

Progress Update

Collaboration

- 1) DOD Hydrogen Interagency Taskforce (HIT) – continued engagement
- 2) DOT/MARAD – Dan Yuska to present in March; attending today
- 3) DOE – Josh Messner at last meeting
- 4) NREL – additional Navy/NREL discussions yesterday and tomorrow

Consortium Feedback

- 1) Held meetings with majority of researchers; please reach out with any additional feedback
- 2) Summary responses - see next slides
- 3) Way forward

Feedback - Questions Posed

- 1) - What if any suggestions do you have about how best to utilize everyone's precious resource (time) most effectively regarding the consortium meetings?
 - Are there specific topics or speakers you would like us to bring in?
 - Aside from the update presentations on the various research projects, how best would you like to see the monthly meetings utilized?
 - We have started having some meetings with only the researchers and some with external partners invited; is this working for you?
- 2) Are there specific research areas, outside of what was funded in Year 1, that you think we are missing or could/should investigate further? If so, do you have colleagues in mind that are working these areas that we should reach out to?
- 3) Is there any direct support you need from the ONR/NPS team in your current effort?
- 4) Any other thoughts or suggestions that you have to make the consortium as successful as possible?

Feedback – Summary & Suggestions

- Allow more time for discussion after speaker presentations
- More dedicated time for researcher collaboration
 - What are the next steps to decarbonize in the various research project areas?
 - Discuss collaborative demonstration plans as the research advances
- Suggested speakers/topics
 - Engine suppliers, OEMs, etc. regarding their key challenges and decarbonization pathways
 - Commercial entities regarding what they are doing on decarbonization, e.g. Maersk
 - Navy transition partners - discuss transition requirements, alignment, system integration and valley of death challenges
 - Other DOE offices – what are their challenges and what they are prioritizing
 - Shipyards? Include the smaller players/less conventional shipbuilders

- Other potential research areas
 - More fully explore the fuels landscape, including RD; what challenges will these new fuels introduce?
 - Carbon Capture – lots of industry interest; how are we storing?; marine CO2 removal?
 - Material durability concerns

- Ship visit(s) to get first-hand view of propulsion system(s) and SWAP challenges
- Can Navy supply F-76 to the various teams so that everyone is testing/analyzing with an identical sample?

- Leverage this research group to advance the roadmap by taking deeper dive into the 5 identified Key Thrust Areas from Year 1 Roadmap
- Encourage student engagement and build that community