



# Jones Act LNG Carrier Development

## A Global Priority for a Domestic Resource

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# Introduction

- The U.S. power grid is adding renewable capacity
- Natural gas power plants will remain our most sustainable option to back up renewables for the foreseeable future
- The latest LNG carriers are essential for national economic and energy security
- The U.S. needs state-of-the-art Jones Act LNGCs and government support to establish a fleet of U.S. LNGCs
- Goal: To promote sustainable American energy

# Benefits

- Improve sustainability of baseload/standby power grid
- Energy Security
- Economic Security
- Revitalization of the commercial shipbuilding industry
- Develop domestic capability in design and engineering related to transportation of LNG (and future alternative fuels)



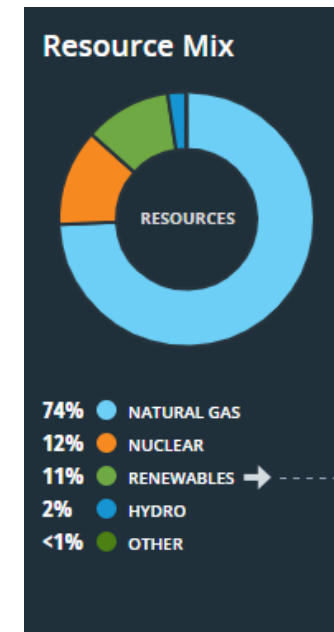
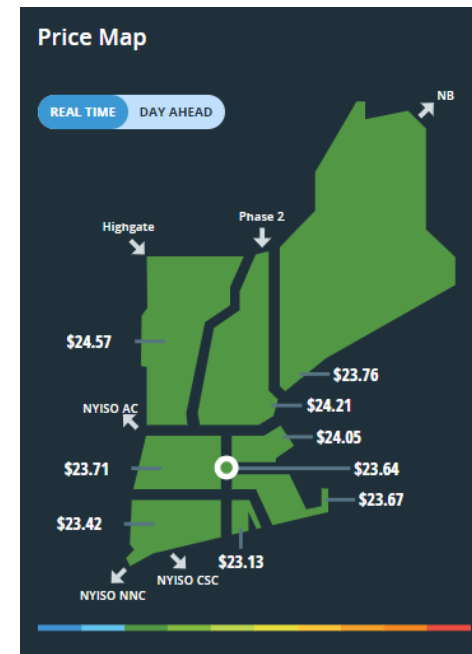
# Environmental Strategic Problem

- The U.S. and other nations are pursuing policies to increase renewable energy production: wind & solar
- Currently, fossil-fuel power plants are required to provide baseload and standby power for regions adopting solar and wind
- Supply chain for these fossil fuels is inefficient and inflexible
- Advantages of LNGC: improved vessel efficiency, flexible deployment, and the potential to support renewable “e-fuels” in the future



# Domestic Strategic Problem

- Domestic natural gas cannot be transported to American consumers via waterborne vessels
- Lack of reliable power and fuel creates energy insecurity
- Example: New England
  - Predominantly natural gas-fired power grid
  - Lack of adequate and redundant pipelines
  - Currently import foreign LNG
- Other examples: Puerto Rico & Hawaii



## Domestic Strategic Problem (Cont.)

- The U.S. cannot adequately protect our domestic energy supply if we cannot transport it with domestic assets
- A pipeline can be shut down for various reasons, including environmental regulation, damage, sabotage, or cyberattack
  - LNGCs can be a “virtual pipeline” in times of need and provide redundancy



# International Strategic Problem

- The U.S. cannot deliver domestic natural gas to allies using U.S. ships
- Without domestic LNGCs, we cannot promote American energy effectively, leaving us vulnerable to exploitation



# Obstacles and Historical Concerns

- Technical capabilities and regulatory pathways to produce LNGCs have fallen behind
- Lack of a clear path, even resistance
- Previously, there was concern that market demand would not support investment in a Jones Act LNGC fleet





# Solution

- Incrementally seed a Jones Act LNG Carrier Fleet  
Simple as 1-2-3!



# Step 1: Develop U.S. Capability to Produce a Small (12K) Membrane-Type LNG-Carrying Barge

- Jones Act 4K and 5.5K Type-C (pressurized) LNG ATBs have been and are being built
- Jones Act 2.2K Membrane Barge has been built and is currently operating
- Jones Act Type-C 12K Barge was recently delivered
- Jones Act 12K Membrane-Type LNG Barge ATB can be designed and built domestically now!

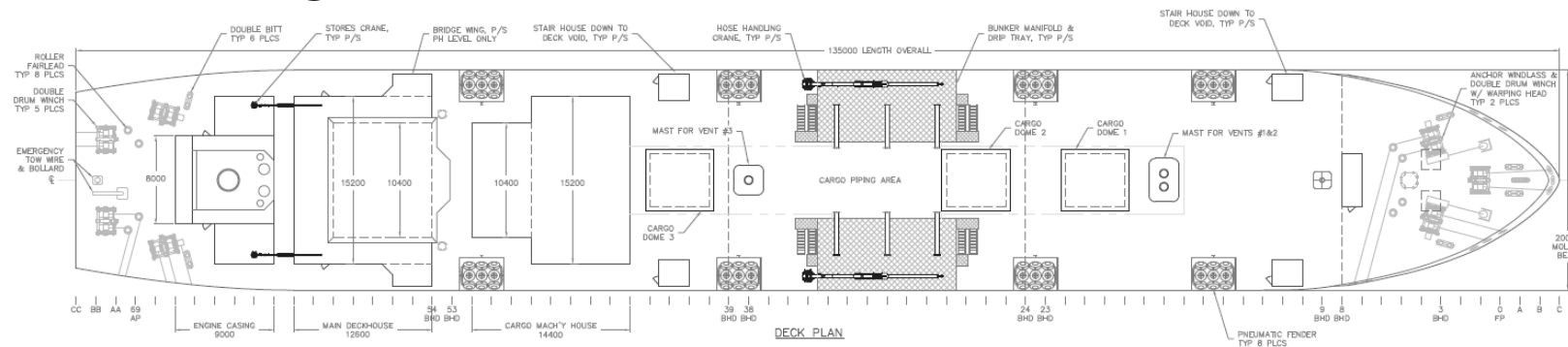


STEP 1 IS COMPLETE!



## Step 2: Develop U.S. Capability to Produce a Small (12K-20K) Membrane-Type LNG Carrier (Self-Propelled)

- A carrier is required in place of an LNG ATB because the LNG ATB cannot be scaled
- Keeping the first domestic LNGCs approximately the same size as the 12K-20K LNG ATBs that can currently be built removes construction risk
- LARGE regulatory challenge must be mitigated to bring this conceptual design to life (Ex: CLEAN JACKSONVILLE)



## Step 3: Develop U.S. Capability to Produce a Large 174K+ Membrane-Type LNG Carrier

- Step 2 removed the regulatory risk
- Tier I shipyards capable of building the larger vessels can leverage the knowledge, skill, and vendor base of smaller yards that built the 12K-20K LNGCs
- Utilize crews trained on 12K-20K LNGCs



# Commercial Risk & Mitigation

- Risk
  - Concerns were raised in 2015 when punitive trade regulations were proposed
- Mitigations
  - Commercial prospects today are significantly improved, noting that domestic regions and Europe are now high-demand consumer markets for U.S. LNG
  - Government subsidies



# Regulatory Risk & Mitigation

- Regulatory Risk
  - The approval of a Jones Act 12K-20K LNG Carrier in Step 2
- Mitigation
  - A government subsidy to design both the 12K-20K and 174K LNGCs sequentially and to shepherd them through the long regulatory process



# Construction Risk & Mitigation

- Risk
  - Commercial risk to the shipyard
- Mitigation
  - Commercially attractive financing options subsidized or guaranteed by the government for both the 12K-20K LNGC and, eventually the 174K LNGCs
  - Using the same teams to build the membrane tanks or train the larger yard tank construction teams



# Crew Training Risk & Mitigation

- Risk

- The U.S. does not have a large pool of U.S. mariners trained to operate complex vessels such as LNGCs

- Mitigation

- Integral part of Step 2 is to support the oversized crews, including many mariners-in-training, etc.
- Operators will need support to cover the costs of training and additional crew
- Maritime academies and seafarer unions can be engaged to develop curriculum and place cadets





# Conclusion

- LNGC is a better technical solution than ATB
- 12K-20K LNGC could find immediate employment as bunker vessel
- Flexibility of LNGCs pays additional dividends in light of the emerging industry of “electrofuels”
- Developing a fleet of Jones Act LNGCs designed in the U.S. will aid in the development of the U.S. industrial capacity

# Questions/Comments?

Thank you for your attention!

