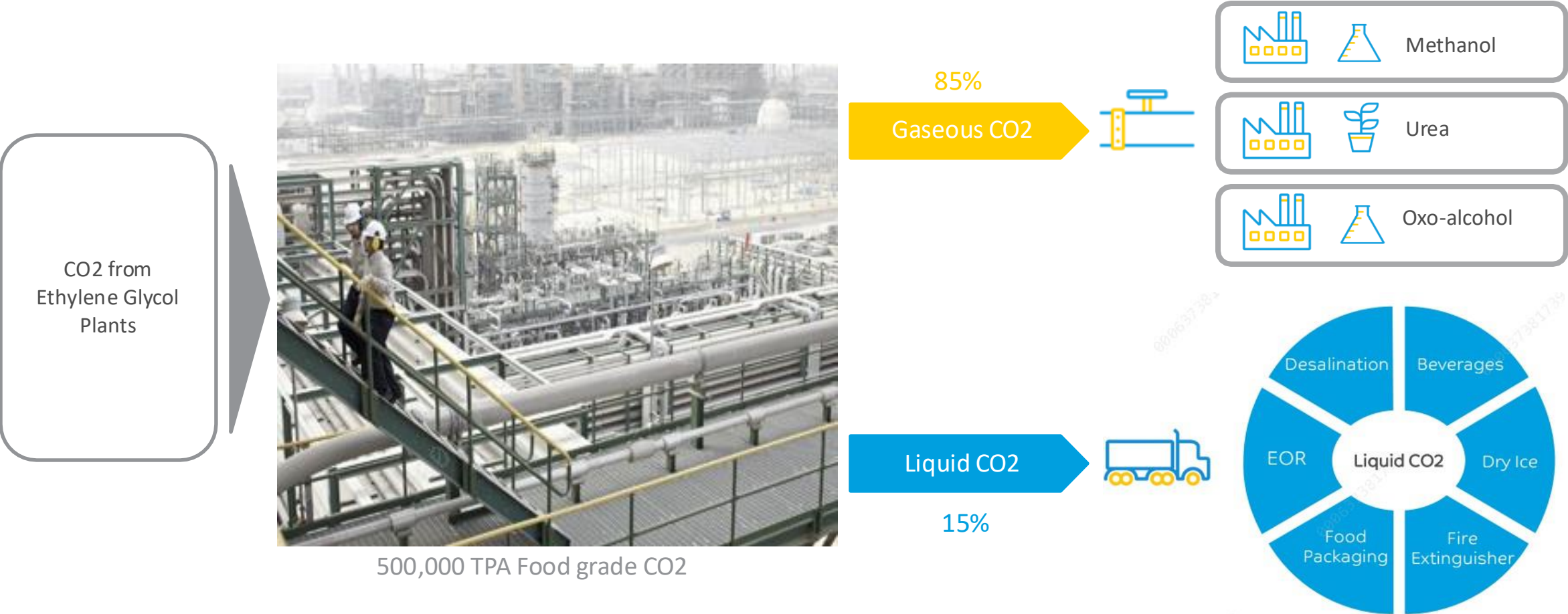
SABIC'S RESPONSE TO CARBON NEUTRALITY

ROUTES OF LOW CARBON SOLUTIONS



CCUS-SABIC WORLD'S LARGEST CARBON CAPTURE AND UTILIZATION PLANT

SABIC built the [world largest CO2 purification and liquefaction plant](#) at United affiliate (Saudi Arabia), with 500 KTA capture capacity, for converting CO2 into valuable chemicals such as urea, methanol and applications in the food and beverage industry



KSA intends to develop central hubs for carbon sequestration offering service to different industry sectors

WORLD'S FIRST LARGE-SCALE ELECTRICALLY HEATED STEAM CRACKING FURNACE INAUGURATION APRIL 17TH, 2024



Collaboration between SABIC, BASF, and Linde



Potential to reduce scope 1 and 2 CO₂ emissions by at least 90% compared to conventional steam crackers ⁽¹⁾



Demonstration plant fully integrated into the existing steam crackers in Ludwigshafen



Integration into Ludwigshafen site will allow a faster and more risk mitigated translation into retrofits and future cracker designs



Holds huge potential for the sustainability of the global petrochemical industry

CERTIFICATION

IMPORTANCE OF AN IMPROVED CERTIFIED CARBON FOOTPRINT

PRODUCT CARBON FOOTPRINT (PCF)

for automated, timely & assured carbon emission data on product level

Driven by:

- **CUSTOMERS**

Ask for **certified low carbon footprint chemicals/polymers** in order to deliver on climate pledges

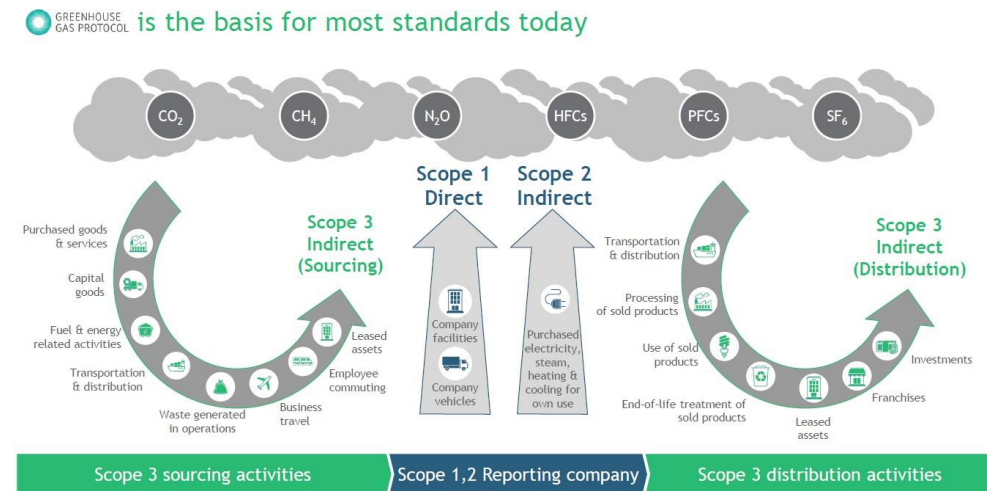
- **REGULATORS**

EU is developing **PCF as part of the CBAM directive** for determining import duties

- **FINANCIAL INSTITUTIONS**

Banks, pension funds etc. requesting carbon emission data as **input for investment decisions**

The **Green House Gas (GHG) protocol** serves as guiding principle



CO₂, Carbon dioxide; CH₄, methane; N₂O, Nitrous oxide; HFCs, Hydrofluorocarbons; PFCs, Perfluorocarbons; SF₆, Sulfur hexafluoride
Source: GHG protocol

LOW CARBON FOOTPRINT PRODUCT CERTIFICATION WITHIN SABIC

Certification Scheme / Guidelines



Certifying Bodies worked with



Certification Schemes Achievements

ISCC Carbon Footprint Certification (ISCC CFC):

- CCU (emission avoidance to methanol) : 0/100 allocation
 - Relevance: methanol, 2-EH, urea
- CCU (emission avoidance upstream) : 100/0 allocation
 - Relevance: EO, Glycols, Ammonia
- Downstream product ISCC CFC certified input materials:
 - Relevance: POM, MMA, pMMA, Ethanol Amines, Ethoxylates
- Low carbon energy input (under development)
 - Relevance: RePower, H2 combustion, e-furnace
- Governance for Mass balance accounting to avoid double counting

Together for Sustainability (TfS):

- PCF assessment of all SABIC Products (Automation Project)
- Industry alignment accepting ISCC CFC method for CCU (credit approach)
 - Certification scheme (ISCC CFC) required in case of mass balance
- Acceptance ISCC on TfS allocation methodology:
 - Relevance: Single method between systems in our industry.

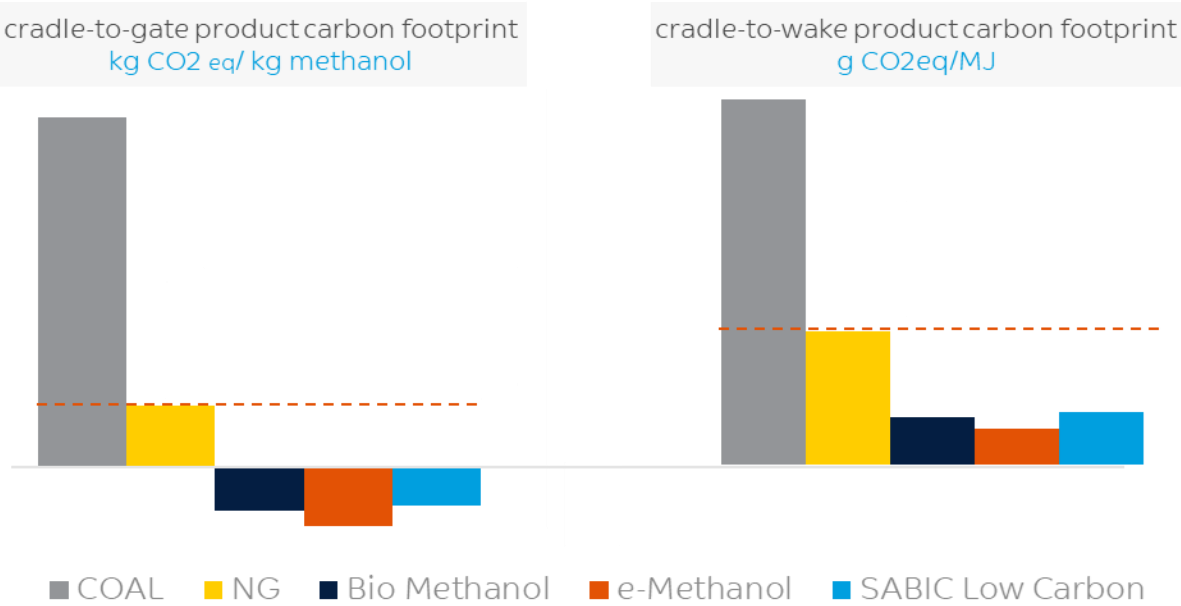
CUSTOMER VALUE PROPOSITIONS

LOW CERTIFIED CARBON PRODUCT OFFERING

SABIC’S CERTIFIED LOW CARBON METHANOL VERSUS OTHER SOURCES

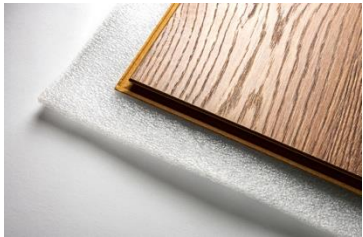
SABIC’S LOW CARBON METHANOL

SABIC LOW CARBON METHANOL CF vs OTHER SOURCES



Leveraging SABIC LC methanol through the value chain to help achieve the end users’ sustainability goals

- SABIC
- MTBE
- MMA
- POM



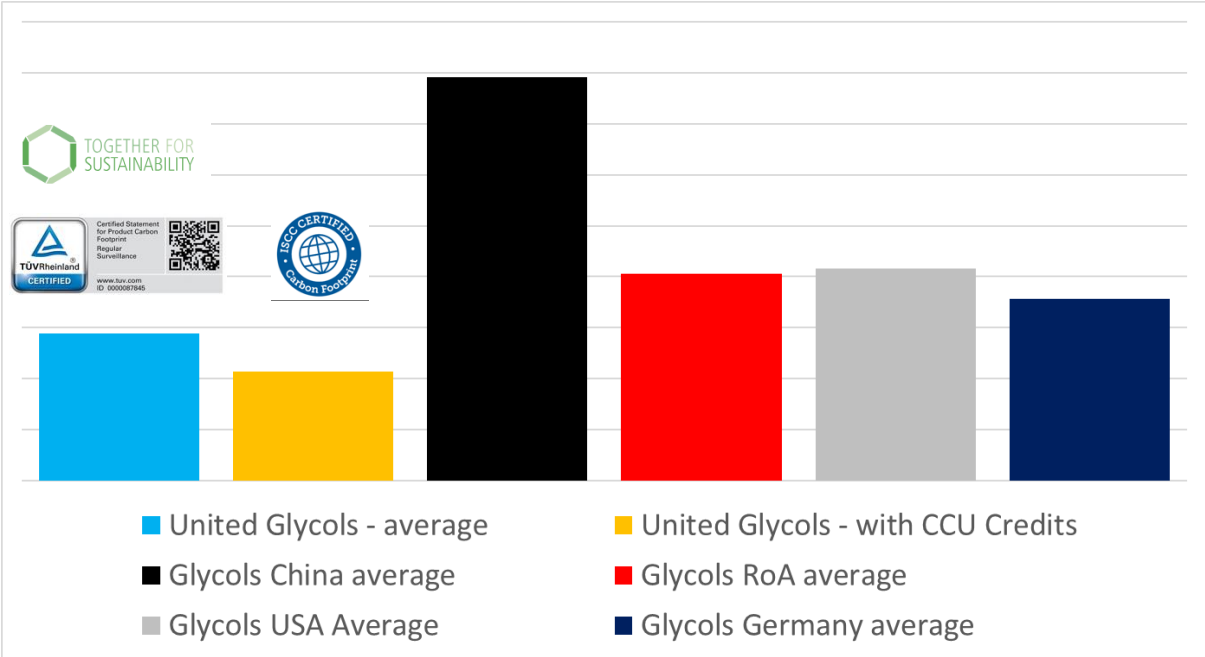
- Other Industries
- Formaldehyde
- Acetic Acid
- Glycol Ethers
- DME
- VAM
- Marine Fuel
- + Others



SABIC’S LOW CARBON GLYCOLS PRODUCED AT UNITED VERSUS ALTERNATIVES

SABIC’S LOW CARBON GLYCOLS

cradle-to-gate product carbon footprint
kg CO2 eq/ kg MEG



Certification process ongoing

Leveraging SABIC Low footprint glycols through the value chain to help achieve the end users’ sustainability goals

SABIC

Glycols

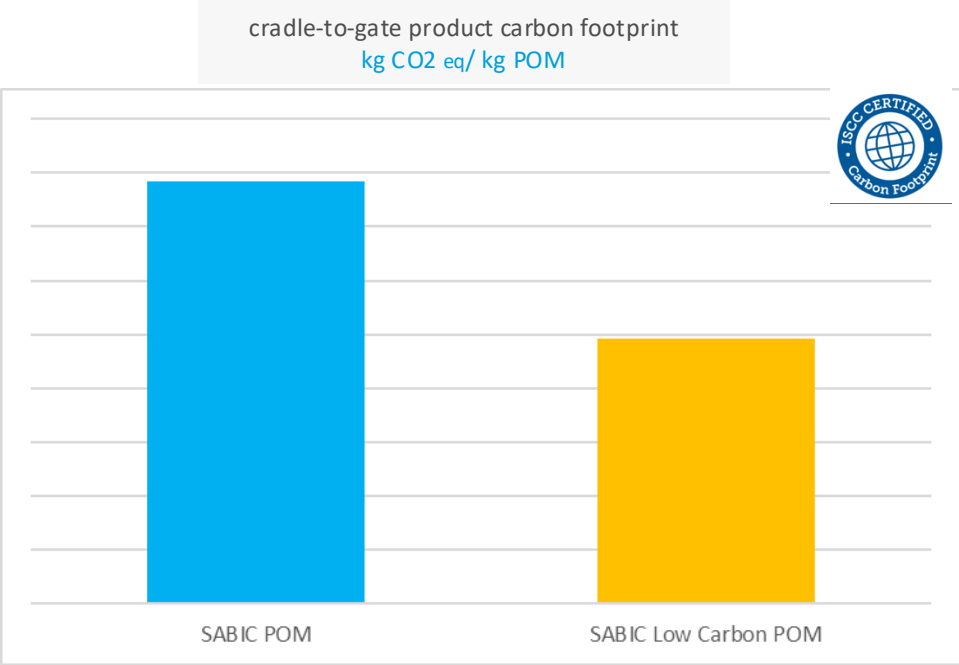
Ethanolamines

Ethoxylates



LOW CARBON POM PRODUCED FROM SABIC’S LOW CARBON METHANOL

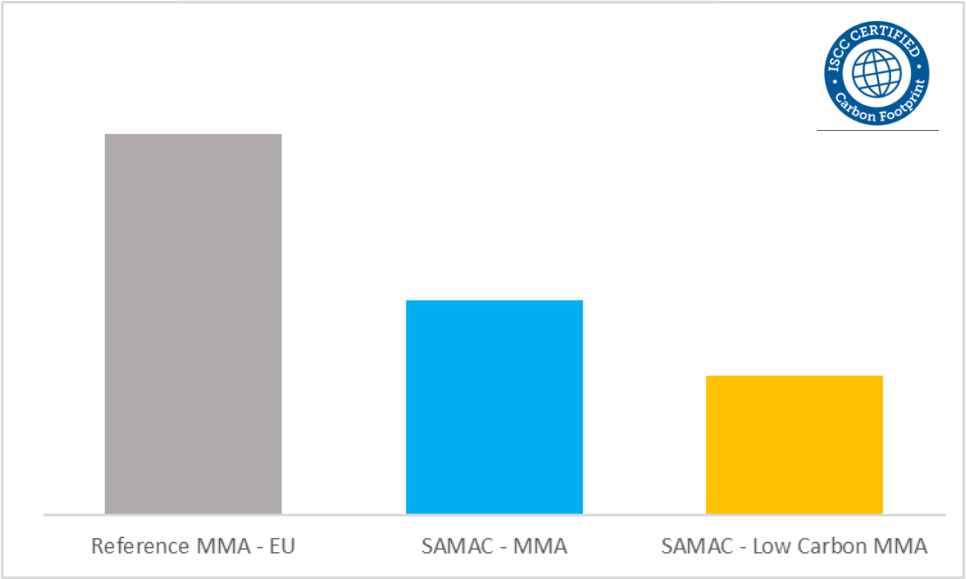
SABIC’S LOW CARBON POM



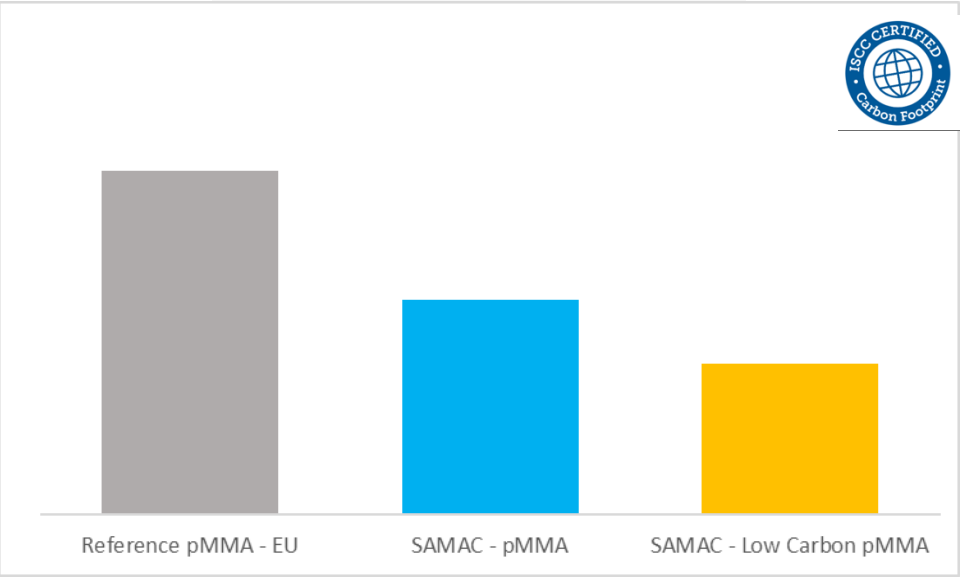
SABIC'S LOW CARBON MMA/P-MMA FROM SABIC'S LOW CARBON METHANOL

SABIC'S LOW CARBON MMA/P-MMA

cradle-to-gate product carbon footprint
kg CO2 eq/ kg MMA



cradle-to-gate product carbon footprint
kg CO2 eq/ kg pMMA



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