



# Deep Decarbonisation: Ambitions and Challenges

All Things Energy Forum

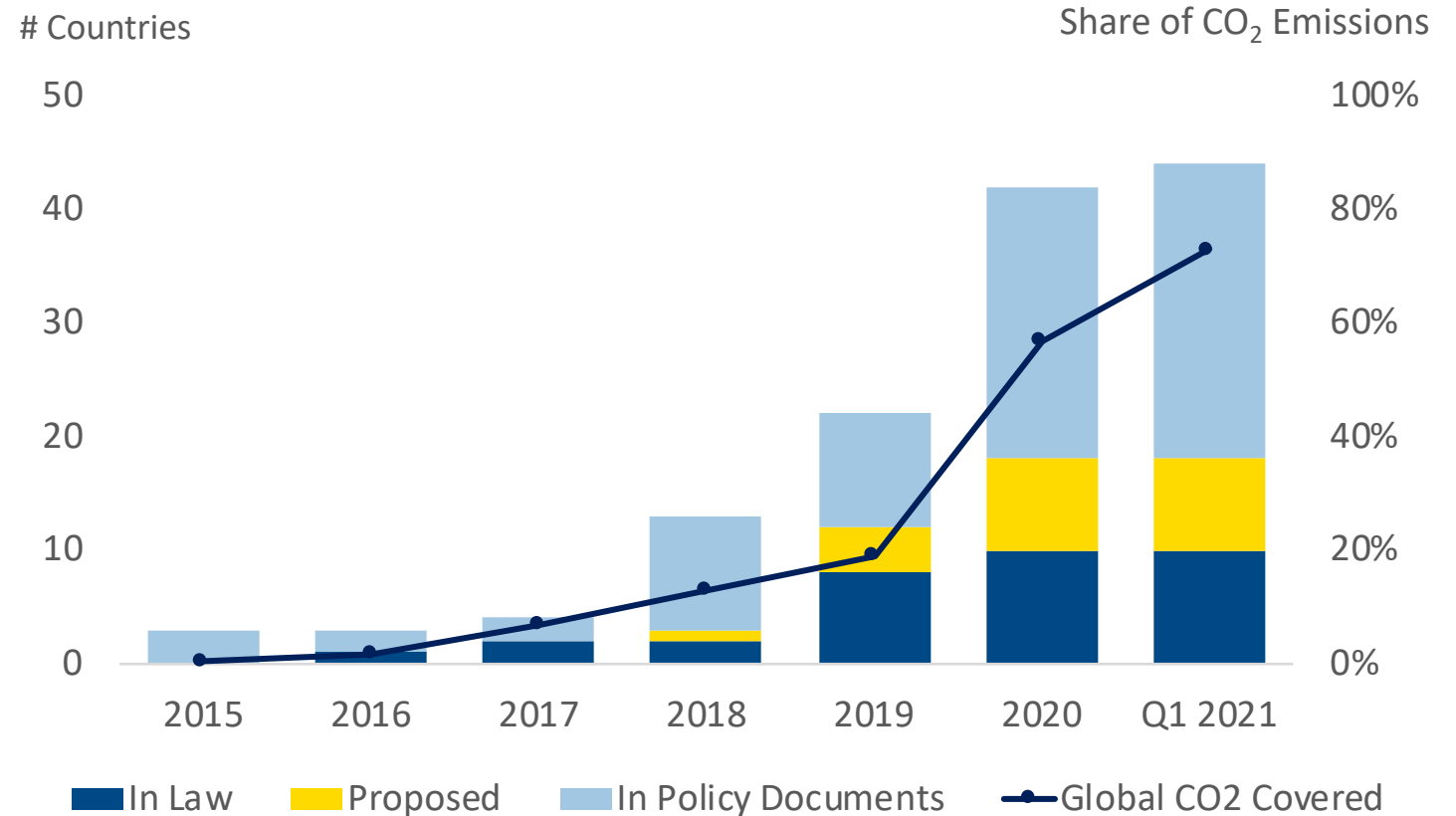
Dr Valentina Dedi, Lead Economist, KBR



# The rise of 'net zero' pledges

## Number of national net zero pledges and share of global CO<sub>2</sub> emissions covered

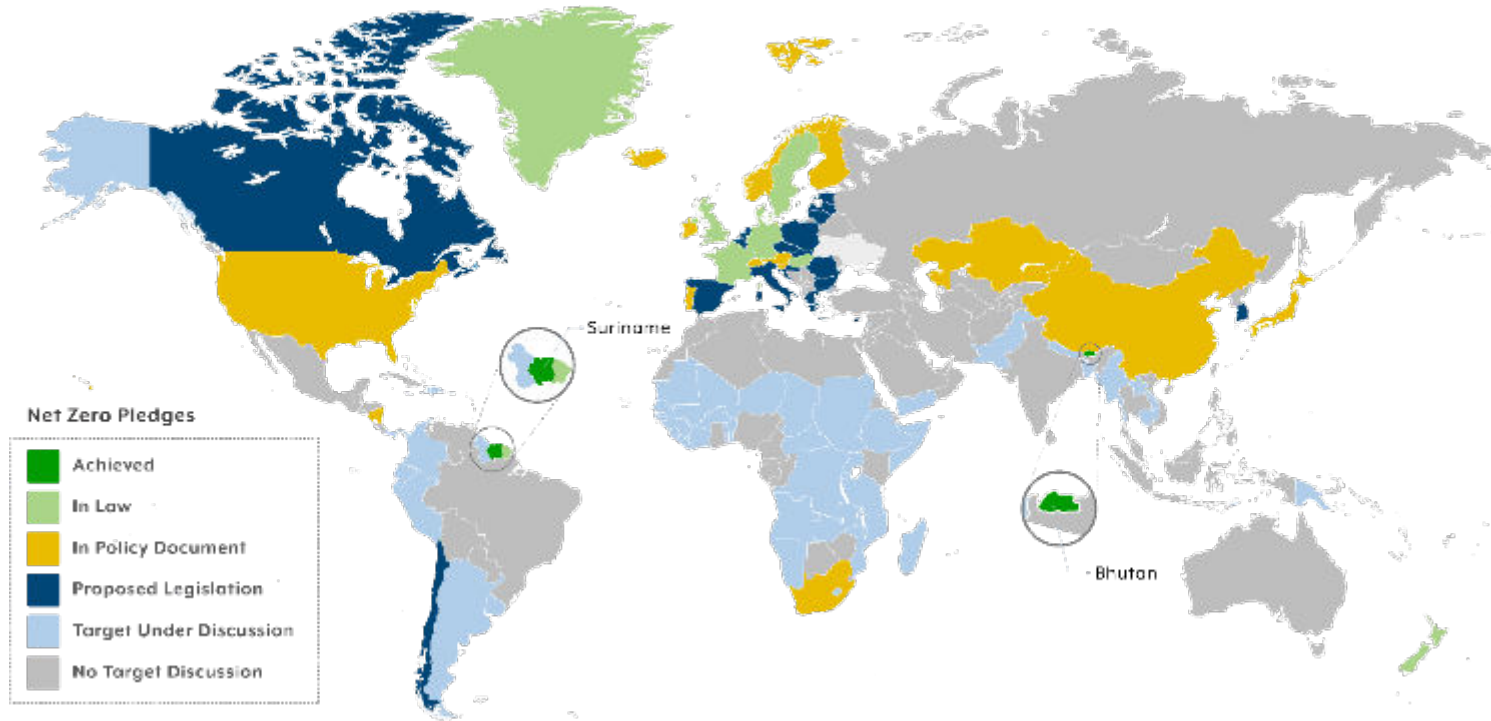
- Decarbonization is rising up the agenda of governments
- 2020 marked an intensification of long-term climate policy ambitions
- As of April 2021, 44 countries and the EU have pledged to meet a net-zero emissions target, accounting for around 70% of global CO<sub>2</sub> emissions



Data Source: IEA, 2021

# Ambition strengthens, but great variance lies across pledges

## Global net-zero carbon emissions pledges



## World's largest 10 emitters

Country	Share of Global CO <sub>2</sub> Emissions
China	28.8%
US	14.5%
India	7.3%
Russia	4.5%
Japan	3.3%
Germany	2%
Iran	2%
South Korea	1.9%
Indonesia	1.8%
Saudi Arabia	1.7%

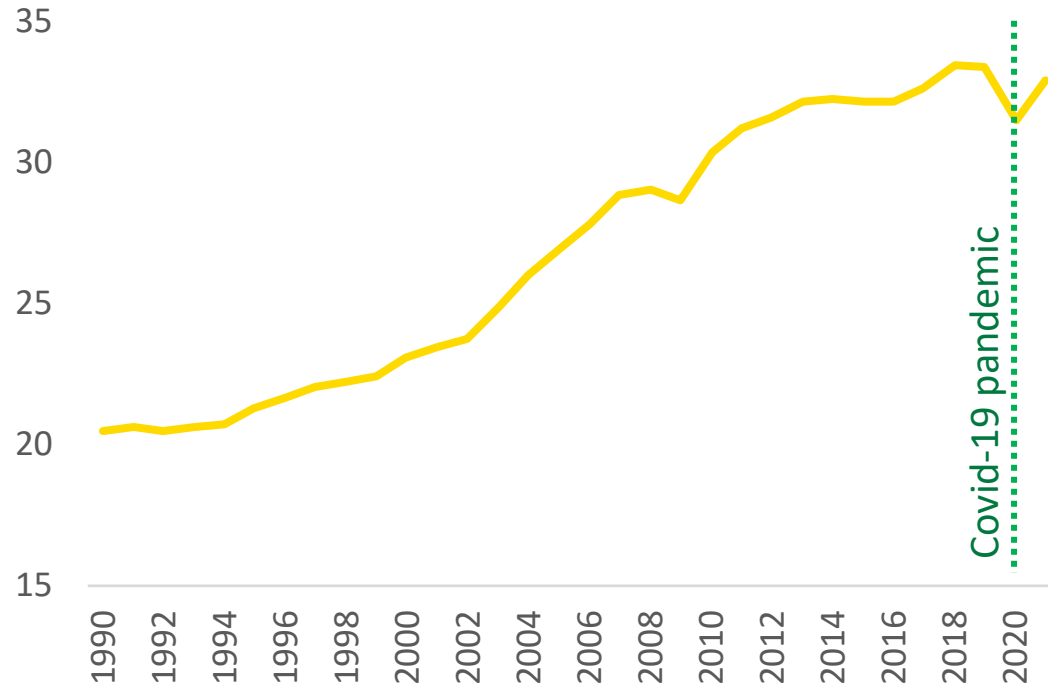
- The number of large global emitters coming forward with climate ambitions has increased
- While ambition is strengthening, a review of national net-zero pledges shows that they differ significantly in terms of regulatory form, status of implementation, and GHG and sectoral coverage

Data Sources: BP Statistical Review, 2020; EarthOrg, 2021; KBR, 2021

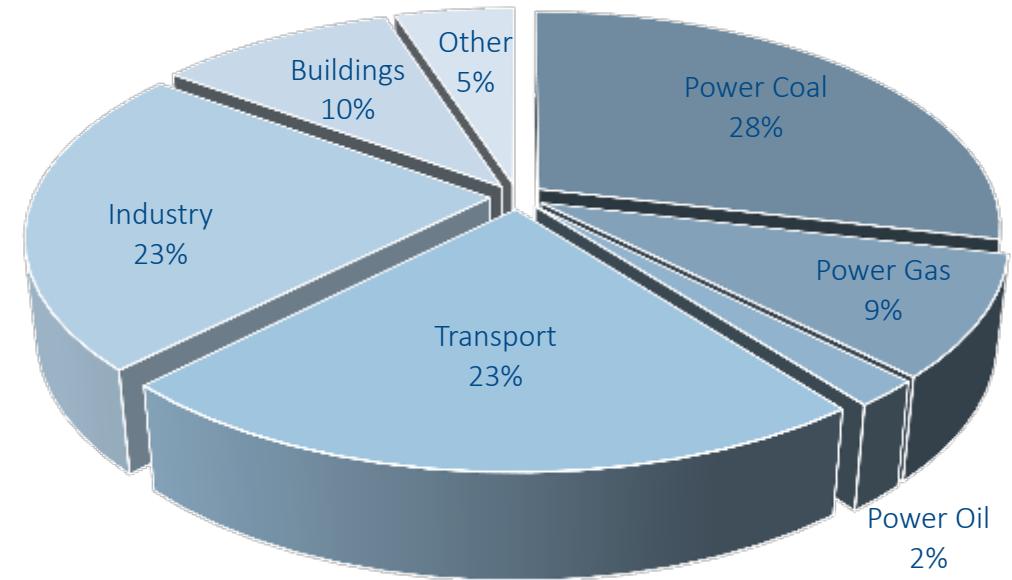
# Despite pledges and efforts, CO<sub>2</sub> emissions have kept increasing



Global energy-related CO<sub>2</sub> emissions, Gt



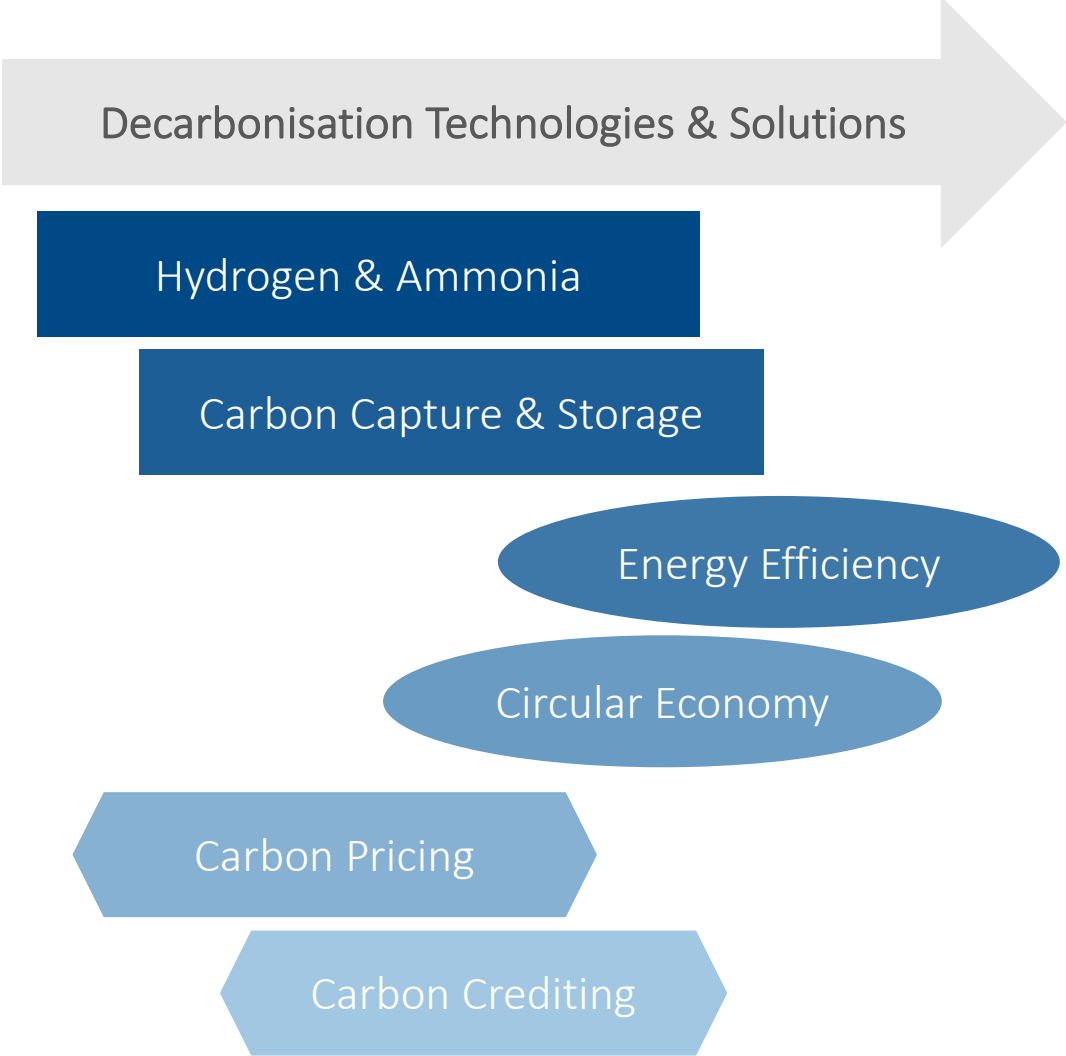
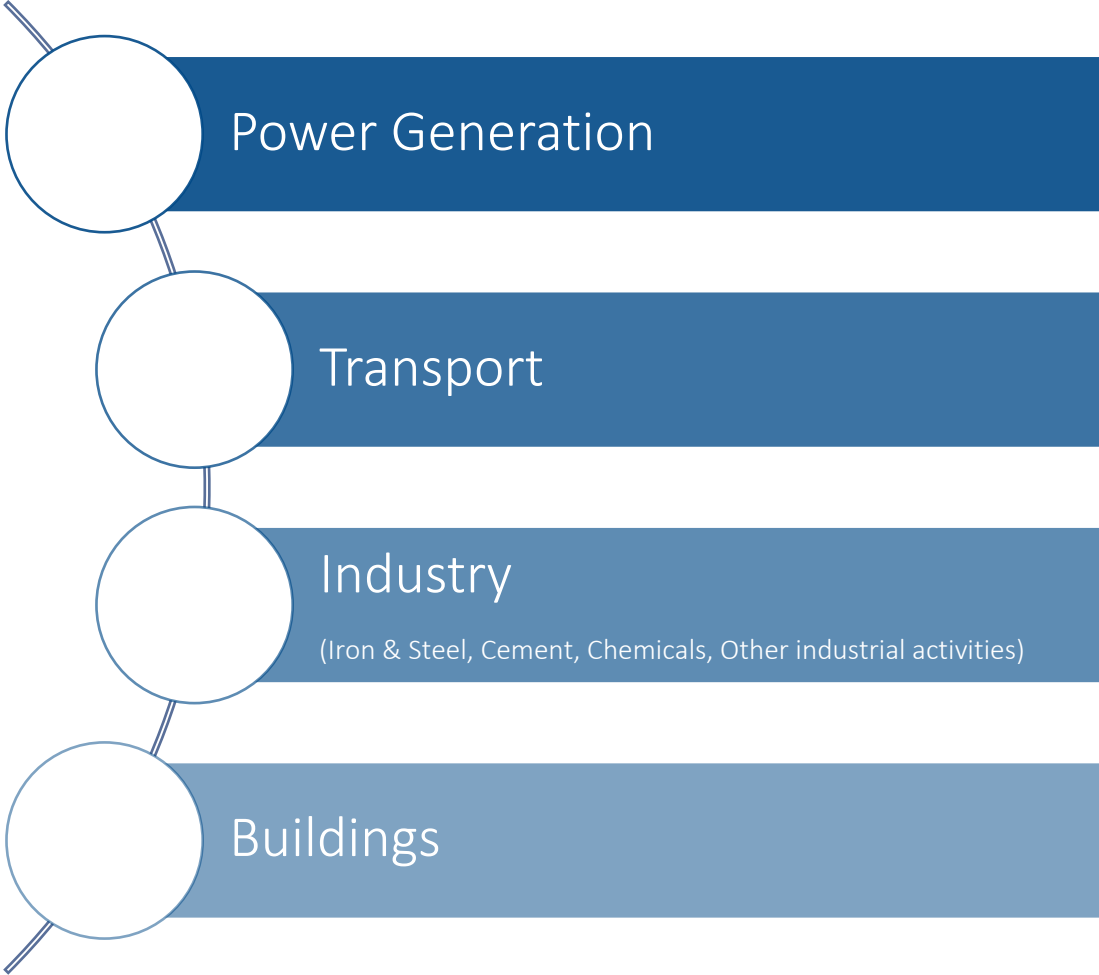
Global energy-related CO<sub>2</sub> emissions by sector



- Despite efforts made by governments, CO<sub>2</sub> emissions have kept increasing
- Covid19 pandemic has been a great example of what it takes to bring emissions down
- High reliance on fossil fuels makes power the largest carbon emitter in the energy sector

Data Source: IEA, 2021

# Going beyond the first steps of decarbonisation

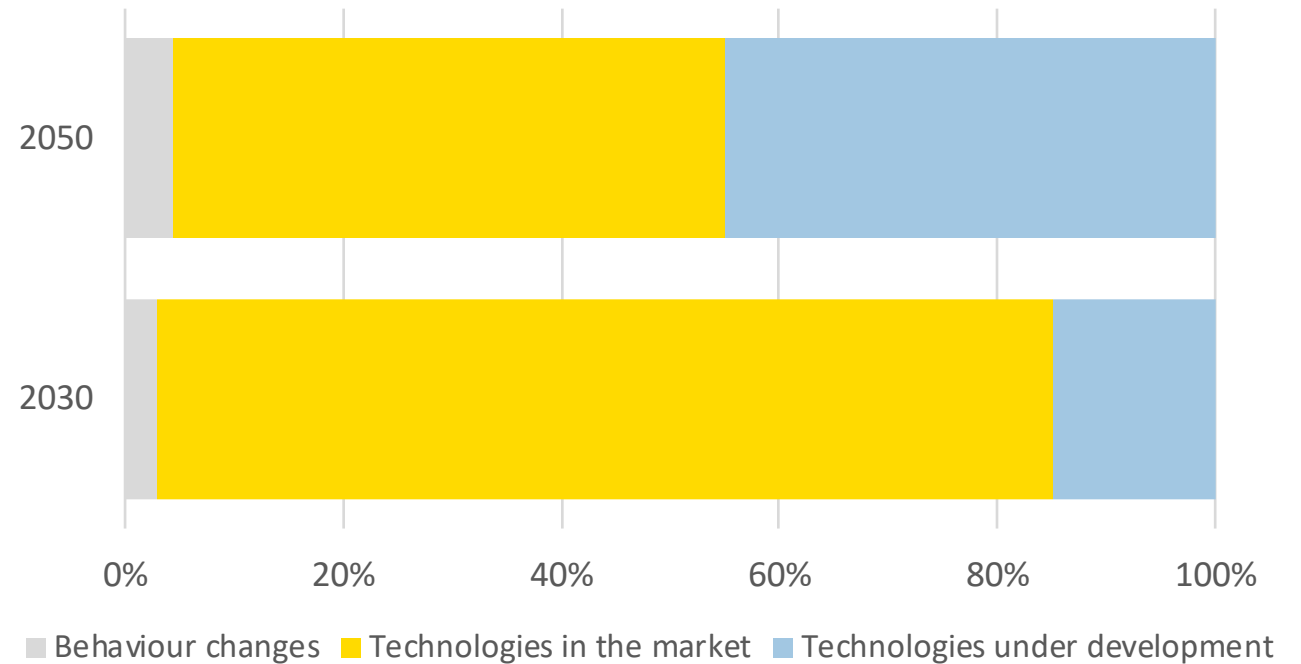


# Public energy policies and financial support will be key



- Today's energy transition is driven largely by societal preferences and, at the same time, by an urgency for mammoth changes in the global energy system to be delivered within unprecedented timeframes
- Governments need to enact policy and provide financial support to stimulate greater uptake of the technologies that will decarbonise the energy industry
  - These policies will largely be driven by Europe, US and a few Asian countries (e.g., Japan, South Korea, Australia)
- Partnerships among government, industry, and associations will be crucial in scaling existing technologies and innovation and in accelerating the timeline for decarbonisation

Annual CO<sub>2</sub> emissions savings in the net zero pathway, relative to 2020



Data Source: IEA, 2021

# Oil & gas will still be a significant part of this future energy mix



- There has been increasing political and public pressure to accelerate the energy transition, with the oil and gas industry being on the spot
- However, oil and gas play critical roles in today's energy and economic systems and their affordable and reliable supplies will be necessary parts of a vision of a growing global population and an expanding global economy
- Hydrocarbons have a dominant position in industries like chemicals
  - Oil and gas makes up more than 90% of the industry's feedstock
- The effort that oil and gas industry has been making over the years in reducing the environmental impact of its activities and products – all while remaining competitive – should not be underestimated
- But the industry will need to do much more to respond to the climate change threat



- The recent upswing in interest for these technologies and solutions has undoubtedly been much stronger and seems better sustained than in any prior period
- There are still many obstacles to overcome in achieving anything like a deep decarbonisation
- Public policy and financial incentives will be key
- There is no silver bullet to deep decarbonisation
  - We will need the full spectrum of low-carbon solutions; electricity cannot be the only vector for the energy sector's transformation
- Oil and gas will still be a significant part of this future energy mix but must be supplied with the lowest emissions possible
- Most of these transformational changes will be largely determined by the energy policies of countries still labelled as “developing”





# Thank You for Your Attention

---





*We deliver science, technology and engineering solutions to governments and companies around the world.*

KBR PROPRIETARY AND CONFIDENTIAL INFORMATION FOR THE SOLE USE OF KBR. ANY REPRODUCTION, COPY, PHOTOGRAPH, SCREENSHOT, REVIEW, USE, DISTRIBUTION, OR DISCLOSURE BY OTHERS IS STRICTLY PROHIBITED. DISCLOSURE BY KBR VIA ELECTRONIC MEANS (INCLUDING BY VIRTUAL MEETING) DOES NOT WAIVE, NEGATE, OR LESSEN THIS PROHIBITION. ALL RIGHTS RESERVED.

