

Project Title: Marine Transport: Documenting the need for value-chain collaborative approaches to achieve decarbonization

Project Abstract (Brief Description): For over a decade, there has been a growing focus on decarbonization in the transportation sector. In the marine shipping sector, that effort has primarily been focused on international shipping, with less attention to U.S. inland and coastal waterways. There have also been no formal, coordinated efforts among the many and varied stakeholders that make up the marine freight shipping sector in the U.S., until now. In 2021 the Blue Sky Maritime Coalition was formed to accelerate the decarbonization of waterborne freight transportation in the U.S. and Canada in a manner that is commercially viable. The non-profit coalition has gathered a wide range of members that represent the entire marine transport value chain including ship builders, coastal and inland river freight operators, insurers, lending institutions, marine fuel providers, the top trade associations, standard setting organizations, and many more. This Coalition is the first of its kind in the US, and this project will undertake to document and understand the varied perspectives and goals of the wide-range of stakeholders, as well as what factors can lead to successful coalition outcomes. The results of the proposed research study will serve as a baseline from which important lessons can be learned as the work of the group develops over time. The project is a critical first step in determining what factors may lead to eventual successes and challenges to decarbonization when convening a multi-stakeholder effort in the transportation industry. The project will conduct in-depth interviews and surveys of dozens of Coalition participants representative of the entire marine shipping value chain, and gain unique insight that can be used as a baseline as the work of the Coalition develops. Our study will examine: (1) factors that led the member to participate in the coalition; (2) How concerns about competition and confidential business information were weighed and addressed when deciding to join a coalition with industry peers; (3) What were the goals of the member in deciding to join the coalition; (4) Considerations that impact the types or level of resources the member may commit to the Coalition; (5) The types of benefits and frequency of interactions the member expects from the Coalition; (6) Expectations for Coalition outcomes over selected time frames, one year, two years, and five years; and (7) How prepared the member’s industry sector is to operate and thrive in an economy that is moving towards a low- and no-carbon future. The information collected in this first-of-its-kind study will serve as an important foundation to understanding the role of coalitions in accelerating decarbonization, in particular in the marine shipping sector, how they can best be established and function for success over time, and how coalitions can potentially be scaled to other transportation industry sectors that are also facing the transition to a lower carbon economy.

Describe Implementation of Research Outcomes: Disseminate project results using various media and as discussed below in Technology Transfer Activities to raise awareness among marine shipping value chain participants, researchers, and interested stakeholders.

Impacts/Benefits of Implementation: This project will inform the marine shipping sector—but also other transportation sectors—of the utility, benefits, and challenges of undertaking value-chain coalitions to reach decarbonization goals. It will also provide a critical baseline against which to benchmark future outcomes and successes or challenges of the coalition. This work will improve our understanding of the role of value-chain coalitions to decarbonize integrated and complex transportation sectors. Importantly, the project will also aid planners and policy makers in better understanding the incentives or policies that are needed to make decarbonization of marine shipping a reality on the time frame

currently envisioned both by the U.S. administration and globally to reach climate change goals. Finally, the project fills a substantial knowledge gap by obtaining perspectives from the entirety of the marine shipping value chain on these critical issues.

Web Links: martrec.uark.edu

Budget (Funding) Amounts & Source(s) (US DOT +Match(s) =Total Costs): USDOT (MarTREC) funds: \$99,999; matching: \$50,000. Total Cost: \$149,999.

Project Start and End Dates: January 1, 2022 – August 30, 2023. Complete

Principal Investigator(s) and Contact Information: **Dr. Leah A. Dundon** (ORCID No. 0000-0003-4707-355X, Research Scientist, Vanderbilt University School of Engineering, PMB, 351831, 2301 Vanderbilt Place, Nashville, TN 37235-1831; phone: 615-428-0643; email: leah.a.dundon@vanderbilt.edu); **Co-Principal Investigators: Dr. Craig Philip** (ORCID No. 0000-0001-9564-6418) Research Professor of Civil and Environmental Engineering, PMB 351831, 2301 Vanderbilt Place, Nashville, TN 37235-1831, phone: 615-322-6013, craig.e.philip@vanderbilt.edu); **Dr. Mark Abkowitz** (ORCID No. 0000-0002-7278-1008, Professor of Civil & Environmental Engineering, PMB 351831, 2301 Vanderbilt Place, Nashville, TN 37235-1831; phone: 615-343-3436; email: mark.abkowitz@vanderbilt.edu).

Principal Investigator Institution (University): Vanderbilt University