

Importance of US LNG to contribute to Energy Transition and US Economy

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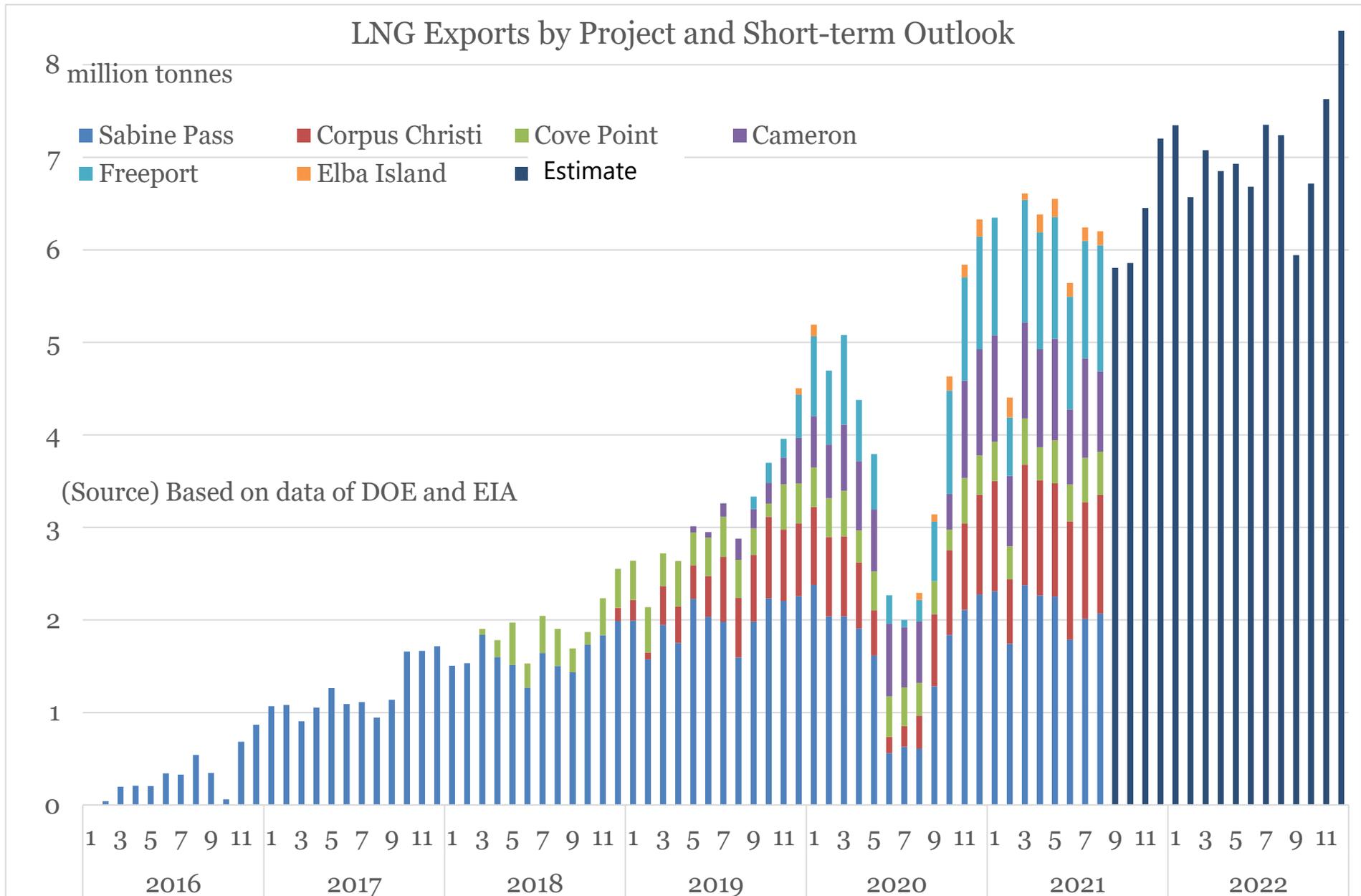
Dr. Ken Koyama

Chief Economist & Senior Managing Director, Institute of Energy Economics, Japan

Significance of US LNG to energy security and global energy transition

- **Global natural gas/LNG market continues to be extremely volatile**
- **Demand for gas/LNG expected to continue to grow in Asia**
- **Growth in US LNG supply contributes to enhanced stability and flexibility in global gas market**
- **Gas/LNG expected to play an important role for energy transition in Asia towards carbon neutrality**
- **US LNG as reliable clean energy supply to help Asia's decarbonization journey**
- **US gas-based blue hydrogen/ammonia will also become important energy source for decarbonization in Asia**

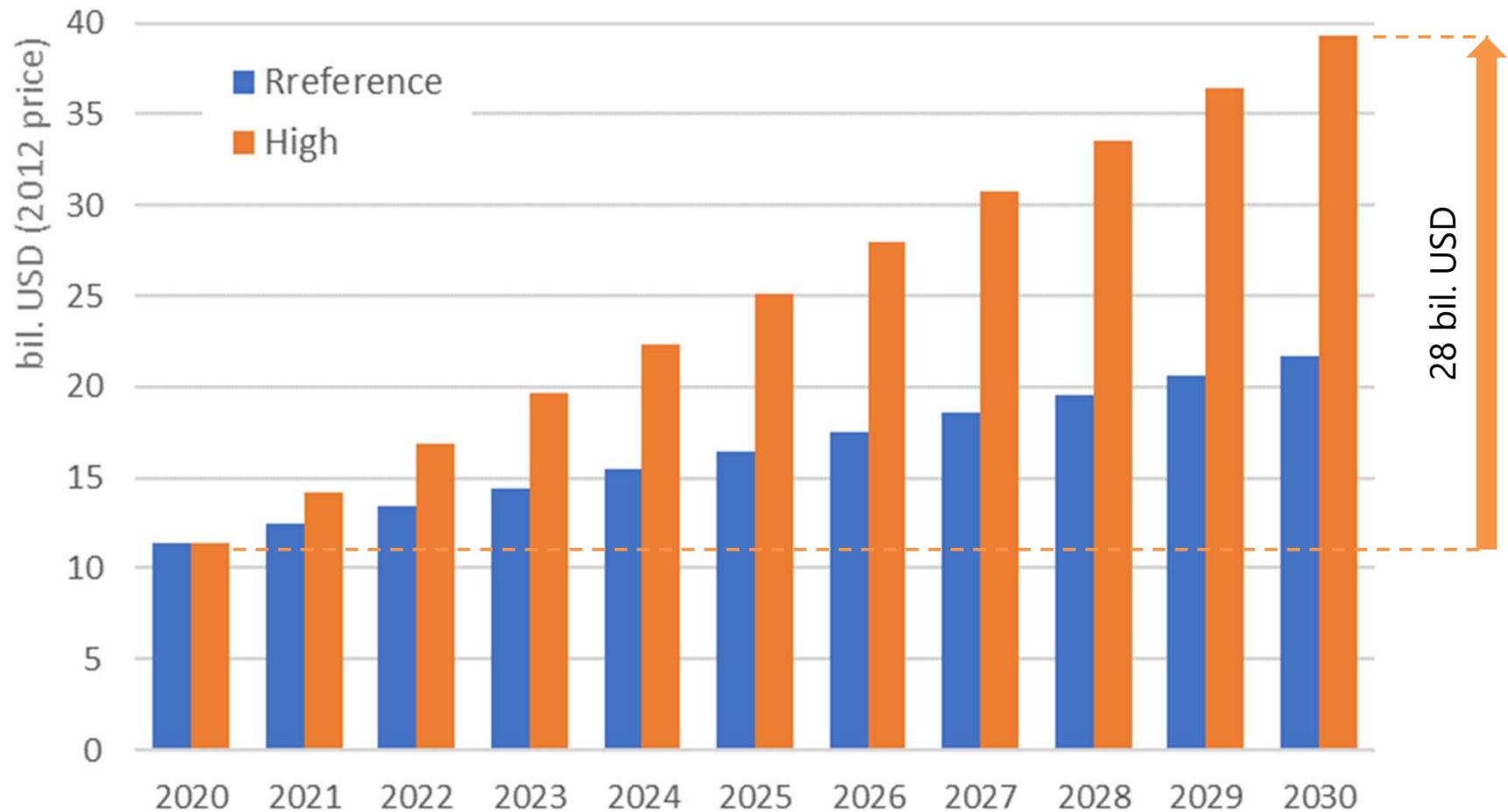
US LNG export growth continues to grow



Source: Hiroshi Hashimoto, IEEJ, November 2021

Outlook for US LNG export value

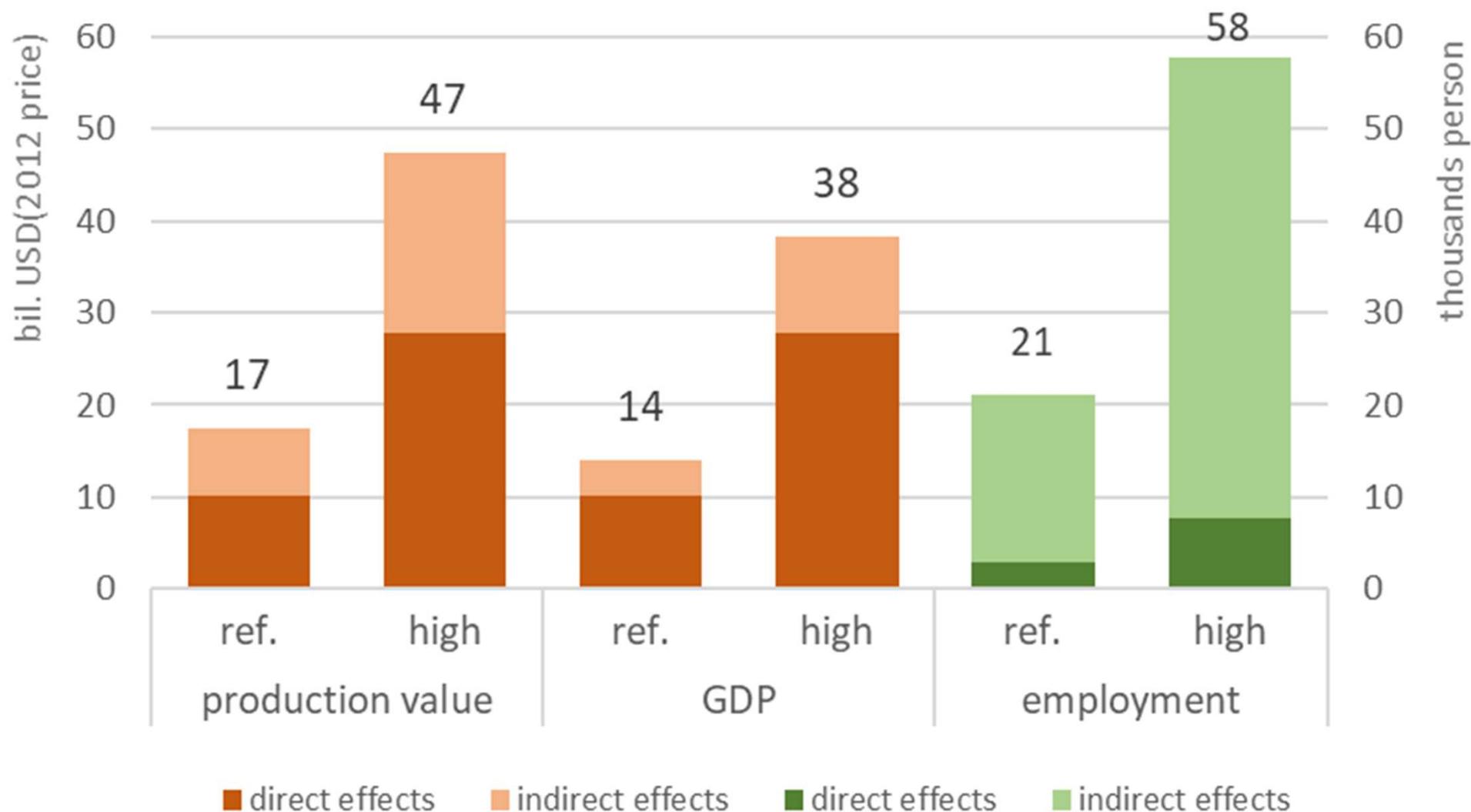
- US LNG export projected to rise up to 98 million ton in 2030 in reference case in IEEJ Outlook
- The export will be higher at 178million ton in High LNG export case
- US LNG export value increase 28 billion USD in High case between 2020-2030



Source: IEEJ estimate

Impact of LNG export on US economy

- Substantial increase in LNG export value has impact on US GDP & employment in 2030
- In High case, GDP increases 38 billion USD and 58 thousand more employment in 2030

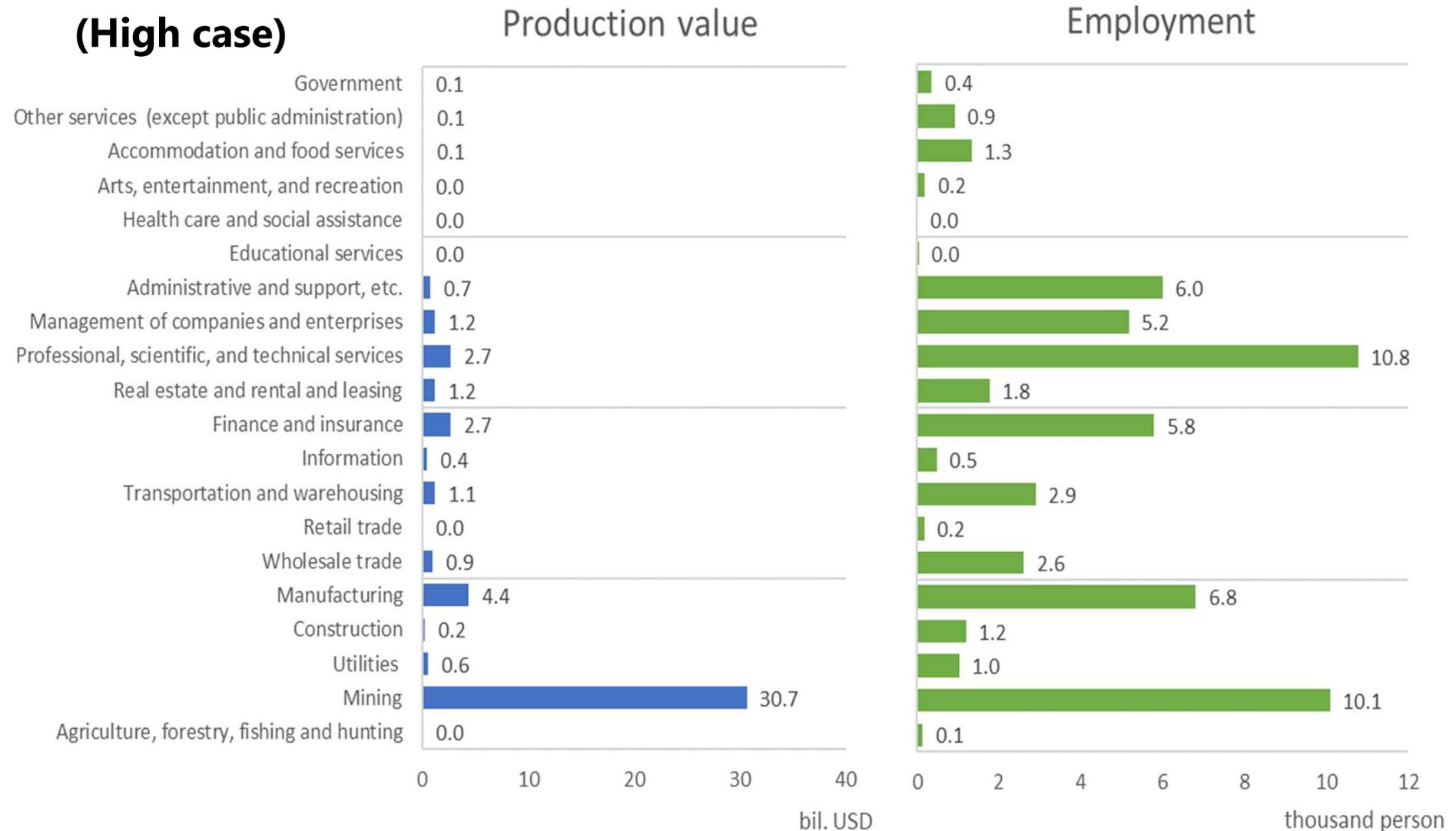


Source: IEEJ estimate

Impact of LNG export by sector

- Production value increases in mining sector, while employment increases in other labor intensive sector as well

(High case)

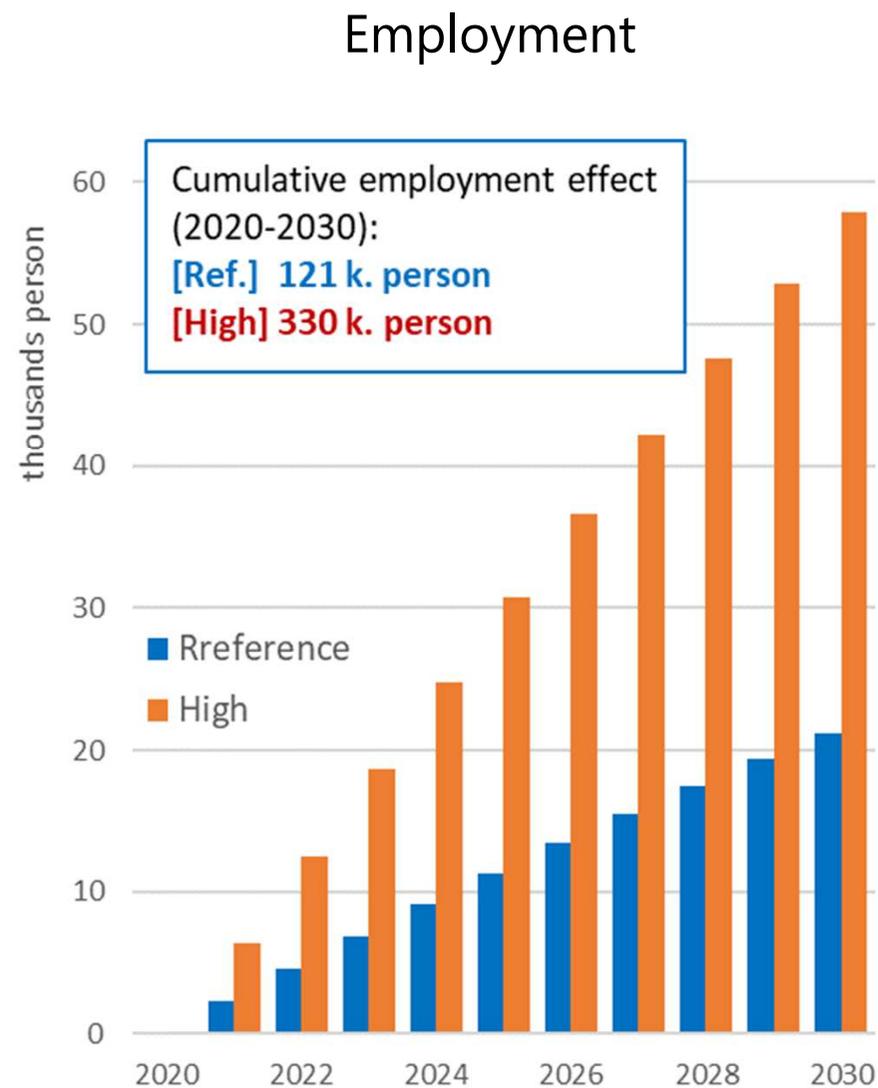
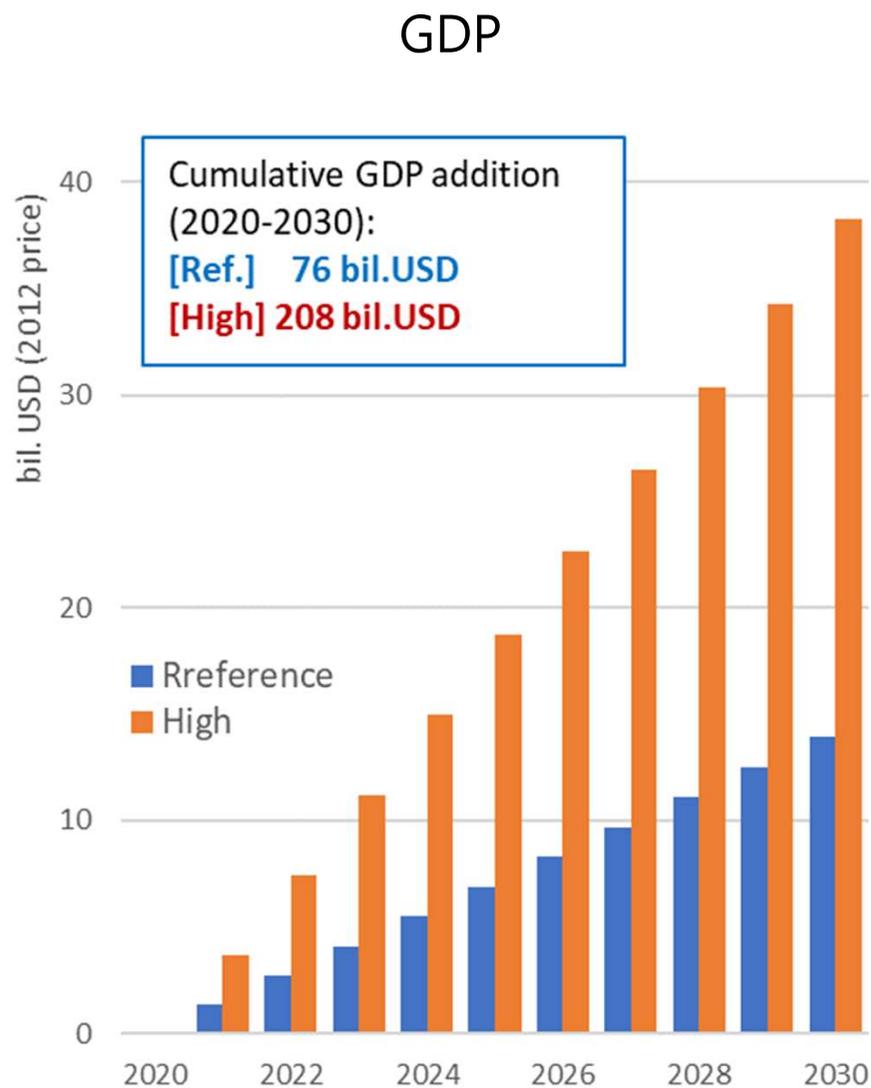


Source: IEEJ estimate

Additional GDP & employment by LNG exports



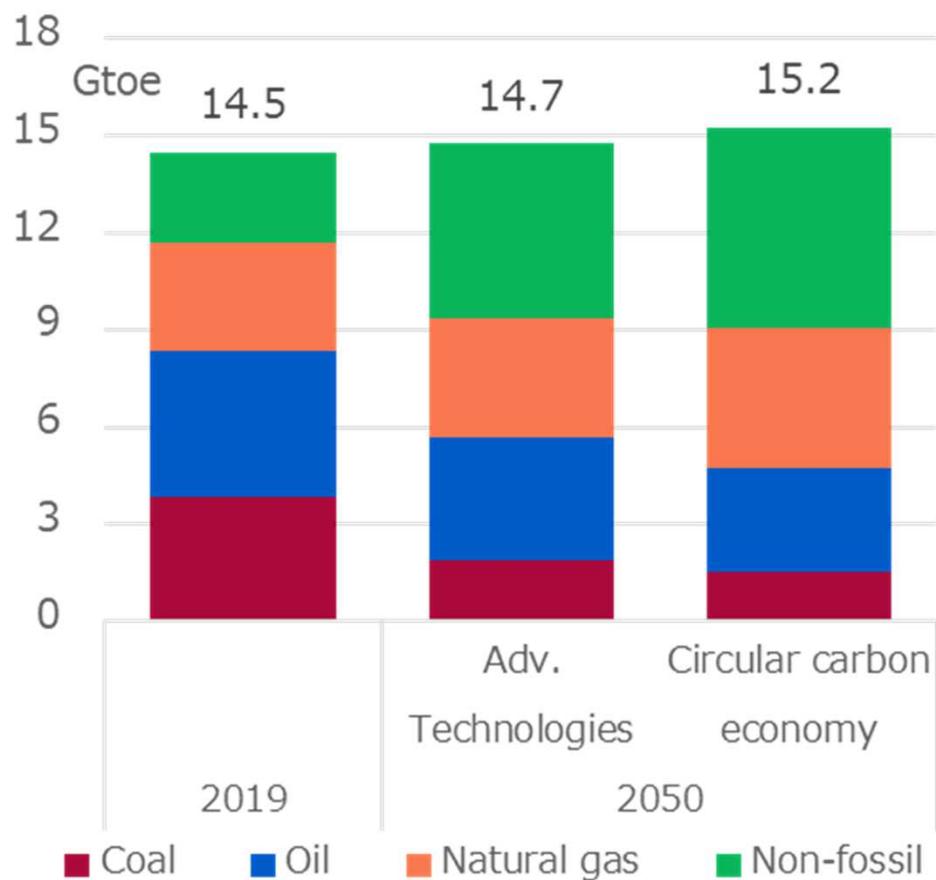
- Cumulative GDP addition up to 2030 by LNG export amounts to 76-208 billion USD



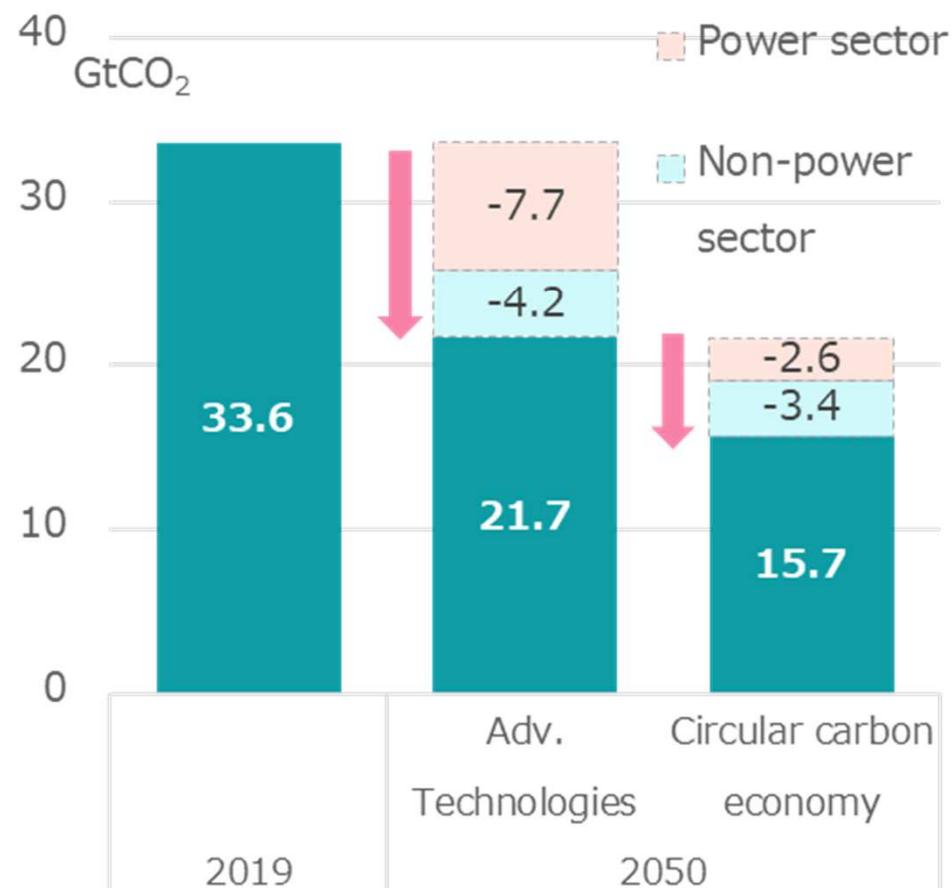
Source: IEEJ estimate

Clean hydrogen contributes to substantial CO₂ reduction without reducing fossil fuel use

❖ Primary energy demand



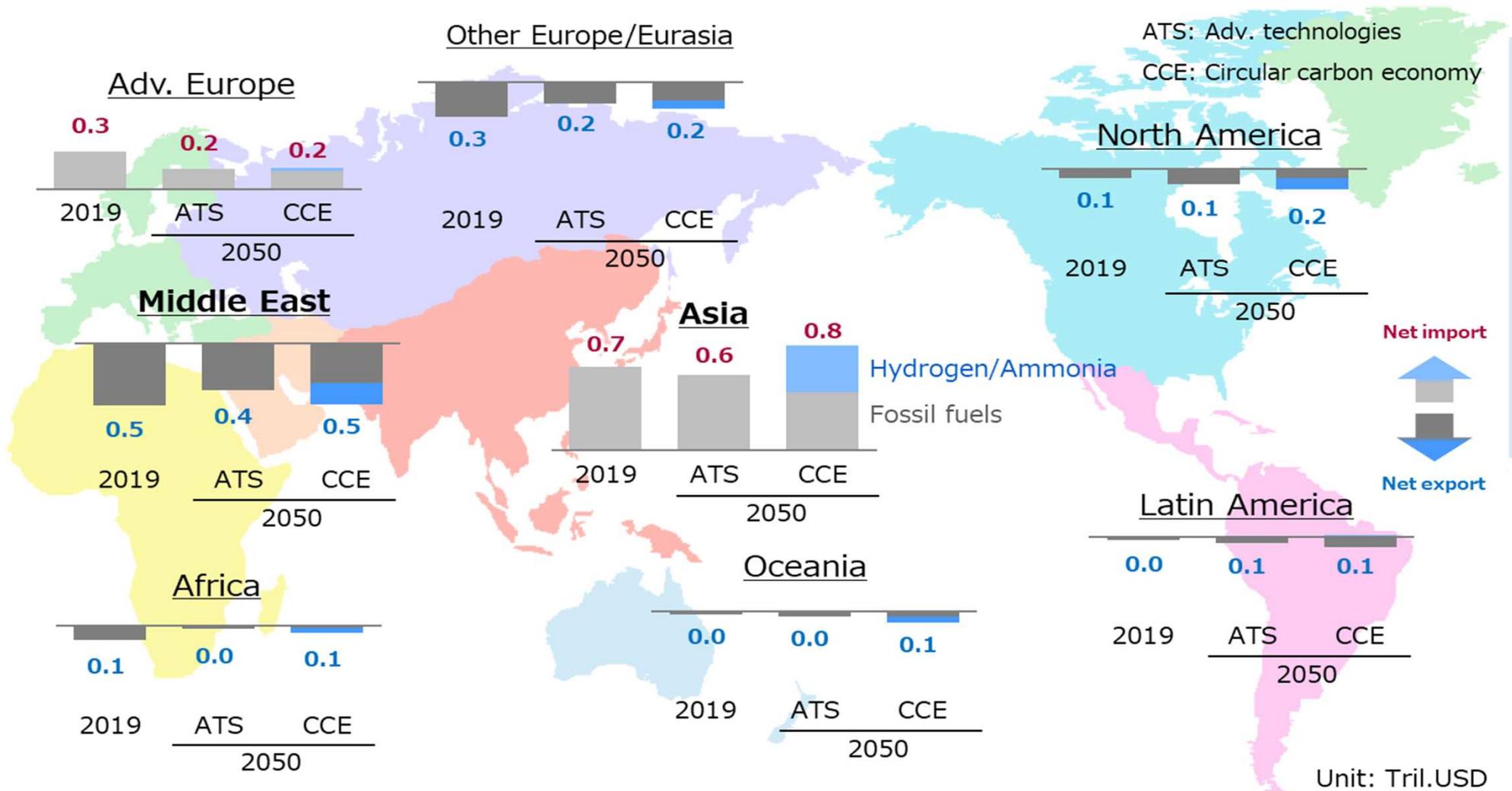
❖ Energy-related CO₂ emissions



Fossil fuel consumption in the CCE scenario is almost the same as that in the ATS. Demand for natural gas for hydrogen production will increase slightly.

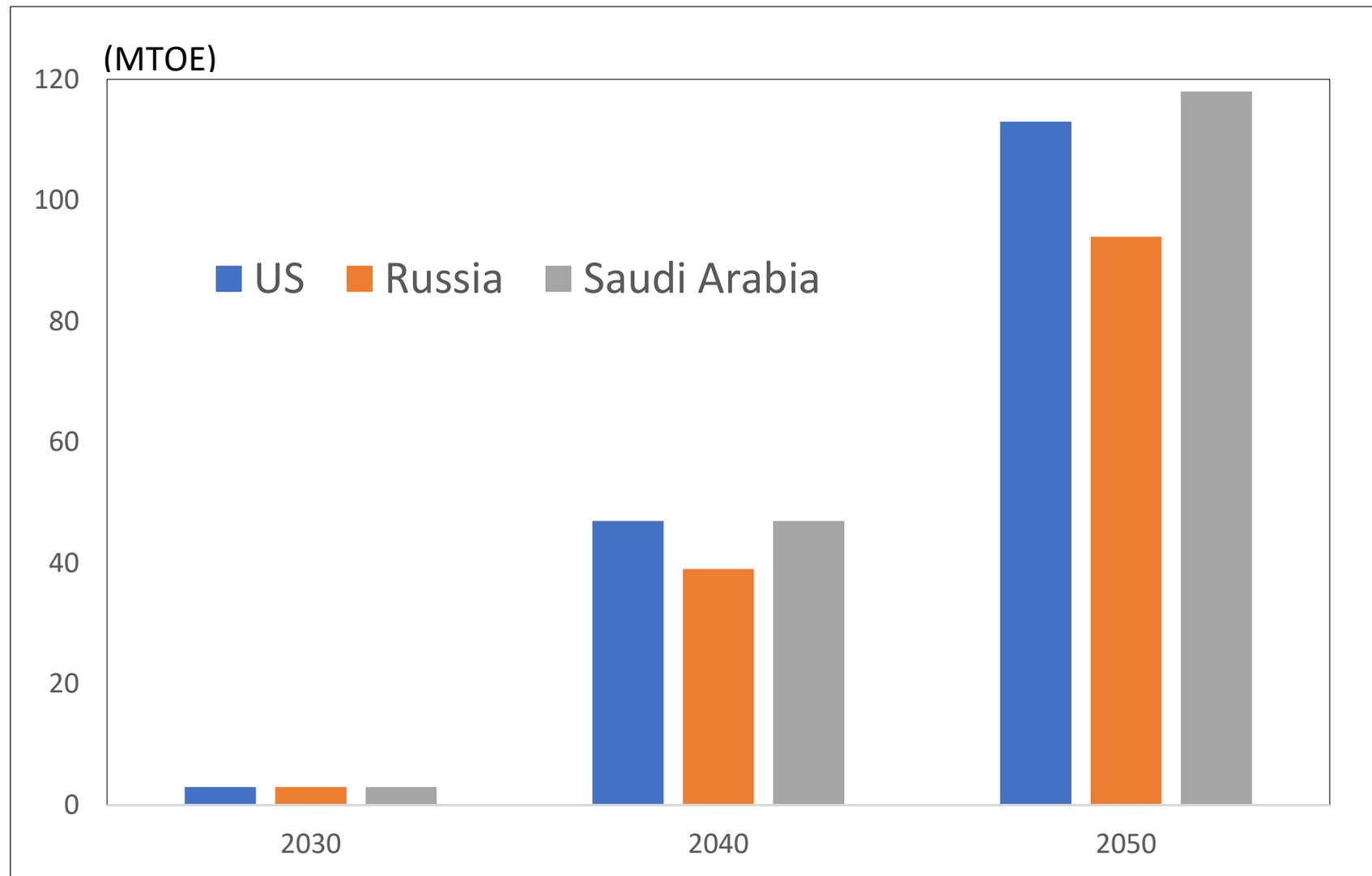
On the other hand, the CO₂ emissions decline significantly. The center of gravity for emission reductions is shifting to the non-power generation sector.

Clean hydrogen trade plays an important role



US may become a leading hydrogen exporter

- US blue hydrogen export rises up to 113 MTOE in 2050, second largest after KSA
- Hydrogen export value amounts at 80 billion USD in 2050, 700% of LNG export value in 2020



Source : IEEJ, IEEJ Outlook 2022

Conclusion

- **US LNG is expected to play an important role to enhance energy security and market stability**
- **US LNG will also become critically important energy source to promote energy transition toward carbon neutrality in Asia to which gravity center of global energy market continues to shift**
- **US LNG export will be a great contributor not only to global energy market but also to US economy**
- **US clean hydrogen/ammonia export will also help promote global carbon neutrality while contributing to US economy**