Greening Ports:
What it Means in a Cleaner World

By Gordon Feller

So far, 2020 has shown that "sustainability" is no longer just a buzzword. Intersecting trends have converged to create new levels of urgency regarding sustainability and the greening of ports.

Ports continue to operate under heavy pressure to "green" their operations and the activities connected to their ports. These pressures are being exerted by governments, the public-at-large, media, and the larger and smaller businesses that have decided to make a priority of reducing their environmental effects.

Within logistics, transport creates the largest environmental footprint, but the volume of emissions can vary greatly, depending on the mode of transport. The volume of emissions created per ton/per mile increases by an order of magnitude from maritime to land transportation, and then to air transportation. This is only one element of the complex logistics picture that is often missed by supply chain operators.

Ports are helping to reduce emissions from ships, including cold-ironing systems such as the AMP shore power program at the Port of Los Angeles. Photo courtesy of the Port of Los Angeles.

Logistics experts typically integrate freight modes and other related activities so that transport/distribution networks are used in the most efficient manner, and this is important for keeping emissions in check. Depending on the type of industry and geographical region, supply chain operators can place varying emphasis on the reliability of supply chains, as well. In summary, supply chain choices typically include multiple criteria and trade-offs, and this makes an analysis of their environmental impact complex; the most environmentally friendly choices do not only depend on mode of transportation, but also on other elements, such as efficiency and reliability.

A wide variety of initiatives are being undertaken by cities and states as they drive to address the sustainability of their ports. Four types of these are worth listing here:

Low-emission zones.

These are designated urban areas in which a minimum standard for environmental performance is set for all vehicles. Freight vehicles that do not meet the standard are excluded from the zone. LEZs have been established in several European cities including London, Copenhagen and Milan, reporting significant local reductions in both PM and NOx emissions.

Port gate pricing.

The goal is to use pricing to shift truck usage of port gates to hours with less traffic. The prime example to cite here is the PierPASS program in California. PierPASS charges a fee for every container moved in or out the Los Angeles and Long Beach ports between 8:00 am and 5:00 pm. This has resulted in shifting 30 percent of the traffic to off-peak hours. (PierPASS is a not-for-profit company created by marine terminal operators at the ports of Los Angeles and Long Beach in 2005 to address multi-terminal issues such as congestion, security and air quality.)

Truck emission reduction programs.

Drayage trucks, used in moving containers and cargo short distances between ports and other facilities, are often more polluting than long distance trucks. For example, two West Coast ports - Seattle and Oakland - have offered incentives to truck owners to accelerate their use of cleaner fuels and their replacement of aging equipment.

Ocean vessel emission reduction programs.

Ocean vessels are the largest contributor to particulate matter (PM) emissions emanating from ports. Since ocean vessels are not subject to local regulations, some governments (European and U.S.) have developed incentive programs to reduce speed, use cleaner fuels and minimize waiting times near the port.

Executives are increasingly mindful of what might be called "the systems-perspective". In this instance, it

means that the logistics system, the distribution network, the delivery routes, and the final delivery are all linked, and they're managed (mostly) by private-actors including brand owners, wholesalers, retailers, logistics providers and truck owners. The combination of thousands of logistics systems together enable the urban freight system. Each company shares the city infrastructure, competes for talent, resources and customers, and they operate under common market conditions and regulations, common infrastructure, common land-use restrictions and other urban policies.

To address the big challenges, the Heads of State of more than 200 countries have worked together at the United Nations and adopted the "2030 Agenda for Sustainable Development". This plan of action "for people, planet and prosperity" has, at its core, 17 Sustainable Development Goals (SDGs) and 169 associated targets.

These government leaders see ports as links in global supply chains. At the same time, these governments recognize that ports are embedded inside urban and regional communities. As a result, the world's most advanced ports are responding in new ways to worldwide challenges, while also working to add value to international supply chains.

Working in close concert with one another, four organizations – the American Association of Port Authorities; the European Sea Ports Organization; AIVP–The Worldwide Network of Port Cities; and the World Association for Waterborne Transport Infrastructure – signed up as Founding Partners of the World Ports Sustainability Program. The initial focus has been on implementing the UN's SDGs along several lines:

1) Resiliency for port infrastructure

Executives concerned with port infrastructure are anticipating demands of maritime transport and landside logistics, resilience to changes in climate and weather conditions and developing in harmony with local communities, nature and heritage. Priorities include new thinking for port planning and port design; upgrading public-private-partnerships; better eco-financing; climate resilience; working with nature; ecosystems management.

2) Emissions and energy challenges facing ports

Ports are collaborating to refine and develop tools to facilitate reduction of emissions from shipping, port and landside operations. In addition, they are taking initiatives to enable energy transition; improve air quality; and stimulate circular economy. Priorities include energy efficiency; circular economy; bio-based solutions; renewable energy; infrastructure; clean ship incentives; deployment of alternative transport fuels.

3) Community outreach and port-city dialogue

Ports are collaborating with port-adjacent communities to solve shared problems, both inside and outside the port area. These include: hinterland bottlenecks; training and education; marketing and promotion; innovation.

The need for sustainability in the world of supply-chain and transport logistics is now widely recognized, by both governments and private companies, as a key driver of both competitiveness and economic development. With the support of the government of the Netherlands, the World Bank established an important initiative to make sustainable logistics much more than just another slogan. It established the Multi-Donor Trust Fund for Sustainable Logistics (MDTF–SL), the first of its kind anywhere in the world.

MDTF-SL has been breaking some new ground by exploring innovative ideas that deliver practical solutions, methodologies and approaches in sustainable logistics.

Some of these ideas include developing transport corridors and logistics services, while minimizing the emissions associated with the delivery of goods. By allowing for trade patterns and product value chains to be built sustainably, the "greening" of supply chains improves the competitive positioning of developing country exports, particularly in those industries and production value-chains whose emissions are being monitored.

Not wanting to be caught flat-footed, The European Union is pushing ahead rather aggressively. Under the umbrella of the EU's "Juncker Plan", and of the EU's "Connecting Europe Facility", the Dutch-based bank ING has joined with the European Investment Bank (EIB) to finance a €110 million loan to Spliethoff's Bevrachtingskantoor B.V., the Dutch ship management company.

The loan's purpose is to retrofit 42 vessels of Spliethoff's fleet with exhaust gas cleaning systems and ballast water management systems. Specifically, 17 vessels will be retrofitted with both exhaust gas cleaning systems and ballast water management systems, 5 vessels with exhaust gas cleaning systems and 20 vessels with ballast water management systems.

This will enable Spliethoff to become compliant with International Maritime Organization (IMO) and EU regulations governing air emissions. It will also prevent the release of seaborne pathogens that are harmful to the marine environment. The EIB loan will be supported by the European Fund for Strategic Investments (EFSI), the main pillar of The Investment Plan for Europe, as well as the "Connecting Europe Facility" (CEF).

The retrofitted vessels will operate with significantly reduced emissions of sulphur oxide (SOx) and particulate matter (PM) pollutants and prevent the sea borne transfer of invasive species and diseases in ballast water.

Michel Fransen, CFO of the Spliethoff Group, made it clear that his company has "been installing scrubbers on our fleet since 2013 and are very happy with the results so far. Scrubbers are a very environmentally friendly solution to comply with the 2020 regulations. LNG or hydrogen may have the potential to become even better alternatives in the future, but only in the longer term. The investment in scrubbers also safeguards the interest of our shareholders against uncertainties in fuel availability and pricing."

The project is intended to contribute to a modal shift in which, instead of by road, goods are transported by sea, which is considered the most sustainable transport mode for this type of cargo. PMM