BLUE SKY MARITIME COALITION

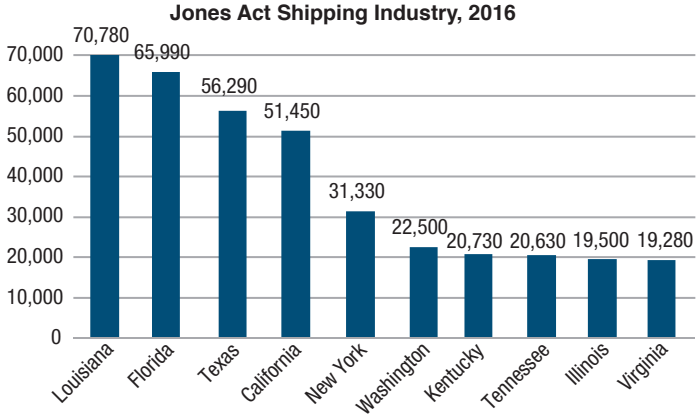
Accelerating the Transition of Water-borne Transportation in Canada and U.S. Toward Net-Zero GHG Emissions

U.S. Maritime Sector Creates Jobs, GDP and Taxes

Total Operational and Capital Investment Impacts of the Jones Act Shipping Industry on the U.S. Economy, 2016

	Direct Impact	Indirect and Induced Impacts		Total Impacts
		Operational Impact	Capital Investment Impacts	
Employment	95,470	530,180	22,570	648,220
Labor Income ($billions)	$8.1	$32.2	$1.3	$41.6
Value Added ($billions)	$17.5	$52.8	$2.1	$72.4
Output ($billions)	$54.0	$96.7	$4.1	$154.8
Tax Impact ($billions)	$4.0	$12.4	$50.5	$16.9

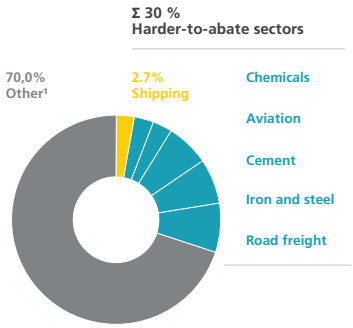
States with the Most Jobs Attributable to the Jones Act Shipping Industry, 2016



Source: PwC calculations using the IMPLAN modeling system (2015 database).

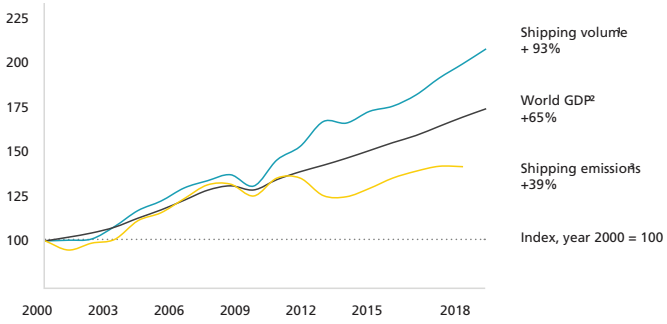
Global Growth in Shipping Volume and Increases in Harder-to-Abate Shipping Emissions

Global CO_2 Emissions by Sector[1]



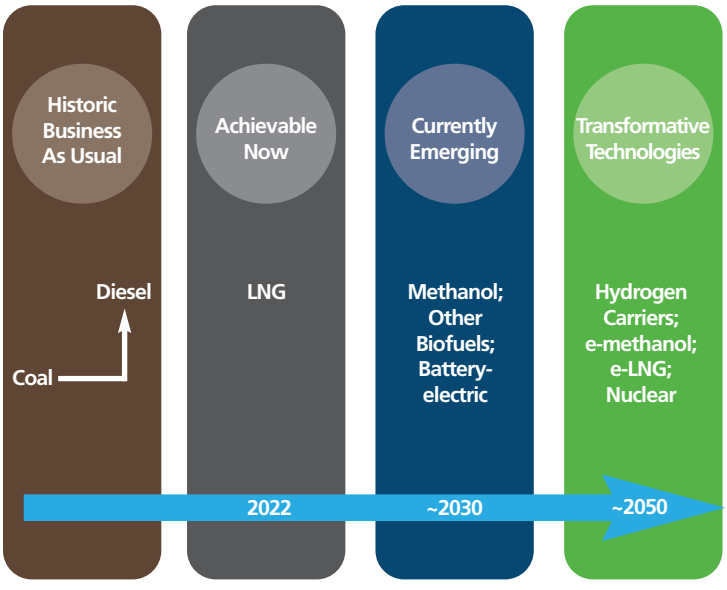
Source: IEA Energy Technology Perspectives 2017; IEA 2014 baseline value assumptions; Deloitte analysis.
Notes: 1) Other includes feedstock, buildings, light transport

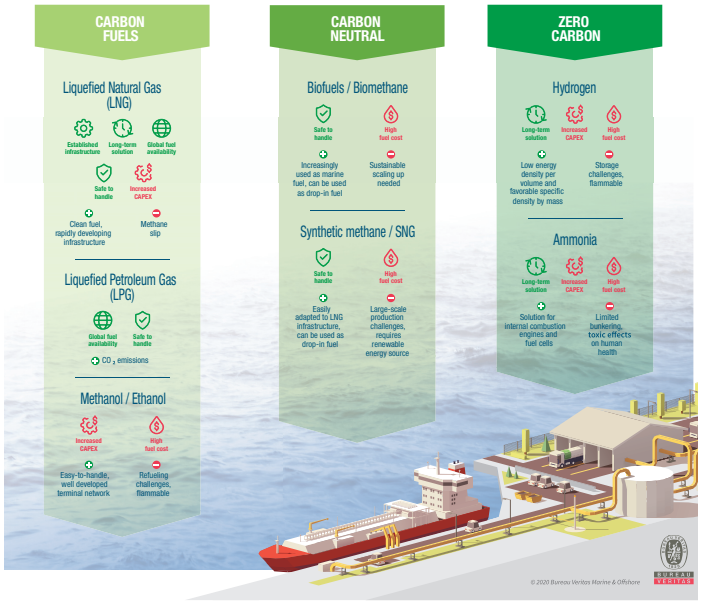
Shipping Volume, Emissions and GDP Growth



Source: UNCTAD; World Bank; IEA; Deloitte analysis
Notes: 1) Shipping volume indicates ton-miles (how many tons of cargo were shipped over how many miles);
2) World GDP in constant 2010 $, to eliminate effect of inflation; 3) International shipping shown, accounting for over 80% of global shipping

Long-Term Focus - Incentivizing Investment in Many Alternative Fuels to Reach Goal of Net-Zero 2050





We Need Coordinated Efforts to Plan for Decarbonization of the Domestic Maritime Industry.
We Need Support in Development of Alternative Fuels and Infrastructure.

August 2022

The Problem	The Plan	How Government Can Help
Reducing GHG Emissions in the Maritime Industry The maritime industry accounts for approximately 2.7% of global greenhouse gas (GHG) emissions. Many GHG reduction measures are focused on uniform global regulations aimed at international shipping. By contrast, the regulation of GHG emissions from domestic, inland shipping, and ports, varies from country to country, and are not structured to incentivize adoption of low and zero emission fuels, or new technology. **Challenges Developing Alternative Fuel** Many alternative marine fuel sources are being studied for use as additional bridge fuels and for long-term adoption, including ammonia, hydrogen, methanol, biofuels, and fusion technology. Alternative fuel vessels have the potential to achieve zero-GHG emissions but are not commercially viable because of costs (including investment in new infrastructure), safety, the need for new training and regulatory standards, fuel availability and the need for development of production techniques using 100% renewable energy. **Challenges Utilizing Alternative Fuel - Infrastructure** Domestic & international shipping rely on traditional fossil fuels and existing infrastructure that has been in place for more than 75 years. The current infrastructure—pipelines, storage facilities, barges, etc.—does not support alternative fuels because it has been purpose-built for these specific GHG-producing fuels. Infrastructure development must support all likely alternative fuels and allow for evolution of fuels and other GHG reducing technologies. New and upgraded infrastructure is also required to support adoption of alternative fuels, including bunkering infrastructure, supported trade routes, and adequate fuel supply. **Challenges Regulating Alternative Fuel** Achieving net-zero GHG emissions for the maritime industry means a transition to low and zero emissions fuels and propulsion systems, but alternative fuels require the surrounding value-chain infrastructure to support delivery, regulation, and onboard use of those fuels. It requires long term, strategic capital investments in vessels and shoreside infrastructure, and innovation from pioneering industry leaders. Outmoded domestic regulations, intended for older technologies and infrastructure, currently disincentivize such investments and innovation.	Blue Sky Maritime Coalition recognizes the need to address global climate change and is committed to accelerating the transition of waterborne transportation in Canada and the U.S. toward net-zero GHG emissions. To that end, the maritime industry is working hard to leverage short term emissions reductions, utilize currently emerging technology and support the development and use of transformative fuels and technologies. While much remains to be done to reach our goal, the maritime industry continues to make significant progress toward a net-zero future. **Short Term Emission Reductions – In Use Now and Expanding** Segments of the U.S. flag, deep draft oceangoing fleet have made considerable progress and long-term investments transitioning to Liquid Natural Gas (LNG). By the end of 2023, several U.S. carriers will have multiple vessels powered by LNG. LNG is both a bridge fuel – to allow immediate positive impact while alternative fuels are being developed – and a potential long-term solution with the development of additional carbon and GHG capture technologies. The domestic maritime industry is also working to develop and implement operational efficiencies that can make an immediate impact while longer term solutions are being developed. North American ports and terminals have made investments in green projects from coast-to-coast, including microgrid projects, port electrification and zero emissions terminal equipment and vehicles. **Medium Term - Utilize Currently Emerging Technology** In addition to further LNG adoption, hybrid and fully electric vessels–such as tugboats and ferries–are also being introduced as battery technologies (size and range) advance. Bioenergy will also play an essential role in the near-term transition to GHG neutrality. Methanol and biofuels show substantial promise but their GHG emission reduction potential is heavily dependent on the life-cycle emissions of their bio-sourced feedstocks. **Long Term - Net-Zero with Transformative Fuels & Tech** Future fuels under development include hydrogen, ammonia, methanol, fuel cells, wind energy and nuclear propulsion. Increased availability of renewable energy will be critical to achieving net-zero—from the use of battery technology that depends on electricity production for re-charging to the ability to produce green-hydrogen, synthetic LNG (e-LNG), and e-methanol. Renewable energy is a cornerstone of achieving net-zero and is also inherently linked to nearly all the alternative fuel-sources.	**GOVERNMENT TO COLLABORATE WITH INDUSTRY** Government must work with industry to develop clearly defined, attainable, and practical domestic GHG emission standards for U.S. Flagged vessels not currently covered by existing international regulations. Canada and the U.S. (including individual states and provinces) should harmonize efforts and regulations with international bodies as relates to GHG emission requirements to avoid unnecessary disruptions to cross-border commerce of waterborne vessels. Collaboration between industry and government can be enhanced by the creation of National Centers of Expertise, Advisory Committees, and/or appointing lead agencies. **GOVERNMENT FUNDING & INCENTIVES** Fully fund all relevant maritime transportation & infrastructure programs to reduce GHG emissions in the maritime sector, like the U.S. Maritime Administration's Marine Environmental and Technical Assistance Program (META). Provide funding and grants for research and development, demonstration projects, and infrastructure construction, as well as for existing vessel improvements in domestic shipyards. Provide appropriate tax and other incentives to close the cost gap between conventional fossil fuels and alternative fuels; foster development of new technologies; facilitate construction of infrastructure; and incentivize efficiency upgrades for existing vessels. **FOCUSED & CONSISTENT REGULATION** Appropriately tailored, flexible, and consistent regulations are needed to encourage private long-term investment in new technologies & infrastructure. Regulations should allow for innovation and development of best fit solutions for all stakeholders, taking a holistic view of the supply chain and GHG reductions. This includes amending the EPA's renewable fuel standards to include oceangoing vessels as part of the designated transportation fuels. Removing barriers to certification and implementation will spur innovation, expedite application, and drive the investments needed for GHG emissions reduction in the maritime industry.