CHENIERE

CLIMATE SCENARIO ANALYSIS: TRANSITIONAL RISK

APRIL 2021

OVERVIEW

In 2020, Cheniere Energy, Inc. published its inaugural Corporate Responsibility Report, "First and Forward," which included a preliminary discussion of the Company's views on our resiliency in a low-carbon future and provided insight into how the Company was working to address the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).[i] In 2021, Cheniere is taking another important step forward with the preparation of this climate scenario analysis report, which describes Cheniere's resilience to different climate-related scenarios.

While working to align with the TCFD recommendations, Cheniere independently recognizes that more countries are taking action to reduce their greenhouse gas (GHG) emissions and build climate resilience, consistent with the goals of the Paris Agreement. We also recognize that with such action, global energy systems may be subject to profound change. This is particularly the case given that the Paris Agreement aims to limit global warming to well below 2°C compared to pre-industrial levels.

There are multiple perspectives on what form this energy transition will take and how dramatic its impacts will be, resulting in a range of corresponding energy demand scenarios. These dynamics associated with multiple pathways create climate-related risks as well as opportunities for the liquefied natural gas (LNG) sector.

In this report, Cheniere describes the climate scenario analysis undertaken to understand the potential implications for LNG supply and demand in a below 2°C warming outlook, and the long-term resilience of our business to various future climate conditions through 2040.[ii] The analysis identifies potential climate-related risks and opportunities, which can help inform our internal risk assessment, strategy development, and decision-making processes. This report also may provide investors and other stakeholders with information for their own analysis into the future resilience of our business.

> Cheniere believes global responses to climate change will shape future market conditions.

SCENARIOS AND METHODOLOGY

The TCFD recommends the use of multiple, publicly available scenarios, including a scenario that lays out a pathway and emissions trajectory consistent with limiting the average global temperature increase to well below 2°C. In light of this, our analysis evaluates three scenarios to test the resilience of Cheniere's strategy:

The International Energy Agency (IEA) Stated Policies Scenario (STEPS)[iii]
This scenario accounts for existing policy frameworks and announced policy intentions only, including the Paris Agreement and other announced government commitments, and reflects the potential impact of these on the energy sector out to 2040.

The IEA Sustainable Development Scenario (SDS)[iv]
This scenario, published by the IEA in the World Energy Outlook 2020, is aligned with the TCFD recommendation of a well below 2°C pathway and envisages "a major transformation of the global energy system."[v]

McKinsey Reference Case Scenario from Global Gas Outlook to 2050 (MRC)[vi]
This scenario reflects a continuation of existing trends and incorporates current policies. This envisages less aggressive global action to reduce GHG emissions compared to the SDS.

For consistency with current publicly available scenarios, this report describes scenarios modeled out to 2040 for LNG, on a basis consistent with IEA data and models.[vii] In addition, our analysis incorporates cost-curve analysis of LNG projects based on projected supply, demand, costs and carbon pricing. Cheniere considered the SDS to be the most suitable when stress testing its business, as it assumes ambitious government policies to reduce GHG emissions and implies the most conservative case of the three scenarios for future growth in LNG demand. As such, the SDS is the primary focus of this report.

GHG Intensity and Carbon Pricing
A key consideration under the SDS is the implementation of carbon pricing, which would impact the competitiveness of projects, depending on their emissions intensity. To incorporate carbon pricing into the scenario analysis, Cheniere employed peer-reviewed lifecycle emissions data and methodology from Gan et al. 2020[viii, ix] to estimate the GHG intensity of global LNG projects. A carbon price of $140 per metric ton was applied to the SDS, consistent with the IEA's assumptions, and a carbon price of $55 per metric ton was applied to the MRC scenario.[x]

RESULTS

Overall Results
Under all three scenarios, demand for LNG increases from 2020 levels through 2040, resulting in supply gaps to varying degrees (see below). Additional LNG supply (i.e., beyond existing and under construction liquefaction projects) would be needed to meet this demand. As discussed below, Cheniere's assets are well-positioned to take advantage of this LNG supply-demand gap.

To illustrate the LNG supply and demand balances under each scenario, Figure 1 below depicts the LNG supply (in shades of blue) against all three demand scenarios. Supply is consistent across the three scenarios and consists of existing and under-construction liquefaction capacity. In the STEPS scenario, demand for LNG reaches 665 million tons per annum (mtpa) by 2040, resulting in an LNG supply gap of 255 mtpa. In the MRC scenario, demand for LNG reaches 615 mtpa by 2040, resulting in an LNG supply gap of 205 mtpa. In the SDS scenario, the most restrictive case for demand growth, demand for LNG grows to 500 mtpa by 2040, resulting in an LNG supply gap of 90 mtpa.

Specific Results from the SDS Analysis
Closing the 2040 Supply Gap: To understand how the 2040 LNG supply gap under the SDS could be addressed, our analysis considered the project economics of existing, under construction and announced LNG projects.[xii] Under the SDS, the projected LNG oversupply begins to clear in the 2030s, which is shown on Figure 1 where the demand (red line) moves higher than supply (blue bands). Figure 2 below depicts the projected supply cost curve for pre-final investment decision (FID) projects and shows that price competitive U.S. Gulf Coast projects are likely to play a role when it comes to addressing the SDS supply gap up to 2040. Under the SDS, supply capacity of the projects to the left of the supply gap line in Figure 2 would fill the projected 2040 demand, based on their total project cost.[xiii] Projects to the right of the supply gap line in Figure 2 would not be expected to fill the projected 2040 demand, based on their total cost.

The analysis indicates that Cheniere is positioned to compete for additional projects (as a component of U.S. brownfield supply) to close the supply gap. Some non-economic factors may also have an influence on buyers' supply choices, such as desire for a diverse set of suppliers, the maintenance of existing relationships and existing equity positions. Nonetheless, in an increasingly competitive landscape, we believe economic considerations are likely to remain paramount.

FIGURE 1

LNG SUPPLY AND DEMAND BALANCES TO 2040[xi]
Global LNG available supply capacity[1] and demand to 2040, mtpa | Unbalanced illustration

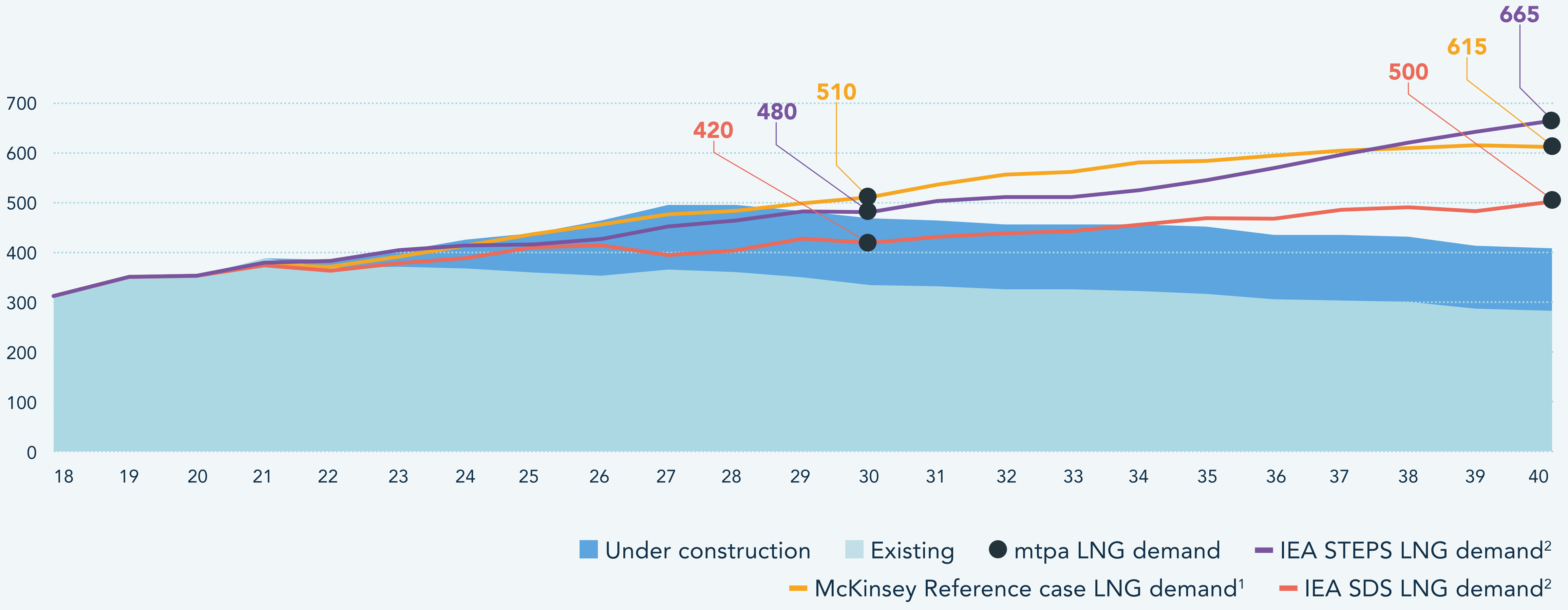
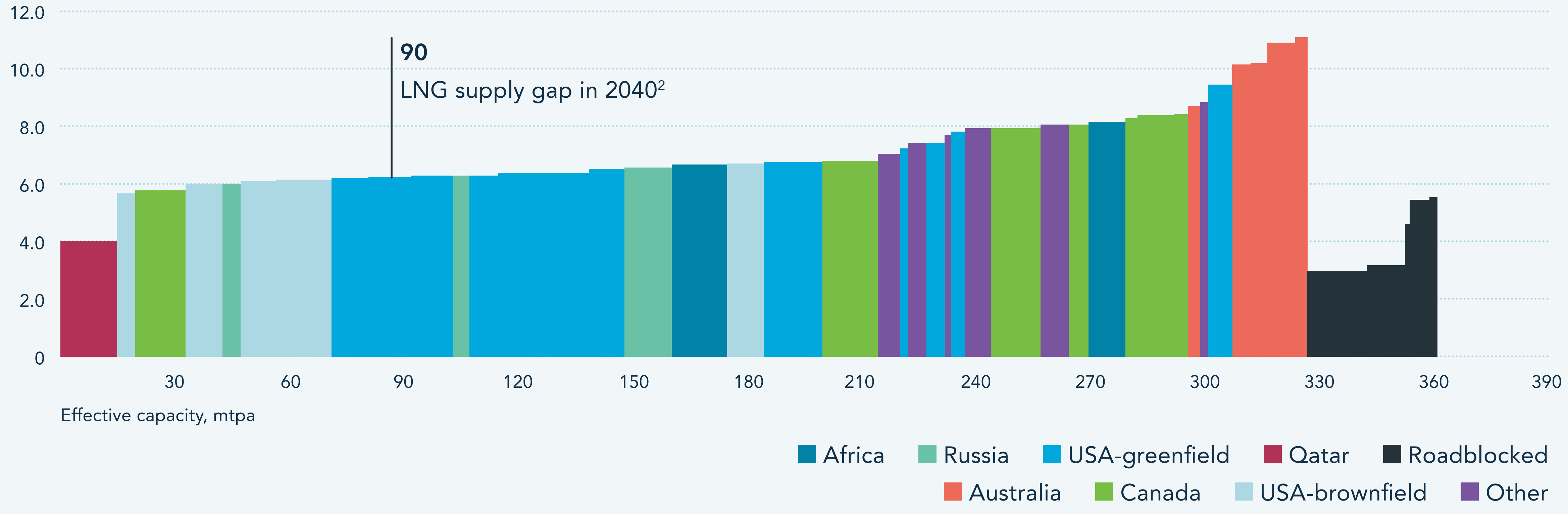


FIGURE 2

FUTURE PROJECT COST CURVE UNDER THE SDS (ANNOUNCED LNG PROJECTS)[xiv]
Full cycle[3] cost of pre-FID LNG projects in 2030 | $/MMBtu, crude oil $55/bbl, HH $2.05/MMBtu, DES to Asia



1. Based on LNG supply and demand in McKinsey Global Gas & LNG Outlook published in March 2021 2. Based on IEA natural gas demand data published in World Energy Outlook in October 2020 3. Based on cost curves in McKinsey Global Gas & LNG Outlook published in March 2021 (adjusted to reflect IEA SDS assumptions for commodity prices)

Assessing the Resilience of Cheniere's Portfolio Under the SDS: To assess the resilience of Cheniere's portfolio under the restrictive SDS scenario, our analysis modeled the marginal costs faced by a range of existing and future global LNG projects. In particular, it was assumed that the projects are competing on a cash-cost basis (meaning projects only cover operating expenses) and costs were modeled for delivery into Asian markets. These assumptions provided a deliberately stringent approach compared to the possible alternative – i.e. one where capital costs are included into the analysis and shorter shipping distances are assumed (i.e. into South American or European markets). The outputs of this modeling can be seen in Figure 3 below.

Even under the SDS (which suggests lower LNG demand growth compared to the other two scenarios), our modeling indicates that Cheniere is positioned to play a role in helping to meet global LNG demand in 2040.

Incorporating GHG Intensity and Carbon Pricing: The next step was to model the lifecycle project GHG emissions – from natural gas production to the regasification of LNG at a receiving terminal in Asia – and apply a carbon price of $140 per ton (as assumed by the IEA under the SDS).

The results of the carbon price-based modeling are set out in Figure 4 below and suggest that the impact of a carbon price on the relative cost position of projected global projects in 2040 would be modest. As such, it is not anticipated that the introduction of carbon pricing would significantly change the relative position of Cheniere's projected cost of supply. In fact, a carbon pricing scenario could make Cheniere more competitive relative to other gas and LNG sources that are more carbon intensive.

FIGURE 3

SDS CASH COST CURVE FOR GLOBAL PROJECTED 2040 SUPPLY[xv]

Cash cost[2] for post-FID LNG projects in 2040 | $/MMBtu, crude oil $55/bbl, HH $2.05/MMBtu, DES to Asia

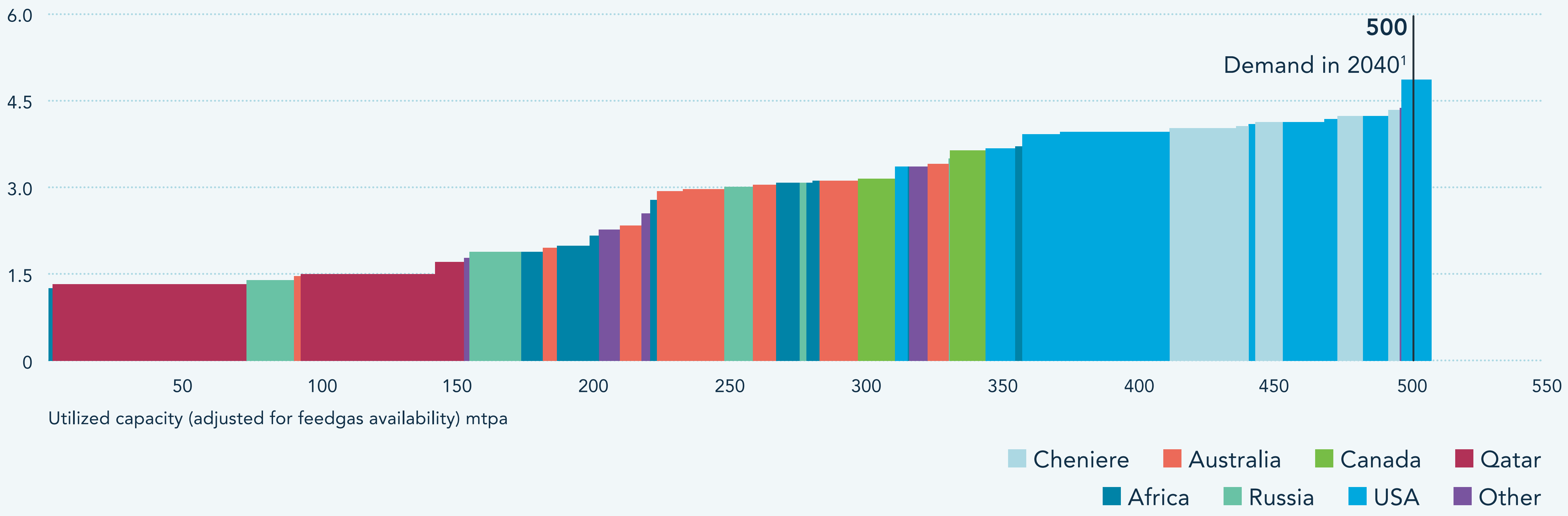
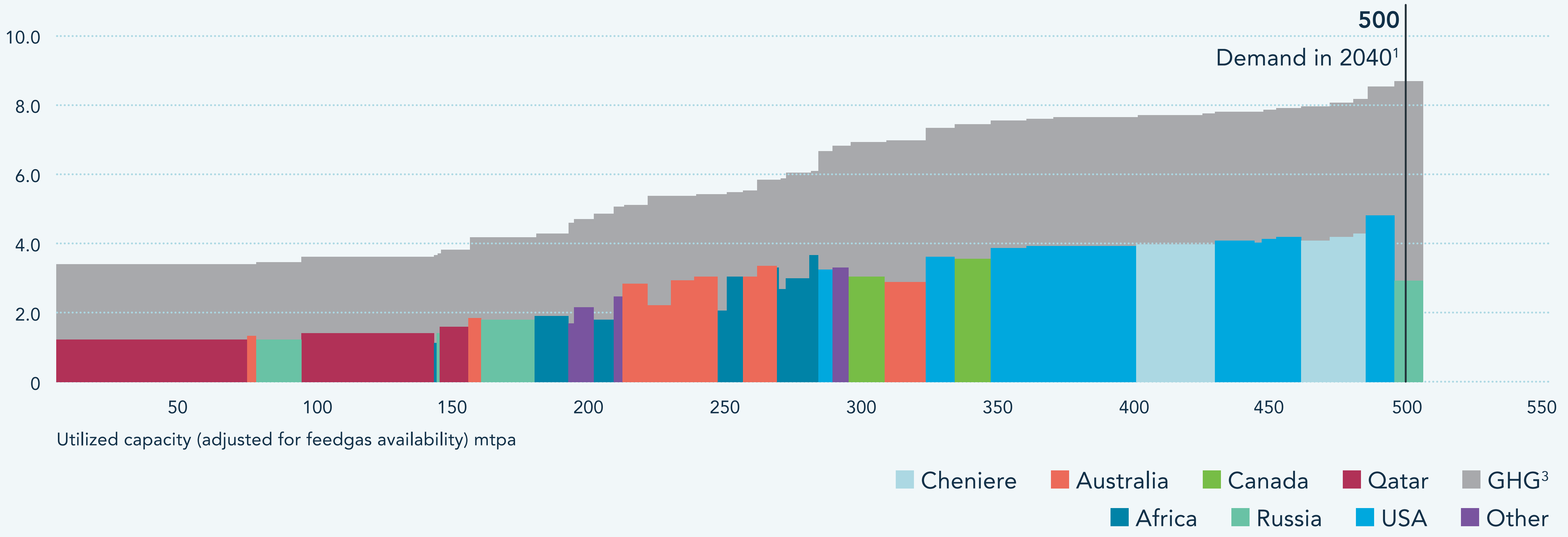


FIGURE 4

SDS CASH COST CURVE FOR GLOBAL PROJECTED 2040 SUPPLY – INCLUDING PROJECTED CARBON COSTS[xvi]

Cash cost[3] for existing and post-FID LNG projects, 2040 | $/MMBtu, crude oil $55/bbl, HH $2.05/MMBtu, $140/tCO2e, DES to Asia



1. Based on IEA natural gas demand data published in World Energy Outlook in October 2020 2. Based on cost curves in McKinsey Global Gas & LNG Outlook published in March 2021 (adjusted to reflect IEA SDS assumptions for commodity prices) 3. GHG footprint cost estimates by Cheniere

CLIMATE-RELATED RISKS AND OPPORTUNITIES

As part of this analysis, we identified potential climate-related risks, including cost competitiveness, carbon pricing and project GHG emissions intensity.

The global LNG market is highly competitive today and cost competitiveness will be an increasingly important factor in any future scenario. A downside risk to U.S. Gulf Coast projects is the introduction of low-cost supply from new regions, if stalled projects find a path to market or certain major gas resource holders are incentivized to increase supply capacity and accept lower returns to monetize upstream resources to avoid stranding natural gas assets. There is a high degree of cost competitiveness among U.S. Gulf Coast projects, due to the narrow range of cost differentiation because of the similarities in labor, capital and feedstock costs. Brownfield projects have cost advantages compared to greenfield projects, however.

In addition, broadly adopted carbon pricing would impact project competitiveness through the relative GHG emissions intensity of each project. While GHG emissions intensity and potential carbon pricing are risks, there are also opportunities for Cheniere to mitigate climate-related risks and take actions that improve our resiliency. These include continued actions to improve our GHG footprint and differentiate Cheniere among global LNG suppliers. Increasing the transparency and standardization of reported data across the LNG and natural gas industry is important for producers and consumers and is therefore a significant opportunity for Cheniere.

The uncertainty in how the market will evolve and the continued importance of cost competitiveness reinforce the importance of a disciplined approach to deploying capital. Ongoing monitoring of energy policies, market trends and the LNG business cycle will continue to be important to inform business decisions. While cost is paramount, commercial innovation, flexibility and non-economic factors, such as reputation and reliability, will be valuable differentiators in a competitive global market.

Finally, while the scenarios analyzed are through 2040 and based on the IEA's World Energy Outlook 2020, continued action to reduce global GHG emissions may cause LNG demand to decline beyond 2040. Cheniere can minimize the risk beyond 2040 to its business from peak demand by maintaining a disciplined capital investment and return strategy, consistent with expected market trends.

CONCLUSION

In all three scenarios (including the SDS), we find that Cheniere is positioned to help meet growing demand for LNG through 2040. While the scenarios we have evaluated are not predictions of the future, we believe the analysis validates the long-term resilience of Cheniere's business. Similarly, the resilience of Cheniere's business will also be supported by its existing assets, long-term contracts and disciplined capital investment and return strategy.

This analysis will support our continuing efforts to identify, evaluate and track future signals that could point to major shifts in market trends. These include changes in the global energy demand and supply mix, political and economic indicators, climate data, carbon policy, consumer trends and technological advances – among others. This analysis also highlights ongoing uncertainties regarding the energy transition and global energy demand. Preparing the analysis and issuing this summary assists Cheniere in its business strategy and its efforts to inform our stakeholders about climate-related risks and opportunities in relation to its business.

The analysis validates Cheniere's belief in the long-term resilience of its business.

FOOTNOTES

i. Cheniere's 2019 Corporate Responsibility Report: https://www.cheniere.com/pdf/First-and-Forward-2019-Corporate-Responsibility-Report-LR2.pdf

ii. The TCFD describes 2°C transition scenarios in the "Technical Supplement: The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities" (page 19). "One type of transition scenario is a so-called 2°C scenario, which lays out a pathway and an emissions trajectory consistent with limiting the average global temperature increase to a temperature range around 2°C with a stated level of probability. Effectively, a 2°C scenario asks the question 'if the world limits warming at or below 2°C, what are the pathways for achieving that goal?'" https://assets.bbhub.io/company/sites/60/2020/10/FINAL-TCFD-Technical-Supplement-062917.pdf

iii. For additional information on the assumptions used in STEPS, please review the abstract available from the IEA: iea.org/reports/world-energy-model/stated-policies-scenario#abstract

iv. For additional information on the assumptions used in the SDS, please review the abstract available from the IEA: iea.org/reports/world-energy-model/sustainable-development-scenario#abstract

v. IEA (2020), World Energy Outlook 2020, OECD Publishing, Paris: doi.org/10.1787/557a761b-en

vi. Interpretation of the McKinsey & Company Reference Case from the "Global Gas Outlook to 2050," published in March 2021. For additional information on the Reference Case, please review the "Global Gas Outlook to 2050": mckinsey.com/industries/oil-and-gas/our-insights/global-gas-outlook-to-2050

vii. IEA regional natural gas demand for the STEPS and SDS scenarios were balanced against an interpretation of regional natural gas supply of McKinsey's "Global Gas Outlook to 2050" to determine regional LNG demand volumes.

viii. Gan, Y., El-Houjeiri, H.M., Badahdah, A. et al. (2020) Carbon footprint of global natural gas supplies to China. Nat Commun 11, 824: doi.org/10.1038/s41467-020-14606-4

ix. Adjustments were made to Gan et al.'s published results in order to align with the desired boundary and basis, such as employing the latest global warming potential (GWP) from the IPCC's Fifth Assessment Report (AR5) of 36 for 100-yr for methane instead of 30 in Gan et al. Where direct data was not available within the Gan et al. 2020 source, a proxy project was selected based on geographic and upstream resource similarities. Shipping emissions were considered for transportation to Asia and to Europe. It should be noted that there are uncertainties associated with using generic, industry-wide lifecycle analyses, due to the reliance on assumptions and lack of emissions measurements, particularly for non-U.S. projects, which rely primarily on extrapolated assumptions from U.S. data and proxies.

x. IEA carbon prices by scenario: https://www.iea.org/reports/world-energy-model/macro-drivers

xi. Based on IEA natural gas demand data published in World Energy Outlook in October 2020. McKinsey Reference Case LNG demand based on LNG supply and demand in McKinsey "Global Gas & LNG Outlook" published in March 2021.

xii. A cost curve of potential pre-FID projects was constructed based on announced projects to determine what regions could compete to fill the 2040 supply gap. An estimated 360 mtpa of potential LNG projects exist, ranging in full-cycle cost from ~$3 / MMBtu to ~$11 / MMBtu, of which ~120 mtpa is comprised of U.S. projects in the $6-7 / MMBtu window (dollar figures are in today's dollars).

xiii. Full-cycle costs represent the total costs associated with a project including capital and operating expenses, the cost of feed gas, royalties and taxes, and shipping costs. These costs are expressed in dollars per million British thermal units ($/MMBtu) in Figure 2.

xiv. Based on IEA natural gas demand data published in World Energy Outlook in October 2020. Full-cycle project costs based on cost curves in McKinsey "Global Gas & LNG Outlook" published in March 2021 and adjusted to reflect IEA SDS assumptions for commodity prices. "Roadblocked" potential projects are those which currently face severe difficulties in terms of technology sanction or stakeholder alignment.

xv. Based on IEA natural gas demand data published in World Energy Outlook in October 2020. Full-cycle project costs based on cost curves in McKinsey "Global Gas & LNG Outlook" published in March 2021 and adjusted to reflect IEA SDS assumptions for commodity prices.

xvi. Based on IEA natural gas demand data published in World Energy Outlook in October 2020. Full-cycle project costs based on cost curves in McKinsey "Global Gas & LNG Outlook" published in March 2021 and adjusted to reflect IEA SDS assumptions for commodity prices. GHG emissions for the projects were developed based on the Gan et al. study with adjustments. See endnote ix for more detail.

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