T20 Statement on the Circular Carbon Economy

The Think20 (T20) welcomes the G20 Energy Ministerial's endorsement of the Circular Carbon Economy (CCE) framework for more sustainable energy systems. The CCE concept proposed by the G20 2020 Presidency, Saudi Arabia, is a holistic, integrated, inclusive, and pragmatic approach to managing emissions.

The concept of a circular carbon economy (CCE) offers a new way of addressing climate change mitigation goals that *implicitly values all options and encourages all efforts to reduce carbon accumulation in the atmosphere* through the "4Rs": **Reduce** *the amount of carbon entering the economy*; **Reuse** *carbon as an input to create valuable feedstocks and fuels*; **Recycle** *carbon through the natural carbon cycle*; and **Remove** *excess carbon from the atmosphere*.

G20 members include the world's largest hydrocarbon producers and consumers. For these countries to achieve carbon neutrality aligned with temperature thresholds that comply with the Paris Agreement, the utilization of the 4Rs will be required: reduce "R" by integrating renewables, nuclear energy and energy efficiency; reuse, recycle and remove "Rs" through deep transformations in energy-consuming behaviors and technologies, and the widespread enhancement of carbon sinks, including nature-based solutions.

Eighty-two percent of G20 energy supply still comes from hydrocarbons, and this share has remained relatively constant since 1990. G20 member countries must solve the problem of carbon accumulation in the atmosphere in order for the world to stay below the Paris Agreement's warming thresholds.

Significant progress has been made in transitioning to cleaner energy systems, such as increasing the share of renewables or nuclear energy in the energy mix and improving the energy efficiency of both the supply and demand sides. However, there are significant problems in mitigating greenhouse gas emissions in other sectors, particularly in the hard-to-abate sectors – 'the last mile of transitioning to cleaner energy systems.' These sectors include oil, gas, petrochemicals, aluminum, iron, steel, cement and heavy transport; the latter includes heavy-duty road transport, shipping and aviation. Combined, these contribute 37% of all carbon dioxide (CO_2) emissions globally.

Achieving the Paris Agreement's target of limiting the average global temperature rise to below 2-degrees Celsius (2°C) above pre-industrial levels, let alone its aspirational target of limiting this rise to 1.5°C with minimum stranded assets, within an orderly energy transition, requires ensuring the participation of these hard-to-abate industries in mitigating greenhouse gases. Climate change mitigation targets cannot be achieved without first reaching emissions

neutrality, which requires a significantly ramped-up effort to deploy and use negative emissions. It is essential that these industries are included in mitigation policies that address the transition to cleaner energy systems to achieve carbon neutrality in the second half of the century.

The COVID-19 pandemic has led to shutdowns of entire sectors of the global economy, drastic falls in energy demand and fuel prices, massive job losses and recessions. Tackling climate change will now prove more challenging as governments take on massive debts to cushion their countries from the immediate impacts of the pandemic and lockdown measures and recover economically. Solar and wind power have received support from stimulus packages following previous economic downturns. Large-scale investment in abatement technologies, such as energy efficiency in buildings and industries, hydrogen and carbon capture, utilization and storage (CCUS), now need to be included in plans to reenergize economies in order to reduce, reuse, recycle and remove carbon.

Coordinated G20 efforts are vital in pursuing this goal. Post-pandemic economic recovery stimulus packages, especially hydrocarbon bailouts, need to be built around a circular carbon economy framework. Carbon management initiatives must be integrated into post-COVID-19-related green/sustainable stimulus packages that aim to simultaneously address social and environmental concerns while stimulating economic prosperity for a more inclusive and sustainable future.

The G20 presents an ideal forum to initiate the concept of the CCE as part of the global COVID-19 recovery agenda. The CCE would support the development of carbon management technologies that allow industry to continue to drive economic development. It also presents a framework that seeks to extract value from carbon rather than perceiving it solely as a negative externality.

Several initiatives could be considered within the CCE, including closing the cost gap between 'green' and 'blue' hydrogen relative to 'brown' hydrogen. Similar cost gaps between hydrocarbon and renewable electricity generation technologies have been closed in the past. New multilateral policy approaches to carbon storage valuation could be explored, which would aim to increase the value proposition of enhancing geologic carbon sinks.

The T20 calls for a renewed commitment to climate change by embracing all mitigation technology options in order to progress toward sustainability.

Specifically, the T20 calls on G20 governments to

- **'Build back better' through COVID-19 green/sustainable economic stimulus packages.** Stimulus priorities must not derail clean energy targets and

climate goals. They should promote a wide range of climate change mitigation approaches, including CCE, as an essential bridge to a low-carbon future.

- **Support innovations in carbon management technologies**, including but not limited to negative emission technologies such as direct air capture and CCUS. This can be achieved by investing in research and development and accelerating the commercialization of cleaner hydrocarbon technologies to reduce their costs, and broadening the portfolio of hydrocarbon cleaner technology options and their deployment.

- **Explore all options to remove greenhouse gasses through nature-based solutions (NBS).** NBS represent cost-effective, value-adding strategies to mitigate climate change. They contribute to removing excess greenhouse gases from the atmosphere while providing additional benefits, such as climate change adaptation, enhanced water economy and biodiversity conservation, thereby generating a wealth of benefits for the communities where NBS are deployed.

- **Institutionalize and incentivize heavy industry and corporate-wide initiatives to achieve the climate goals.** This can be achieved by utilizing and upscaling existing schemes and creating new policy tools for instituting carbon circularity across the value chain. Coordinating the development of a guide mapping the high-priority technologies to be targeted for financing would help align the technology investments of the G20 countries. This guide could also provide an estimate of the required level of investment, an indication of the share that the private sector could contribute, and suggestions for mechanisms that would incentivize the private sector's participation.

- **Provide a platform that enables cooperation among nations and consolidates efforts to transition the hard-to-abate industries to sustainability**. This would require the G20 to emphasize the need to rapidly deploy carbon management infrastructure at scale and to provide powerful institutional structures and good governance principles to ensure institutional sustainability around cleaner energy transition efforts that will be sustainable in the long-run.

- **Unify support for a new internationally-led effort to measure and value actions to enhance geological carbon sinks.** By supporting the establishment of a carbon storage unit (CSU), a trusted and transferable record of the addition of one tonne of CO_2 to non-atmospheric carbon sinks (primarily geological CO_2 storage sites), new policy approaches that support the CCE can be established. Early cooperation on policies and actions to create and drive initial demand for CSUs through bilateral and/or multilateral pilots will be needed. Over time, these pilots can evolve into fully-fledged policies and mechanisms that systematically support CCE frameworks.

- **Coordinate the rapid international ramp-up of a new global low-carbon hydrogen market.** Effective international cooperation is fundamental to achieving the desired rapid ramp-up of global hydrogen markets, such as political initiatives and standardizing critical technical issues such as transport specifications. This cooperation could be achieved by joint investments in the infrastructure needed to generate and transport hydrogen, which would help support the development of long-term blue and green hydrogen delivery contracts. Moreover, innovative policy instruments, such as international carbon markets, could be used to help close the cost gap between green/blue and brown hydrogen. An international hydrogen economy initiative could help coordinate the policies of hydrogen importers and exporters.

This statement forms part of the T20's ongoing efforts to support G20 policymaking, inform the public on policy options that the G20 could use to address global challenges, and facilitate policy advocacy through profoundly argued, concrete and implementable policy recommendations.