



Comment by
Per Olof Jansson,
LNG in Baltic Sea Ports'
Project Leader:

W According to my experience which I have gathered in shipping for many years, containerization has made big progress. We have so many things transported in containers today, unimaginable just a few decades ago. Most of the goods carried between Asia, Europe, and North America come in steel boxes, and this is why the ports must change as well. They need to adapt to such challenges, like for example bigger vessels – of 18 thou. TEU and more. The pace of ships' growth is spectacular, we must remember that some 25 years ago a regular container carrier had a capacity of 1-2 thou. TEU.

Financing is the biggest future challenge to transport. We are observing this right now as many shipping lines are having problems not with their efficiency, but with money flow, Hanjin as the most up-to-date example. Ship-owners have too many vessels because they expected that the market would grow much faster. This challenge is rather short-term, we can see that this situation has impacted shipyards, which have witnessed a big cut in the newbuilds. This is of course just temporary, I have observed similar crises in the past, and after a few years everything was in order again.

Nowadays, there's also much more focus on exhaust emissions from vessels. There are debates on how to build more environmentally-friendly ships, and reduce emissions, therefore I think that transport will go more towards this way. If we look at ocean shipping, fuel consumption will be more efficient, and scrubbers will become more popular. The innovations will go in this direction, I think everybody would like to have clean air and an uncontaminated environment. The focus should be put on the ship-owners so that they can provide good and clean service.

Another innovation on the horizon is Liquefied Natural Gas (LNG), becoming a ship's fuel of the future. Although low oil prices have made the gas not as popular as it could be, I'm sure that there will be more ships running on LNG in the future, particularly new ships with dual-fuel engines. The possibility of selling a ship at any time is very important to a ship-owner, therefore, this is what's going to be on the stage over the next few decades.

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Comment by
Andrius Sutnikas,
Cluster Manager at Lithuanian
LNG cluster, and Klaipėda Science
and Technology Park's
Communication Manager:

V V *Liquefied Natural Gas (LNG) projects have changed the market significantly. If we take the last decade, I can say that the growth has been really amazing. In Lithuania we had no such infrastructure, and during a relatively short period of time we have managed to build the import terminal Independence, and the small-scale ports infrastructure. But similar processes also happened on a regional level – in the whole Baltic Sea region growth of the LNG market is visible. If we want to sustain this trend we must provide the market with indispensable infrastructure, which will enable the use of LNG in other sectors than good ol' energy – I mean transport, chemical business, etc. We took the first step, the gas is accessible, but now we need to take another step forward, to popularize LNG among other sectors.*

I believe in a bright future for LNG despite low oil prices. I believe in a future for LNG even now that the oil price plays a huge role in the competitiveness of LNG as a fuel, but we are facing environmental challenges in the world and we need to take the action, so political support for LNG is there; we have environmental regulation zones expanding, and the demand for clean fuel and LNG applications in transport and other industries is growing.

In Lithuania we are now trying to develop the basis we have built, and apply business models. It's a complex and challenging process, because you cannot cater to the market with a product, you must come with a solution. Just to give you an example – if I were to sell LNG-powered trucks, I would need to provide the whole value chain – the gas, the bunkering infrastructure, and finally the trucks. Otherwise it would not work. This is the goal for Lithuania, but this is also a task for Poland, as it will soon have its own LNG cluster. This is my advice for all parties intended, and I'd also like to stress that a cross-sectoral approach helps a lot while working on the LNG spread.

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Comment by
Ulrika Roupé,
Project Manager at SSPA Sweden:



W Sea transports of the European Union account for more than 90% of external and over 40% of the internal cargo traffic. On the one hand, ships have the lowest energy demand of all transport modes per one tonne of carried goods, but on the other, criticism is directed towards the shipping industry for being a source of pollution, and not working hard enough to minimize emissions. In the ongoing discussion on climate change, the sector must therefore join forces to minimize its environmental footprint, keeping in mind the economic gains, and avoiding the heaviest criticism. Ports play a crucial role here as well, by providing support, and facilitating the environmental adaptation of shipping. Caught by the spell of the myth that these solutions imply extra costs, SSPA has shown, from many years of experience of environmental issues within the maritime industry, that the opposite is very likely to be true instead.

Carbon dioxide is the primary source of global warming. About 30% of it comes from the transport sector. Out of this number, sea shipping is responsible for a relatively small portion – at about 1.8%-3.5%. However, it has an impact on many other aspects of the environment. Human health is affected by many of the substances found in the emissions, such as particulate matter (PM), ozone, volatile organic compounds (VOCs), and nitrogen oxides (NO_x). Exposure to such substances can lead to severe public health problems. The local flora, such as trees and plants is also damaged by ship emissions. Buildings, and materials can be negatively impacted as well. Ecosystems and freshwater quality are affected by acid rain which comes from emissions of sulphur and nitrogen oxides.

There are several reasons why the Baltic Sea region and its neighbouring countries can be seen as good examples of eco-works. First of all, they have a long tradition of environmental protection. The Baltic Sea countries have a well-developed infrastructure for port waste reception facilities, supporting the ships and giving incentives for eco-friendly improvements. Secondly, the implementation of the SECA regulation in the Baltic Sea was the start for further green investments, and shifts towards alternative fuels for shipping.

SSPA currently manages several maritime environmental projects. Our role is to advise stakeholders in the maritime sector, and provide environmentally-compatible improvements and solutions. In recent years, we have published a lot of expertises on different measures and concepts, and their respective increase in efficiency or reduction in emissions. It is often difficult for a decision-maker to decide on the concept of choice. Therefore, we provide advice and suggestions on how to improve the environmental performance of ships in operation, and on the construction of new ships.





Comment by
Wim Stubbe,
 the Port of Oostende's Business
 Development Manager:

W What I can see from our perspective is that especially smaller and medium-sized ports can specialize, taking care of all activities that can be done in water, and at sea. And this is not only things done in a shipyard or ship-repairs, which is very traditional, but also aquaculture, subsea constructions, new technologies applied at sea, so there are many things that can be taken into account. Based on my own experience from the Port of Oostende, I can say that this is a success factor especially for smaller and medium-sized ports – we can play a major role in giving all kinds of services to the local industry, as we'll never be able to compete with Rotterdam, Hamburg, or Le Havre on the freight flows side.

This can be seen as an alternative to traditional logistics and the credo of simply “putting containers from one side of the port to the other.” So what I want to stress is that ports can and should find their niche, a space for development independent of mainstream logistics. This will positively impact traditional, local industries, because there will be a different economic scenario for endless queues of trucks waiting to enter the port. More precisely, I think of boosting the metal and textile sectors, construction companies, or all kinds of businesses that can divert and switch themselves towards the sea and maritime sector. Finally, I must underline the importance of the energy sector, offshore wind farms as the most obvious example, where ports can play a constructive role in offering specialized services.

Speaking of the traditional maritime sector, I can see a huge shift, especially when it comes to fuelling the ships, and I mean both ship propulsion, as well as the production of energy within the ports, aiming at a zero emission strategy. Quite recently news was spread around that the biggest Norwegian cruise line – Color Line – is going to build a zero emission hybrid ferry. In my view, this is a revolution. Investments in LNG-powered engines are not fantasies, they are something obvious. But not only ships have cleaner energy – there is also a growing need for green energy in ports. They are more and more electricity-independent, which means that they will produce their own electricity out of wind, sea or sun, and what's more they deal with their waste as well. In turn, shipping operators also try to make shipping cleaner. In general, something which was extra years ago is a standard nowadays.

For instance, I can refer to our project which kicked off in Denmark in November 2016, (Dual ports, find more information on www.northsearegion.eu/dual-ports), dedicated to small and medium-sized ports in Denmark, Germany, Scotland, the Netherlands and Flanders. We are going to promote low carbon management, so it touches upon LNG – not only for ships but also for trucks – but also with others the Blue Economy matters, namely a focus of the project is on re-using waste. Instead of carrying it hundreds of kilometres away from the port, we are going to make use of it at ports. It can be a good source of energy and, of course, will lead to further development of the regional port sector. And what to think about changing the skin of fish into fish leather?

When I think of the Blue Economy's challenges, I can definitely point to the national and international legislation, not recognizing that the sea is a major source of development. The sea is far away from the capital cities, as well as from the decision-makers, and it seems to them that it is not worth spending time and money on the sea. Second, financing schemes are mostly defined for short terms, but the sector needs to have a long-term financial support. The reason is that working on the sea is more difficult and 3-5 times more expensive than doing the same things inland. The third challenge is valorising the quality of the products. This is also a part of the Blue Economy concept – why buy bad quality products anyway, it's better to do it in your neighbourhood! This will support such sectors as retail. There's no point in giving money to some big companies or, for example, buying fish in China – you farm better ones in Poland.

The Blue Economy has a lot of opportunities ahead for both ports and the neighboring industries. Let's just mention what I highlighted before – the development of traditional industries: metal, textile, construction, or some other very special sectors – just what's going on in the Port of Oostende. Here, some companies work both on land and sea, making use of their experience – for example using the technologies from land in the sea, because even land engineering in Belgium (sometimes below sea level) enforces the engineers to work with water. A revolution is also going on in the electricity, energy, and IT sectors, and although the sea is never the same, there are certain points that are shared, this is why cooperation is good: Industrial organizations like Flanders Maritime Cluster, Belgian Offshore Cluster, and research centers like VLIZ and ILVO have their headquarters at the Port of Oostende. They all add value to local industry.



Comment by
Przemysław Myszka,
Baltic Transport Journal's Editor-in-Chief:

W On the one hand, the fossil fuel lobbyists portray renewable energy as costly and erratic, while on the other, it would be impossible to turn off all coal-, oil-, and gas-powered plants virtually overnight. Neither is true nor possible. However, the man-made nature of the current climate change is being acknowledged more and more broadly, along with fairly high social acceptance for changing the business practice as usual. The question is: Can we afford (not to afford) a green transition?

Further aggravating climate change will backfire with severe weather events and alternations, bringing about a change for the worse both for us past our prime as well as for future generations. And while some may benefit in the short-term from e.g. better sun and vegetation cycles or year-long safe passage through the Northern Sea Route, it's highly probable that the world as a whole will face nature-caused damages, including a reduction in crop productivity (leading in turn to famine); water-related extremes (floods and droughts); rises in sea level (hence forced mass population displacement, not to mention numerous new Atlantises with architectural heritages lost under water); losses in biodiversity (e.g. due to ocean acidification); increased poverty and mortality, and the like.

Luckily, there are several bold and enterprising individuals, organizations, and companies out there, standing against the unsustainable practices of overconsumption or taking advantage of "cheap" oil prices. What distinguishes them from business as usual is not technology embrace per se – as gas fracking or tar sand extraction also putting in use the latest tech achievements – but a completely new focus. Some of them are real revolutionists, pursuing disruptive ideas like autonomous overland or sea fleets overseen by Artificial Intelligence, whereas others are evolutionists, grabbing inches of what was polluting or wasteful in the past,

and turning it into new eco-assets, such as installing Flettner rotors on-board a ship to cut bunker consumption via free wind power or inventing handy waste heat recovery equipment which converts hot water into electricity. One of the main advantages of such innovations is its productivity increase and/or cost-savings potential, meaning that we don't necessarily have to sacrifice one thing in exchange for some green gains, but we can have our cake and eat it too. Clearly, such breakthroughs need time, patience, and money to make their way onto the sometimes stubbornly conservative market of transport and logistics, but when widely adopted they can change the way we play the game of moving goods from one place to another.

Ports, both sea- and inland, can switch on to this greening trend. Energy from photovoltaics installed on buildings' rooftops, from wind turbines mounted anywhere possible, as well as from tidal waves can be stored in next-gen batteries, and distributed all over the ports' terminals through a local smart grid, hence avoiding region- or country-wide blackouts. Extensive automation (robots in warehouses, truck platooning, kilometres-long unmanned trains, intelligent cranes and other cargo handling equipment, etc.), cold ironing from renewables, 3D printing manufacturers on the spot (producing among others lightweight extra durable sections for absolutely new electric or energy cell-powered ships, which after many years can be recycled without harm caused to people or the environment), all of these interconnected via the Internet of Things and the Internet of Energy. It is now up to all involved parties to decide how they will use their own energy and resources. Positively, in being a proactive and foreseeing leader that motivates others to keep ahead of the pack, or negatively, in doing nothing or only what the new regulations impose reproachfully.



Comment by
Fabio Ballini (Ph.D.),
Lecturer at the World Maritime University:

W Energy management is becoming a top priority for governments and decision-makers. Seaports must face significant challenges impacting competitiveness, and this is why port authorities in Europe are the key players in the process of energy management plans implementation. We need to see the perspective of a 20% power savings target by 2020, set by the European Commission in 2014.

The United Nations General Assembly has furthermore adopted the 2030 agenda for sustainable development listing a bold set of global goals. In this respect, number seven aims at ensuring wider access to affordable, reliable, sustainable, and modern energy. In addition, its consumption has risen to the second position in the European Sea Ports Organisation's ranking of environmental priorities, published in the spring of 2016.

Harbours are increasingly aware of the importance of efficiency in reducing greenhouse gases and carbon dioxide. Therefore, energy management plans have further potential to increase ports' competitiveness. One key measure will involve raising the environmental profile of European terminals by providing guidelines and promoting the exchange of good practices and innovations. Energy efficiency should not be a one-off project, but a continuous, ongoing process where the planning and monitoring phases have a crucial impact not only on reducing externalities (congestions, air pollution, noise, etc.), but also result in the reduction of energy consumption, transit times, social cost, manpower, etc.

Savings in ports can be achieved as well with the support of new technologies, and by educating and training personnel. Among the different technological improvements that can improve energy management and therefore reduce costs are lighting technologies and control systems (LEDs). Other aspects include energy-efficient buildings, terminals and warehouses, the use and operations of machines and vehicles, eco-driving, and shore-to-ship power systems.

A good example of such sustainability may be the Port of Hamburg. In June 2015, the authority launched its smartPORT concept, which targets developing a sustainable energy solution, and profile. The port has adopted an ambitious plan in terms of increasing the efficient use of energy, the expansion of networks, and in particular the use of renewables, such as wind farm sites and solar panels in the port areas, as well as the assessment of biomass potential.