

Carbon Management Solutions

Powering the net-zero transition



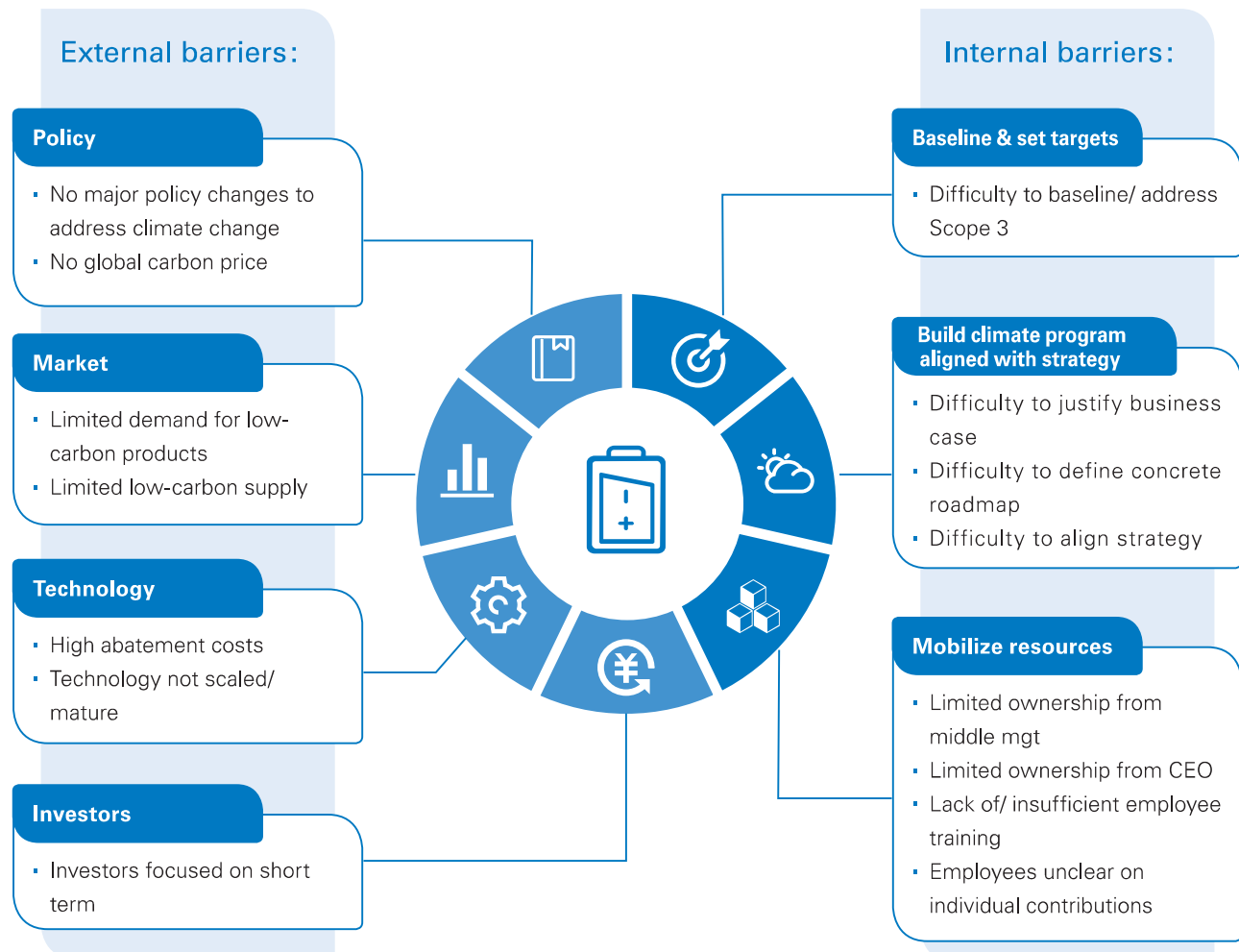


The emission of greenhouse gases into the atmosphere due to human activities is accelerating climate change. Modelling projects that global temperatures may increase by at least 1.5° C as early as 2040. This global warming is a challenge that must be addressed to ensure the future well-being of human societies and the Earth. To curb the rise in global temperatures, it has been suggested that economies and societies worldwide must undergo a period of rapid and far-reaching transformation to achieve net-zero greenhouse gas emissions.

The private sector has a crucial role to play in this transformation. Specifically, businesses from all parts of the private sector should develop systematic approaches to address climate change, and modify their overall business strategies to better understand, anticipate and navigate new risks and opportunities. Businesses that take immediate and ambitious action will survive and thrive during this transformation period. However, substantial internal and external barriers may hinder businesses seeking to reduce or eliminate their emissions of greenhouse gases.



The main challenges faced by the businesses



Our Solutions

1



Materiality Analysis

- Evaluate the relevance and significance of policies, regulations and multi-stakeholder initiatives related to carbon topics

2



Diagnosis

- Inventory the GHG emissions at the product, operation and supply chain level
- Identify/validate the potentials and opportunities of decarbonization within the organizational boundary

3



Target-setting

- Set science-based decarbonization targets through the application of prevailing tools and methodologies

4



Screening of Pathways

- Identify, screen and design the pathways to decarbonization
- Provide consultancy on the investment in credible carbon removal projects in order to offset unavoidable carbon emissions
- Develop the carbon emission reduction project to gain tradable emission reductions for transaction
- Provide consultancy on the development, roll-out, application and market communication of low-carbon products and technologies

5



Capacity-building

- Mobilize and build up the capability of operations and the supply chain actors in implementing the decarbonization action plan

6



Communication

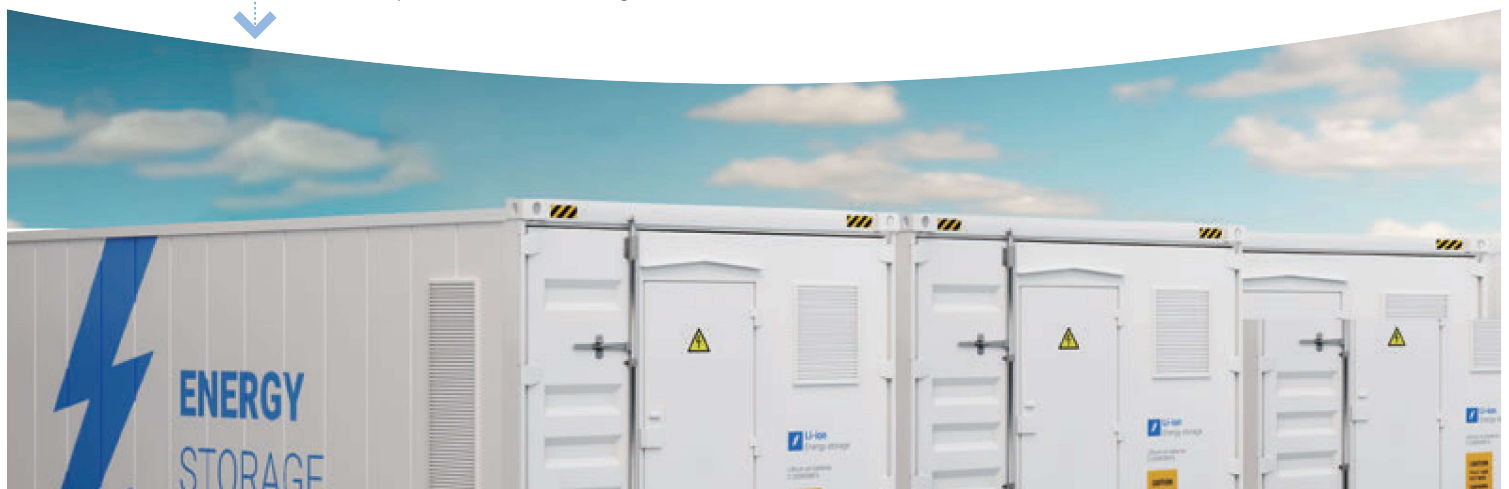
- Disclose the carbon emissions of scope 1, scope 2 and scope 3 according to prevailing norms and protocols, and enhance the credibility of disclosed information through third-party verification

7



Carbon Neutral Certification

- Third-party certification (certificate and mark) that a company has achieved "net zero" GHG emissions or/and product carbon footprint through decarbonization and offsetting measures



Our Services



For Organizations

Capabilities

- Quantification of GHG emissions
- Verification of GHG emissions
- Calculation of GHG emissions for buildings
- Carbon neutral certification

Applicable Standards

- ISO 14064-1
- GHG Protocol
- ISO 14065
- GB/T 51366



For Personnel

Capabilities

- Carbon Management Professional certification
- GHG Emissions Accountant certification

Applicable Standards

- ISO 14064-1
- GHG Protocol



For Products

Capabilities

- Carbon footprint calculation & verification
- Carbon neutral certification
- Life cycle assessment

Applicable Standards

- ISO 14067
- PAS 2050
- ISO 14040
- ISO 14044



For GHG Projects

Capabilities

- GHG project validation
- Emission reduction verification
- Carbon credit verification

Applicable Standards

- ISO 14064-2
- ISO 14064-3
- ISO 14065

Our Qualifications



Verification and validation body for greenhouse gas emission accredited by DAkkS



Greenhouse gas emission verifier authorized by German Emissions Trading Authority (DEHSt)



Greenhouse gas emission verifier authorized by EU Emission Trading System (ETS)



Greenhouse gas validation & verification body accredited by Taiwan Accreditation Foundation (TAF)





Success Stories

Carbon neutralization project

Customer: Bosch

Time: 2019

Bosch has fully offset the greenhouse gas emissions from the whole life cycle of its Vivalytic cartridge, a point-of-care testing platform for molecular diagnostics produced in 2019, and the mouthpieces of Vivatmo, a breath analysis device. TÜV Rheinland, a Germany-based independent testing service provider, independently verified, supervised and tracked the carbon neutralization results for these two types of consumable medical devices. After confirming the results, TÜV Rheinland awarded Bosch carbon neutralization certification for its products.

Carbon capture and utilization project

Customer: Asahi Kasei and Chemieanlagenbau Chemnitz GmbH (CAC)

Time: 2019-2020

Under the framework of the ALIGN-CCUS project, which is jointly funded by many European countries, TÜV Rheinland provided technical support in safety engineering for Asahi Kasei and Chemieanlagenbau Chemnitz GmbH (CAC) as they constructed a carbon capture and utilization demonstration plant in North Rhine-Westphalia, Germany from June 2019 to November 2020. Operating alongside the RWE-owned Niederaussem Power Station in Bergheim, the demonstration plant is mainly designed to produce carbon fuel synthesized from carbon dioxide, regenerated hydrogen, and other gases.



Climate Savers program

Customer: Yingli & Vanke

Time: 2013 & 2015

The "Climate Savers" program was initiated by the World Wide Fund for Nature (WWF) in 1999 as a platform for global leading companies across all sectors to participate in addressing climate change. As a technical consulting company, TÜV Rheinland provided technical support for two Chinese companies: Yingli, a famous photovoltaic firm, and Vanke, a leading real estate developer. It backed Yingli and Vanke's efforts to join the Climate Savers program in 2013 and 2015, respectively. TÜV Rheinland helped them set goals and action plans to significantly reduce greenhouse gas emissions ahead of schedule.

Carbon footprint project of new energy vehicles

Customer: BMW

Time: 2019

The BMW Group (BMW) conducted life cycle assessment of its new 7-series plug-in hybrid 745Le in comparison with the conventional 7-series models in 2019. As a third-party certification agency, TÜV Rheinland independently reviewed the methods and results of the assessment and supported the conclusion that the Global Warming Potential of the 745Le is about 33% lower than that of the conventional 7-series models throughout its whole life cycle. In 2013 and 2015, TÜV Rheinland also provided third-party verification for life cycle assessments conducted by Nissan and Toyota for their new energy vehicles and conventional models, respectively. In addition, it evaluated the contribution that the new energy vehicles offer to carbon emission reduction in a sound, objective and fair manner.

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