







Circular Carbon Economy (CCE):

Future Opportunities

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G20 Energy Ministers Meeting

Communique

September 27 - 28, 2020



- 6. Building upon previous comments made by the G20 Energy Ministers in past Presidencies, we endorse the Circular Carbon Economy (CCE) Platform and its "4Rs" framework (Reduce, Reuse, Recycle and Remove) while acknowledging (Appendix I) and recognizing the key importance of reducing greenhouse gas emissions, taking into account system efficiency and national circumstances, including its specific resources endowment and its political, economic, environmental, social, and riskinformed development contexts, noting:
 - a. Reduce: Lower GHG emissions by utilizing technologies and innovations such as renewable energy and nuclear energy, improving energy productivity and efficiency, and better managing energy supply and consumption.
 - Reuse: Convert emissions into useful industrial feedstock by deploying Carbon Capture and Utilization (CCU), including Emissions to Value (E2V) and Carbon Recycling (CR). Noting the potential of CCU as an advanced and cleaner technology that can help mitigate the impacts of emissions by capturing and reusing them;

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 - c. Recycle: Neutralize carbon emissions through natural processes and decomposition, including through the use of renewable sources of energy such as biofuels, bioenergy and energy carriers such as methanol, ammonia, and urea representing the natural cycle and the recycling; and
 - d. Remove: Remove emissions from the atmosphere as well as from heavy industries and facilities through Carbon Capture and Storage (natural and geological) and Direct Air Capture.

Circular Carbon Economy (CCE)CCE Platform:

- Approach
- Opportunities
- Accelerator
- CCE Application
- Concluding remarks

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KSA promotes CCE, a pragmatic approach, that utilizes all available levers to address emissions while generating value (i.e. GDP, employment)



The 3 Rs of the Circular Economy

















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The CCE is a holistic, integrated and inclusive approach based on the 4Rs strategies that contributes to sustainable development and economic growth which value all sources, sectors, and options

Reduce

- Energy Efficiency (EE)
- Non-Biomass Renewables (RE)
- Nuclear (NU)

Reuse

- Carbon Capture and Utilization (CCU)
- Emissions to Value (E2V)
- Carbon Recycling (CR)



Remove:

- Direct Air Capture (DAC)
- Carbon Capture and Storage (CCS)

Recycle:

- Bioenergy (BI)
- Biomass and biofuels (BB)









Circular Carbon Economy (CCE) Platform: Opportunities

Elements include: i) high-level impact opportunities



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Non-energy sectors contributed to approximately two-third of global emissions, which can be addressed through the Circular Carbon Economy approach at various level

Application









≻Industry:

- Cement
- Petrochemical
- Steel



➢Agriculture





➤Mobility









Livestock



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> CCE Approach contributes to Sustainable Development, including climate;

- Builds on the "Circular Economy";
- Advance technology innovation;
- > Transforms the emissions challenge to business opportunities;
- Values all options and technologies;
- Covers all economic sectors
- Promotes integrated business models;
- Provide collaborative platform;
- Accounts for local and national context;
- Contributes to economic growth; and
- > G20 has endorsed the CCE Platform as framework to advance sustainability.

THE SYNERGY OF THE CIRCULAR CARBON ECONOMY APPROACH: For Economic Growth



Thank you