The UNCONTAINED

Breakbulk, Project and Energy Transportation News

Spring 2022

In-Depth Interviews

Dr. Habib Dagher
Potential of Offshore Wind

Stephen King
Quonset Business Park Developments

Felix Schoeller
Global Business of New Ships

AJOT
American Journal of Transportation

George Lauriat, Editor in Chief

George joined what would become the American Journal of Transportation in 1986, and has been Editor in Chief since 1988.

THE UNCONTAINED

Published by Fleur de Lis Publishing, Inc.
116 Court Street, Suite B
Plymouth, MA 02360

William Bourbon, Publisher
George Lauriat, Editor-in-Chief
Robert Kirk, Editor
Eric Nelson, Digital Media Director
Erin Thewlis, Digital Media Manager
Carole Lauriat, Office & Circulation Manager

EDITORIAL

Peter Buxbaum, Northeast Correspondent
Paul Scott Abbott, Gulf region Correspondent
Stas Margaronis, California Correspondent
Leo Ryan, Canada Correspondent
Matt Miller, Business Correspondent

SALES AND SPONSORSHIPS

Bill Bourbon, Publisher - Northern Region Sales
(617) 283-1680 • bbourbon@ajot.com
Carlos Valdez, Southern Region Sales
(305) 389-0774 • cvaldez@ajot.com
Ed Andrews, Europe Sales
+44 7880 702227 • ed@duvelmedia.com

[cover image]
Steel forge in full production.
See Biden Tariff Policy Revealed on Page 10.

Foreword

It is June of 2022. Within the breakbulk and project sectors there is promise tempered by trepidation. The promise is new industries like offshore wind taking off in the United States and opening up potential new industries and markets – a maritime gold rush unseen since World War Two. Besides the project business, there is also an increased demand for agri-bulks, minerals, and steel related products, basically an entire market sector of neo-bulk freight raising demand for breakbulk ships, not to mention overflows from the containership side.

However, these opportunities and others are tempered by geo-political events, notably, but not solely, the Russia-Ukraine conflict. The COVID pandemic is scrambling the supply chains, a new fear of inflation is slowing economic growth, the ongoing tariffs and now Ukraine war-related sanctions are adding to the trepidation.

In our first half of 2022 The UnCONTAINED magazine, all of the above are part of the narrative. Take *AJOT*'s Canada correspondent Leo Ryan's article on page 4, *Breakbulk Activity Rising in Ports Across Canada*. In this article, Montreal-based Ryan writes, "As the Canadian economy engages in a pronounced post-pandemic recovery following the largest contraction in decades in 2020, so is activity in the breakbulk sector of Canadian ports showing renewed dynamism." It's not only that Canada is beginning to emerge from the pandemic but with an infrastructure package of C$180 billion ($140.69 billion) largely undeployed, the project sector is expecting a big rebound. And then there is Canada's exports of forest products, farming goods and steel, filling ships, trucks and trains. All in all, breakbulk is booming in Canada and capacity is the issue.

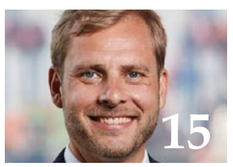
But the Russia-Ukraine war has certainly had an impact on the breakbulk sector, particularly on steel and other metals. As *AJOT*'s Northeast correspondent Peter Buxbaum observed in his article on page 8, *Russia-Ukrainian War Jeopardizes Regional Metals Supply Chains*, "Russia is one of the world's largest producers and traders of pig iron, steel, and aluminum. Ukraine is the world's 13th-largest producer of steel, exporting 17 million metric tons in 2021, and the fifth-largest exporter of iron ore by volume, at 44.4 million tons in 2021." The combinations of sanctions on Russian businesses and the destruction of Ukrainian steel operations are not only having an effect now with the war in full swing but also into an uncertain future.

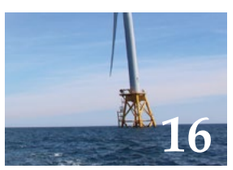
Buxbaum also delved into U.S. steel policy in his story, *Revealed Biden's Steel Tariff Policy*, asking the question of whether the Section 232 Tariffs introduced by former President Donald Trump and embraced by current President Joe Biden, will be walked back in a "new" era of rising inflation and slackening economic growth.

If there was ever a Cassandra of offshore wind power, it is Dr. Habib Dagher, Executive Director of the University of Maine's Advanced Structures and Composites Center (ASCC). Dr. Dagher, a structural and civil engineer with a PhD from University of Wisconsin holds more than 80 patents, most on technologies related to various aspects of floating wind power. In a wide ranging interview, Matt Miller, *AJOT*'s Senior Business Correspondent, examined the development and promise of US offshore wind power with Dr. Dagher. In the interview on page 16, Dagher discusses the building of what might be called his signature achievement: The VolturnUS, which the Center designed and built. It was the first grid-connected offshore wind turbine in the US and a pioneer in offshore floating wind, employing revolutionary designs that utilized floating concrete hull technology. The one-eighth scale model prototype launched in 2014, and the Center is now developing a full-scale, floating offshore wind turbine, scheduled to be constructed and launched in 2024.

If there is one big take-away from the first half of 2022 in The Uncontained, it is that while the breakbulk business is brisk there are plenty of challenges ahead for the sector.

Contents





Breakbulk Activity Rising In Ports Across Canada

By Leo Ryan, *AJOT*

As the Canadian economy engages in a pronounced post-pandemic recovery following the largest contraction in decades in 2020, so is activity in the breakbulk sector of Canadian ports showing renewed dynamism. This is especially reflected in robust steel cargoes and wind farm component shipments in response to demand for renewable energy projects.

Also driving the forward momentum is the federal infrastructure package of C$180 billion over 12 years that has barely begun to be implemented.

In this connection, transit projects dominate the list of top 10 public sector infrastructure projects currently underway or planned. Five transit projects are on the books in and around Toronto and Montreal. Ontario has two nuclear refurbishment projects in progress. A pair of hydroelectric projects are slated for Quebec and British Columbia. And there is the massive Gordie Howe International Bridge project over the Detroit River between Windsor and Detroit.

On the wind energy front, Robert Hornung, President, and CEO of the Canadian Renewable Energy Association, declares: "Canada is just starting to take advantage of its massive untapped wind and solar energy potential."

Canada ended 2021 with 14,265 MW of installed capacity, the lion's share situated in Ontario, Quebec, and Alberta but with new commitments coming from Nova Scotia and Saskatchewan.

Up till a few years ago, before world oil markets declined, the Alberta oilsands enterprises generated substantial shipments of heavy lift equipment. It remains to be seen what will be the impact for investments in the Alberta oil sector of soaring oil prices and supply chain concerns in the wake of Russia's invasion of Ukraine.

East Coast Breakbulk Trends

At the Port of Montreal, breakbulk activity has rebounded strongly from the COVID-19 world onslaught in 2020. Several terminals operated by Logistec and Empire Stevedoring (Bickerdike Terminal) can handle all types of breakbulk, general and project cargo, including out-of-gauge pieces. After declining to just over 64,000 metric tons in 2020, breakbulk volume climbed to 211,082 tons in 2021.

Logistec's Laurier terminals in several sections of the port are specialized in handling bulk, breakbulk, project cargo and heavy lift. Warehouses offer ample storage for such products as mineral concentrate, gypsum, fertilizer, and other commodities. The Logistec terminal in Section 98 provides a large laydown area for out-of-gauge project cargo near off-dock facilities.

As Atlantic Canada's largest seaport (in volume terms), Port Saint John (PSJ) in New Brunswick handles a diverse cargo base which includes breakbulk.

"Located within an FTZ, recent projects have included windmills and transformers arriving via both container, and breakbulk specific vessels," said Jane Burchill, communications, and sustainability specialist.

"On terminal, we offer a number of different weight bearing capacity piers depending on the project needs, 35 acres of open area for laydown, and over 550,000 square feet of dry warehousing options," she told *AJOT*.

"Come 2023, a new 2000 lbs per square foot pier will be open, providing additional options for breakbulk cargo owners. Coupled with three stevedoring options, an experienced unionized labor force, and access to competitive ancillary support services (including two Class I rail providers) PSJ ensures break bulk owners receive a one-stop service," Birchill said.

At the Port of Halifax, breakbulk is the main focus of Richmond Terminals and Ocean Terminals. These facilities handle substantial volumes of steel, project cargo and heavy lift. Non-containerized cargo, which includes breakbulk, is on the upswing, judging by latest figures showing volume of 553,809 tons in 2021 versus 385,793 tons in 2020.

CANADA IS JUST STARTING TO TAKE ADVANTAGE OF ITS MASSIVE UNTAPPED WIND AND SOLAR ENERGY POTENTIAL.

Steel industry-related cargo represented a highlight of the Port of Quebec's overall 2021 cargo throughput of 28.5 million tons – a 5.5% gain from 2020.

Situated between Montreal and Quebec City on the St. Lawrence River, the Port of Trois-Rivières has spared no efforts in the past few years to enhance its appeal as an intermodal, bulk, and breakbulk hub. Its C$130 million Terminal 21 project, which has received government funding, is the keystone of the On Course for 2020 development plan.

Multi-purpose vessels carrying wind farm components by such carriers as Spliethoff (on its Cleveland Europe Express service) are familiar sights at Trois-Rivières as they are at such other St. Lawrence waterway ports as Valleyfield, near Montreal.

Robust Steel Traffic on Great Lakes

On the Great Lakes, the Hamilton Oshawa Port Authority (HOPA) reports significant increases in finished steel for the transportation and construction sectors, and rail cargo has also doubled over the past five years. Infrastructure investments are proceeding to handle more general, breakbulk, and bulk cargo.

Last year, Hamilton Container Terminal launched a container feeder service with the Desgagnés from Hamilton to Montreal. This pilot shipment was supposed to have been followed by two others in 2021, but they did not materialize and latest plans are to stage two shipments in 2022 before progressing to 20 sailings in 2023.

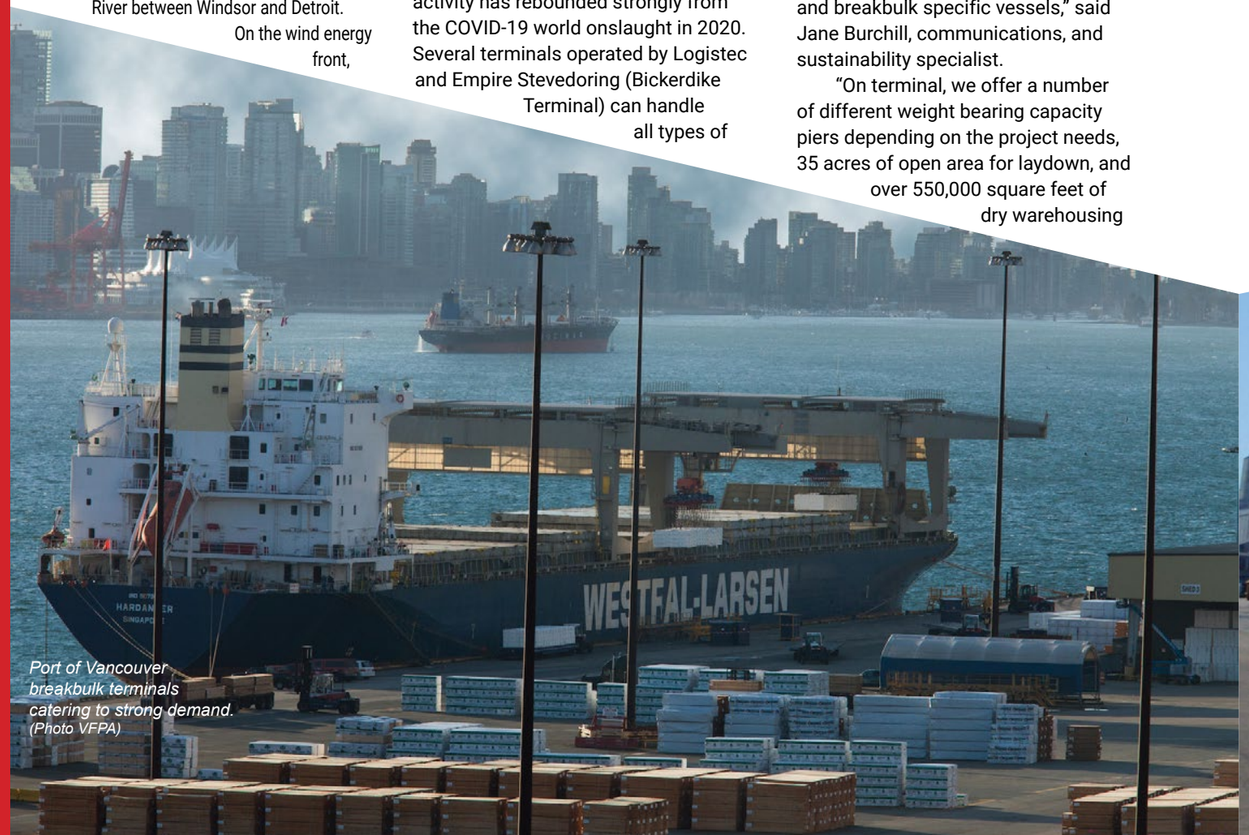
HOPA president and CEO Ian Hamilton strongly believes in competitive options for container movements through the Great Lakes amidst supply change challenges, highway, and coastal port congestions.

For its part, the Port of Toronto, maritime hub for Canada's biggest city and commercial centre, entered 2022 on a high note after reporting robust cargo traffic in 2021 – covering a range of bulk, project and general cargo products totaling 2.3 million tons.

This included 185,000 tons of steel – an 18-year summit – transiting through the port to construction sites throughout the Greater Toronto Area and currently the hottest real estate market in Canada.

The Port of Windsor has come off a banner year in steel and construction materials. Steel movements climbed by 300% to some 200,000 tons.

"The amount of steel and construction materials coming through the port tells you that our country is on the build, with roads,



Port of Vancouver breakbulk terminals catering to strong demand. (Photo VFPA)

Logistec Laurier Terminals in Port of Montreal specialized in breakbulk cago.

Steel rail products a major breakbulk activity at Port of Halifax.
(Photo credit: Steve Farmer)

buildings and residential homes all under construction," remarked Steve Salmons, CEO of the Windsor Port Authority. The port had 12 ships delivering steel in 2021 compared with two in 2020.

"We fully expect ongoing construction of the Gordie Howe International Bridge and local major road projects will once again keep steel and aggregate demand at sustained volumes," Salmons added.

On the tip of Lake Superior, the Port of Thunder Bay touts itself as The project cargo gateway for Western Canada and its 2021 cargo performance was encouraging in this regard, with the Keefer general cargo terminal more than doubling its volume to 44,070 tons thanks to steel and fertilizer shipments making big gains. Shipments of steel rail, pipe and dimensional cargoes included gas turbines and reactors for Western Canada projects. And 2022 looks promising with a number of large wind turbine shipments scheduled for the coming summer.

Capacity Challenges in Vancouver

On the Pacific Coast, the Port of Vancouver serves as a major consolidation centre for breakbulk cargo such as forest products, steel, and machinery.

Latest available figures show year-to-date volume in June 2021 and June 2020 totaling respectively 10 million tons and 7.3 million tons – a 36% spike.

Judging by the view of a prominent freight forwarder, however, demand has recently been outstripping terminal capacity at Canada's largest port on handling project cargo shipments.

"Suffice it to say there is too much cargo coming into Vancouver, not enough terminal capacity and not enough trucks to move the cargos inland," the project forwarder told *AJOT*. "Finding laydown facilities for interim storage of project cargos in and around the existing port facilities is the biggest challenge faced by both terminal operators and importers."

Breakbulk cargo is handled through one of two terminals at the port – the closest and arguably most competitive gateway for project cargo bound for western Canadian resource projects.

There is easy access to extensive road connections, as well as established corridors for overweight and over dimensional project cargoes. CN and CP railways service on-dock rail facilities at all 29 terminals and provide service to key destinations across North America. BNSF and Southern Railway of British Columbia (SRY) links further enhance these networks.

DP World Fraser Surrey is a multi-purpose marine terminal handling containers and breakbulk commodities such as general cargo, logs, steel, machinery, and project cargo. Lynnterm is the consolidation centre for forest products, steel, and other breakbulk commodities in the Pacific Northwest. It handles wood pulp and paper, lumber, panel products, steel products, project cargo, and machinery.of the Windsor Port Authority. The port had 12 ships delivering steel in 2021 compared with two in 2020.

"We fully expect ongoing construction of the Gordie Howe International Bridge and local major road projects will once again keep steel and aggregate demand at sustained volumes," Salmons added.

On the tip of Lake Superior, the Port of Thunder Bay touts itself as The project cargo gateway for Western Canada and its 2021 cargo performance was encouraging in this regard, with the Keefer general cargo terminal more than doubling its volume to 44,070 tons thanks to steel and fertilizer shipments making

big gains. Shipments of steel rail, pipe and dimensional cargoes included gas turbines and reactors for Western Canada projects. And 2022 looks promising with a number of large wind turbine shipments scheduled for the coming summer.

Capacity Challenges in Vancouver

On the Pacific Coast, the Port of Vancouver serves as a major consolidation centre for breakbulk cargo such as forest products, steel, and machinery.

Latest available figures show year-to-date volume in June 2021 and June 2020 totaling respectively 10 million tons and 7.3 million tons – a 36% spike.

Judging by the view of a prominent freight forwarder, however, demand has recently been outstripping terminal capacity at Canada's largest port on handling project cargo shipments.

"Suffice it to say there is too much cargo coming into Vancouver, not enough terminal capacity and not enough trucks to move the cargos inland," the project forwarder told *AJOT*. "Finding laydown facilities for interim storage of project cargos in and around the existing port facilities is the biggest challenge faced by both terminal operators and importers."

Breakbulk cargo is handled through one of two terminals at the port – the closest and arguably most competitive gateway for project cargo bound for western Canadian resource projects.

There is easy access to extensive road connections, as well as established corridors for overweight and over dimensional project cargoes. CN and CP railways service on-dock rail facilities at all 29 terminals and provide service to key destinations across North America. BNSF and Southern Railway of British Columbia (SRY) links further enhance these networks.

DP World Fraser Surrey is a multi-purpose marine terminal handling containers and breakbulk commodities such as general cargo, logs, steel, machinery, and project cargo. Lynnterm is the consolidation centre for forest products, steel, and other breakbulk commodities in the Pacific Northwest. It handles wood pulp and paper, lumber, panel products, steel products, project cargo, and machinery.

RUSSIA-UKRAINIAN WAR JEOPARDIZES REGIONAL METALS SUPPLY CHAINS

It's likely disruptions will last well beyond the duration of the current conflict

By Peter Buxbaum, *AJOT*

At a moment of trouble for global supply chains, the invasion of Ukraine by Russian forces on February 22 made matters that much worse. The war, almost from its inception, caught many commodity trades and markets in its crosshairs—including those involving several crucial metals.

Russia is one of the world's largest producers and traders of pig iron, steel, and aluminum. Ukraine is the world's 13th-largest producer of steel, exporting 17 million metric tons in 2021, and the fifth-largest exporter of iron ore by volume, at 44.4 million tons in 2021. Ukraine is also "a key commodities transit hub," according to a report from S&P Global. Both countries are also major players in the titanium, nickel, and palladium trades.

Western sanctions on Russia in the wake of the invasion were meant to hobble the Russian economy, and to punish Russian President Vladimir Putin and his cronies. Formally, "the sanctions have more to do with the flow of products, capital, and information going into Russia and not as much on things leaving Russia," noted Jackson Wood, Director of Industry Strategy, Global Trade Intelligence, at Descartes, a provider of trade, logistics, and supply-chain information services.

But many of Descartes' customers "are taking a pretty conservative approach," said Brown. "They are looking at all their activities even tangentially related to Russia, including in Belarus and some of the other surrounding countries. Organizations moving products of Russian origin see friction associated with those moves going forward."

The extractive industries, he added, will be especially hard hit, "because it is so big a part of the economy in that region." Companies contemplating buying ore or finished metal of Russian origin now carry a significantly heavier due diligence burden in order to "ascertain the ownership structures" of the selling organizations, to make sure that no sanctioned parties are involved.

Scrambling to Make Up Shortfalls

On the Ukrainian side, Russia failed to gain control of the Ukrainian port of Mariupol, on the Sea of Azov, during the first days of the war, but, during the second week, surrounded and bombarded the city, shutting it down. Russian naval forces also control the narrow Kerch Strait which connects the Sea of Azov to the Black Sea, all of which jeopardizes Ukraine's sizable exports of steel, iron ore, and pig iron through Mariupol. During the second week of the war, Russian forces took control of the Black Sea port of Kherson, 125 miles east of Odessa, another major port.

Steel shipments from Mariupol have represented 25% of Ukraine's exports in recent years, according to S&P Global. Ukraine's Metinvest, a mining and steel group, suspended production at two steel plants in Mariupol at the war's outset, sending steelmakers in the U.S., Turkey, Egypt, and the European Union scrambling for other sources of raw materials.

Lower raw materials availability and higher prices could jeopardize plans to produce more steel in the United States. Domestic steelmakers were set to increase their melting capacity in 2022 by 7%, requiring larger supplies of raw materials which may not be forthcoming.

Russia and Ukraine combined have supplied over 60% of pig iron imports to U.S. steel producers since 2018. Other potential pig iron sources include Brazil, which made up 20% of imports since 2018, according to Argus Media, a provider of commodities data, but Brazil's pig iron is higher in phosphorous, making it less desirable. The Canadian steelmaker Stelco recently added one-million tons per year of pig iron capacity at its Hamilton, Ontario, mill.

Some U.S. steelmakers could also replace pig iron as a raw material with direct reduced iron (DRI) and hot briquetted iron (HBI). Nucor and Steel Dynamics operate their own DRI plants, and Cleveland-Cliffs and Voestalpine have each added HBI production capacity in recent years, although, in the case of Voestalpine's HBI plant in Corpus Christi, much of the output is designated for its mill in Austria. Also, as the Argus report indicates, "not all mills are set up to consume DRI and HBI in larger volumes."

Other Metals

Other metals supply chains are also threatened by the Ukraine conflict. Titanium producers are located on both sides of the Russo-Ukrainian border. Russia's VSMPO-Avisma is the world's largest producer of titanium sponge, a product refined from titanium ore, which is used heavily in aerospace and electronics. Airbus and Boeing are both reportedly reliant on VSMPO.

Ukraine was a major supplier to VSMPO of ilmenite, a titanium ore, until President Volodymyr Zelensky banned its export to Russia as its military forces massed along Ukraine's border before the invasion. VSMPO is now reportedly scouring world markets for titanium scrap.

Russia produces 7% of the global total of nickel, and exports high-grade nickel to Europe and China for use in electric vehicles. Tight supplies of nickel were seen even before the Russia-Ukraine crisis hit, as China ramped up EV and stainless steel production. Nickel contracts on the London Metal Exchange jumped over 25% since the Russia-Ukraine crisis intensified, over fears of supply disruptions, and around 12% in February. Prices for palladium, which is used in vehicle catalytic converters, also jumped as Russian forces invaded Ukraine.

Worries about aluminum supplies from Russia propelled prices of that metal by over 23% in February to record highs. The Russian company Rusal, the world's largest aluminum producer outside of China, produced 3.8 million ton of aluminum in 2021, about 6% of world production.

Regardless of the outcome of the Russo-Ukrainian war, the implications for regional metals supply chains will be severe. Failing to win a swift victory, thanks to impressive Ukrainian resistance and their own incompetence, Russian forces turned to inflicting significant physical and economic damage to Ukrainian cities and infrastructure with rocket fire. Regardless of the war's duration, it's apparent that the western sanctions on Russia will remain in place for some time.

That means, according to Descartes' Wood, that the compliance burdens of companies doing business in that part of the world will only increase. "It's fair to assume," he said, "that there will be additional government action," regardless of the outcome of the war.

REVEALED
Biden's Steel Tariff Policy

Recent agreements with Japan and the EU indicate the administration's hybrid approach

By Peter Buxbaum, *AJOT*

Early February saw the conclusion of an agreement between the United States and Japan with respect to the Trump-era Section 232 tariffs on steel. Coming as it did three months after a similar accord was reached with the European Union, the agreement provided clarity on the Biden administration's position on this issue. Both agreements took similar tacks in partially lifting and partially sustaining the Section 232 tariffs, an indication that this hybrid approach is now President Joe Biden's policy.

The Section 232 tariffs were introduced by former President Donald J. Trump in June 2018, when he imposed a 25% tariff on European and Japanese steel on national security grounds. While the tariffs gained support from domestic steel manufacturers, they were opposed by U.S. steel users, because, combined with the effects of the pandemic, they caused steel shortages and higher prices. Ford Motor Company, for one, estimated that the Section 232 tariffs raised the costs of its U.S.-based manufacturing by $1 billion.

New Agreements

Both the Japan and EU agreements allow a specified volume of steel to flow into the U.S. tariff-free, based on different historical reference points, while quantities above those levels will still be subject to a 25% "tariff rate quota" (TRQ). Under the agreement with Japan, 1.25 million metric tons per year is the quantity eligible for tariff-free treatment, allocated quarterly over 54 categories based on import levels in 2018-2019. The EU agreement allows 2.3 million tons in tariff free, equivalent to average annual exports between 2015 and 2017. Whether those volumes, combined with domestic supply, will be enough to satisfy U.S. demand in a time of increased infrastructure spending is questionable.

The differing historical reference periods for each agreement is notable, because, according to Carolyn Bethea Connolly, an international trade attorney at Faegre Drinker, steel exports from Japan "sharply declined following the 2018 implementation of the Section 232 steel tariffs," so, that "the 2018-2019 based metrics result in a lower TRQ as compared to 2015-2017."

The Japan agreement also differs from the EU in that "it likely will count Japanese steel currently excluded from the Section 232 tariffs against the new TRQ limits," according to Scott Lincicome, director for general economics and trade at the Cato Institute. It's possible these differences were negotiated because, unlike the EU, Japan will not be joining the U.S. in framing a new Global Sustainable Steel Arrangement, an effort, explained Connolly, "to decarbonize the steel and aluminum industries by establishing new standards for carbon intensity."

The result, however, is that the TRQ for Japan, according to Lincicome, "has been set even further below the amounts that would likely enter the U.S. today in the absence of any trade restrictions." Japanese steel imports averaged over two-million tons during the pre-duty timeframe between 2015 and 2017, "a period that was experiencing far less industrial demand than today." Thus, Lincicome concluded, "the new TRQ level is, at best, set at a paltry 61% of current U.S. market demand and probably much lower than that." The result will be to "keep U.S. steel prices high, leaving steel-consuming American manufacturers at a significant disadvantage versus their global competitors."

Impact of US Demand for Steel

For U.S. industries represented by the Coalition of American Metal Manufacturers and Users (CAMMU), the TRQ scheme is unworkable even under the more generous EU agreement, where, according to a statement, "some steel products' quota filled up for the year in the first two weeks of January" as large companies stockpiled product. "This type of government restriction on raw materials," the statement added, "leads to market manipulations and allows for gaming of the system that puts this country's smallest manufacturers at an even further disadvantage."

Meanwhile, the Biden administration's infrastructure program will likely goose domestic steel demand. "Just about any infrastructure project, such as energy, rail, roads, and bridges," said Ed Bastian, director global sales at BBC Chartering USA, an operator of multi-purpose and heavy lift vessels, "will require significant amounts of steel manufactured goods." The $300 million manufacturing plant being built at the Paulsboro Marine Terminal in New Jersey to provide monopiles for regional offshore wind farms, for example, will require 150,000 tons of imported steel annually to meet its customers' demands, according to Brendan Dugan, the assistant executive director of the South Jersey Ports Corporation (SJPC).

Just about any infrastructure project, such as energy, rail, roads, and bridges will require significant amounts of steel manufactured goods.

The infrastructure bill "does provide a Buy American provision," noted Bastian. "However, there are also provisions for a waiver system and other cost thresholds which could open the door for foreign suppliers." But imported steel will still be subject to existing tariffs, including the EU and Japan TRQs, should import volumes exceed the levels specified in the respective agreements.

It's worth noting that the imposition of the Section 232 tariffs was based on suspect national security assertions by the former president. No country involved in either of these agreements has represented a security threat to the U.S. since the end of World War II, making the tariffs ill-advised from the get-go. So, it's unfortunate, from that perspective, that the Biden administration has seen fit to continue the tariffs in any form.

But Biden had to navigate between two important priorities: mending relationships imperiled by Trump with traditional allies and supporting the interests of the domestic steel industry and its labor unions. The latter, not surprisingly, have had nothing but praise for the recent agreements. Also, as noted in statements from U.S. Trade Representative Katherine Tai, the Biden administration views the EU and Japan Section 232 tariff agreements as a step toward achieving other U.S. policy initiatives, including those relating to U.S. competition with China and global efforts to combat climate change.

Considering that these important U.S. allies have agreed to go along with these schemes, it is perhaps forgivable that Biden, purely from a policy and political standpoint, should have preserved an aspect of Trump's trade agenda. But whether these agreements will allow U.S. domestic demand for steel to be satisfied at reasonable prices in the current environment is another matter.

QDC'S KING OUTLINES DEVELOPMENTS AT QUONSET BUSINESS PARK

By George Lauriat, *AJOT*

Steven King, managing director of QDC

Steven King is the managing director of Quonset Development Corporation (QDC) which manages Quonset Business Park (QBP), a 3,200 acre business park located on Quonset Point, (North Kingstown) Rhode Island. Besides the 200 plus companies located within the QBP is the Port of Davisville, one of the country's top auto ports with numbers over 300,000 in most years, although with COVID and other disruptions the Port slipped under 200,000 in 2021. And the Port collaborates with NORAD (North Atlantic Distribution Inc.), the auto processer generating the vehicle traffic, and a processor in normal years among the top ten in the U.S. But as Steven King explains in the interview with *AJOT*, the QDC hosts a wide variety of economic ventures, including some like "Rhode Island Ready" that have become part of Rhode Island's own initiatives. And there is also offshore wind power which stands to be a once in a generation boon for the Port of Davisville and Rhode Island.

AJOT – What is the "Rhode Island Ready" initiative and how does the QDC fit in?

King: One of the things that we did here in the real estate development side of the business is what I call the "Site Readiness Initiative". That was to pre-program, pre-design and pre-permit [for client development]. We started that effort after the economy collapsed in 2008. And by doing that, we are now in a position to develop sites in the business park with a 90-day turnaround time. This has been tremendously beneficial to us [QDC] with a lot of deals that have happened since that time between 2010 or so and today. And because the program was so successful, the [RI] Governor and the General Assembly in Rhode Island determined that we did such a good job, then we could help them mimic the same thing around the state of Rhode Island.

AJOT – How was the program adapted to the State?

King: An initiative was put together to get a bond issue passed by the voters of Rhode Island in a special election in 2020 and approved a $40 million in obligation bond issue. QDC has been tasked with finding additional industrial sites and helping to ready them for new business in the state of Rhode Island.

AJOT – This leads very nicely into the offshore wind initiative. Could you update us on what is happening with QBP and offshore wind power?

King: "I guess I'll back up a little bit and talk about the Port of Davisville. We have a $234.5 million master plan that we're working through to rehabilitate the old World War II era infrastructure, to bring it up to modern code and provide a new service life of 50-years into the future. We're also building additional facilities and expanding the capabilities of the port to leverage that [and] to capitalize on the opportunities with the offshore wind industry.

We are on the last couple months of construction and the first element of that project, which was the rehabilitation of our Pier 2 at the Port of Davisville, which is an $83.1 million project. It's been going on now for almost three years and that'll be completed here in June.

We are about to begin a project to reconstruct the outer perimeter of Pier One. That first element of that first part of that phase of that project will kick off here. Later in the spring we're going to put that up for bid to construct the south side of Pier One.

We are also designing and beginning the permit process to construct a brand new pier facility at what we call Terminal Five at the Port of Davisville. To provide some more flexibility and create a whole new multi-use pier, that will be able to accommodate the ro-ro vessels that routinely call on the port. As well as all the various vessels that will be associated with the offshore wind projects, whether it be cable laying vessels or offshore service vessels or what have you.

And so, there's a lot of good action in the port. We have $120 million of the program that's been funded. We're in line at the General Assembly and the [Rhode Island] Governor McKee, he proposed $60 million with the offer monies that are in their purview, the General Assembly. We're hopeful that'll make it through the final budget cut, and we'll have an additional $60 million to help us with this project.

As it relates to the Port, we also recently entered into an agreement with Orsted North America for their Revolution Wind project. They lease the bulkhead space from us, and we are designing a series of improvements to add utility services and the like at those berths, to homeport five crew-transfer vessels at the Port of Davisville.

AJOT – I've heard you say that you're thinking of the Park as a "logistics hub". From your perspective, what does a "logistics hub" mean in terms of the QDC?

King: "It means "home base" for operations, for both the construction of the wind farms, as well as the ongoing operations and maintenance. You may know the Block Island Wind Farm was the first project built in the offshore waters here in the United States. And the operation and maintenance crew for that five turbine project is housed here across the [Quonset] business park.

We like to look into the future, so we can capture jobs for the long term. I mean the construction jobs are terrific but once the project's built, we want to continue to have job opportunities for our citizens here long into the future.

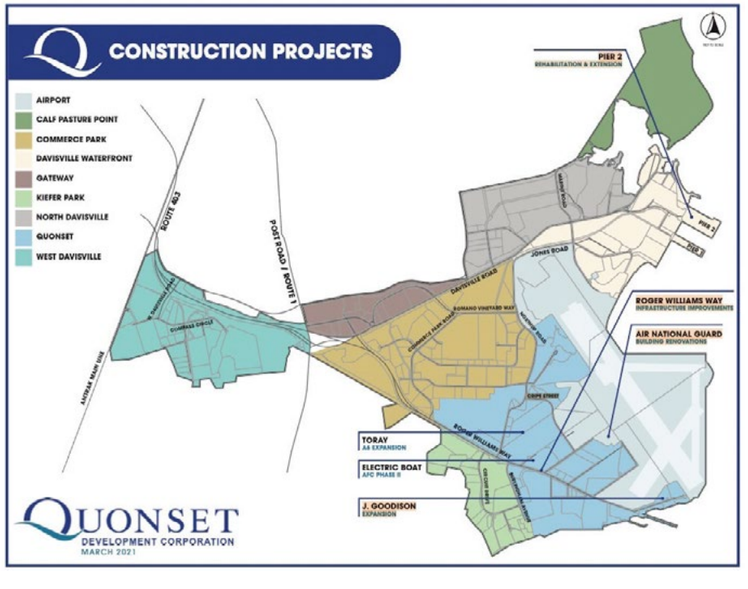
The home porting of the crew transfer vessels is key to that. To be able to have berth space to accommodate and service offshore vessels and become just the logistic space for the supplies for both people, food, equipment, tools, materials. Everything you're going to need to work some 15, 20 miles offshore building this project.

AJOT – What are the goals longer term? I mean, I think you alluded to them already, in saying that you want to protect and build these jobs. And obviously the commitment to offshore wind power is one aspect of that. Is this the soup to nuts type of vision that you have?

King: Yes, for the actual wind part. Yeah, but I mean, the business part itself is tremendously successful. We have over 210 companies and more than 12,900 jobs here every day, folks that come to work here. And we've been engaged with our largest tenant General Dynamics Electric Boat that builds the new submarines for the Navy. You may know about that, but they are building a new strategic, ballistic nuclear submarine, what they call the Columbia-class submarine that will replace the Ohio-class strategic submarines that were built here in the late 1980s.

We've been engaged in a program for the last three or four years and QDC has built $65 million of infrastructure. Most recently building a new pier to accommodate their transport barge that they had to construct special to move the Columbia-class modules between both here and New London, Connecticut and Newport News, Virginia. That project just got completed. And there's been tremendous growth. I mean, I can go back to days when we had around 5,000 employees working here. We have had a huge advancement and General Dynamics invested $800 million in building the facilities that were allowed to happen by virtue of the investment in the infrastructure.

Fig. 1



AAL'S SCHOELLER TALKS ABOUT THE GLOBAL BUSINESS AND NEW SHIPS

Felix Schoeller, Commercial Director, AAL Shipping (AAL) discusses new ships and prospects for the project sector.

By George Lauriat, *AJOT*

Felix Schoeller, Commercial Director, AAL Shipping

AJOT: In January, AAL completed a project move of industrial tower components for a refinery project from South Korea to the U.S West Coast, Port of Everett, Washington. The complicated move begs a number of related questions.

In general, with petroleum prices on the rise, do you think the oil & gas sector will be a solid contributor to the "projects" segment of the heavy lift/project business in the near turn. And if so, what regions do you see growth? North America? Latin America, Middle East? Australia? Asia? Russia?

Schoeller: The oil and gas project sector has been very quiet over the past years. Many projects have been delayed or cancelled altogether. This has been due to lower oil prices but also the global push for renewable energy, in turn driven by fiscal governmental support to encourage local industries to help them meet national emissions targets. Now with the rise in oil and gas prices many projects are back on the map. We expect to see project growth mainly in the Middle East and North America. We expect an additional upgrade round of facilities over the next 10-years, after which energy production will shift mostly to renewable energy such as wind, hydrogen etc. Natural gas has a longer lifespan.

AJOT: How has the COVID-19 restrictions complicated the Project/Breakbulk sector business?

Schoeller: For ship owners such as AAL there have been two major issues. Crew welfare on board of the vessels: Crew changes have been not possible for the greater part of 2020 and 2021 due to travel restrictions, tighter port regulations and delays of vessel schedules. This situation improved in the second half of 2021. AAL and our technical manager CSM have done well to not only support our crew throughout the pandemic but to keep our fleet and customer cargoes moving and with as minimal disruption as possible.

The other main limiting factor has been the disruption of the supply chain on land. Due to covid, there have been labor shortages and general slowdown of

all landside operations, such as truckers, stevedores, and port operations etc. Hence berthing and port operations have been slow and port congestion a recurring issue. Finally due to travel restrictions, AAL was not able to send our own 'super cargoes' (cargo superintendents) to the ships to supervise cargo ops. Luckily, we managed to source capable local contractors to work with us in many key load and discharge regions.

AJOT: AAL runs a number of interconnected trade routes [i.e., the Asia-Americas Trade Route was used for the refinery project move] how did the business philosophy evolve to developing "trade routes" liner system for your breakbulk/project operations? And how does that style of operation influence fleet deployment and the fleet portfolio?

Schoeller: Since 1995, AAL has always focused on larger tonnage and started as a break bulk liner operator between Asia and Australia. AAL has over the past ten years specifically targeted large MPP tonnage between 25-33,000 dwt and grown our fleet from 14 to 21 owned vessels in the 'mega MPV class. These vessels are perfect for long haul trades. With the heavy lift capacity of the fleet and strong cargo intake capability, we offer project shippers reliable and competitive project transport solutions on all key trades that are flexible enough to adjust to individual project needs. With our 6 newbuildings on the way, also 32,000 dwt heavy lifters, we are again focusing on the same vessel size and long-haul trades that our customers have been trusting us with for many years. 'These vessels, which we have classified as the 'Super B-Class' were designed to be the most efficient and competent MPVs in the water. They will perfectly complement AAL's fleet and service profile and, in their design, we harnessed all of our engineering team's expertise in handling heavy lift, breakbulk and dry bulk cargo since 1995.

AJOT: There is a great deal of specialization required for building heavy/lift breakbulk vessels. In ordering a newbuilding how does AAL put together the design specification for the ships? How do factors like shipyard capacity, price, and lead times figure into the newbuilding equation?

Schoeller: AAL is part of a larger shipping group that has built and supervised 270 newbuildings over the past 30 years. The design of our Super B-Class was a collaboration between AAL's engineering and commercial teams working alongside sister company, Columbia Shipmanagement (CSM) – responsible for all of the Group's newbuilding projects over the years in top yards around the world. It is a long tradition within AAL to design our own MPP tonnage (4 AAL-designed MPV classes so far) based on our customers' projected transport needs.

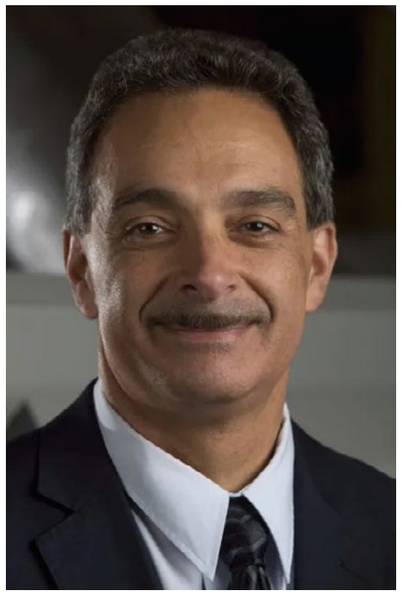
AJOT: Another energy sector that seems likely to boom over the next few years in the U.S. is wind power installations, especially offshore wind power – which is in its infancy in the U.S. and North America as a whole. What impact will U.S. wind power initiatives have on the "Project Cargo" sector of the business? What are the prospects for wind power projects globally?

Schoeller: AAL works extensively with renewable energy majors across the world on short and long-term employment projects. Wind is already a massive driver for the project industry and has in terms of cargo volume shipped at steadily growing levels for many years. At the same time, the wind sector may not deliver hugely exponential growth in terms of cargo volumes over the next 5 years, as it has already been booming for the last 8 or so years anyway. However, what certainly is changing is the size and scope of wind projects and components and we expect to see much larger on shore windmills as well as much more substantial offshore projects soon.

Computer rendering of the AAL Houston

DR. HABIB DAGHER AND THE POTENTIAL OF US OFFSHORE WIND POWER

By Matt Miller, *AJOT*



Habib Dagher, University of Maine's Advanced Structures and Composite Center

Perhaps no American is better positioned to discuss the state of offshore wind technology than Habib Dagher. A structural and civil engineer with a PhD from University of Wisconsin, Dagher heads the University of Maine's Advanced Structures and Composite Center, the site of landmark research and testing on wind turbine blades and floating wind systems. Dagher co-founded the center in 1996. He holds more than 80 patents, most on technologies related to various aspects of floating wind power, including methods of construction, hull designs and buoys.

One signature achievement: The VolturnUS, which the Center designed and built. It was the first grid-connected offshore wind turbine in the US and a pioneer in offshore floating wind, employing revolutionary designs that utilized floating concrete hull technology. That one-eighth scale model prototype launched in 2014. The Center is now developing a full-scale, floating offshore wind turbine, scheduled to be constructed next year and launched in 2024.

While the center's first wind-related work was on composite materials wind blades, the institution 14 years ago became the first research center in the US to begin investigating floating wind technology. That was, in part, a necessary outgrowth of Maine's geology. Unlike most state's elsewhere along the Atlantic Coast, Maine's continental shelf is quite deep and ill-suited for fixed-bottom wind turbines. To harness the ample wind off the Maine coast, floating wind turbines will be a necessity.

The center now boasts of multiple laboratories that total 100,000 square feet and include a unique facility that can simultaneously test both wind and wave stresses on turbines.

Dr. Dagher spoke to *American Journal of Transportation* twice over Zoom from his office in Orono, Maine. The conversations were edited for space.

AJOT: Taking offshore wind power as a whole, where in the technology curve are we?

Dagher: There are two types of offshore wind technologies, fixed-bottom turbines, and floating turbines. And they're quite different.

In the fixed bottom world, Europe built the first offshore wind farm in 1991. They built a very significant industry. They have over 5,000 turbines installed in Europe already.

When you talk about fixed-bottom turbines, you are also talking about what goes along with it. So, for example, the turbine designs and manufacturing are all in Europe. There is no offshore wind turbine manufacturer in the United States today.

AJOT: What about floating turbines?

Dagher: When the water exceeds roughly 150 feet, floating becomes the technology you look at, because building 150-foot foundation down to the seabed will cost you a lot of money. [In 2009] Equinor built a single two-megawatt unit off the coast of Norway, and that became the very first floating turbine in the world. Since then, they built a project off Scotland, using five, six-megawatt units. And now they're doing one in an oil and gas field [in the Norwegian North Sea] that is even bigger than that, but not really commercial scale yet.

With floating technology, it's a wide-open field. There are over 40 technologies in the floating world right now. Proposed solutions for floating wind turbines fit into three different major categories: Spar buoy, semi-submersible and tension-leg platform. And there are also hybrids of these designs.

This is where we have focused our research at the University of Maine for the last 14 years and have built the leading research team in floating technology in the United States.

The design that U Maine has developed is the semi-submersible, and that's the most common technology being proposed across the world today. The one that Equinor designed is called the Spar-buoy, but this requires a very, very deep draft, 250-to-300-foot drafts for these units. So, it's very difficult to fabricate them dockside because you don't have port facilities with 300 feet of water unless you're in Norway.

What we've developed is a semi-submersible that has less than a 25-foot draught dockside, so you can actually make the hull in a lot of places around the US.

Also, the hulls are stable without tension legs, without the mooring lines. The mooring lines just keep them on station, so they don't fall away.

So, the advantage of the semi is it's stable on its own and has a relatively small draft. You can actually fabricate it onshore and throw it out to sea.

AJOT: Are there cost advantages of the semi-submersible as well?

Dagher: Every technology has its pros and cons — where you are in the world, what manufacturing infrastructure you have, what port facilities, what geophysical conditions you have offshore. how deep the water is, what kind of soil conditions you have. All determine which technology may or may not be better than the other. There's really no single solution fits all. But you can't make the Spar-buoy in the US, there is no port facility where you can make it.

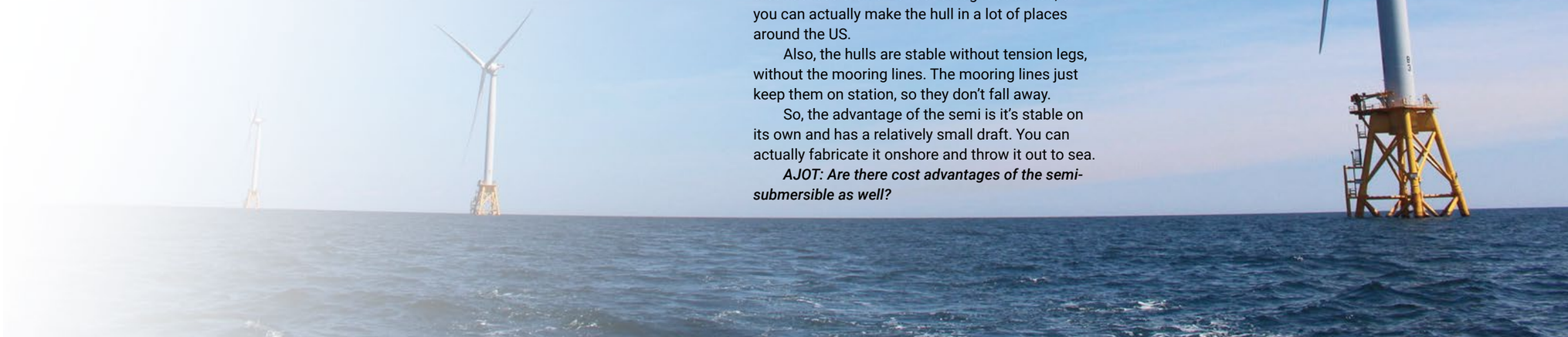
AJOT: Do the blades and the nacelle, the turbine itself, present technological challenges in floating that are different from fixed?

Dagher: When you go to floating technologies, you have different vibration characteristics, motion characteristics of the hull. The hulls are moving around a lot more when they're floating than when they're fixed. They're moving at different frequencies. You want to make sure that the motions of the hull, as the hull moves around in the waves and the winds, don't eventually damage the turbine from a fatigue perspective or strength perspective. You don't want to over-stress the blades or over-stress the gears inside the turbine nacelle.

AJOT: Will it be necessary for a totally new blade design or nacelle design? Or is it likely to be an adaptation of what is now being produced?

Dagher: We've worked with all the turbine OEMs. Right now, we've been able to adapt the current turbines to the hull that we have. We can accept turbines from almost any supplier.

What we would have to do from an adaptation perspective is really optimizing the turbine for the hull. How →



you control the pitch and power generation of the turbine is very important because if the turbine base is moving, you have to account for that in the control center. So, the controls of the turbine are being adapted to the hulls and the hulls are being adapted to the turbine controls.

Does that mean that you couldn't design a better turbine that's specifically optimized for the home? That's a whole other question. You could. But is it worth it? Is it worth it to go out and reinvent the industry? You can argue one way or the other.

AJOT: What are some other ways to design a turbine?

Dagher: Right now, the most common design is the horizontal axis turbine. That's called an upwind turbine. Vertical axis turbines have been looked at for floating technologies as well. These are turbines that we call downwind turbines.

AJOT: Please explain the difference.

Dagher: Upwind, the wind always hits the turbine before it hits the tower. There's a yaw mechanism. If you think of the blades, they always see the wind first before it gets to the tower. That's called an upwind turbine. A downwind turbine actually has the blades on the other side of the wind, so the wind hits the tower first and then goes to the blades. That design can have a yaw system, but you can have the whole hull yaw. The whole hull actually yaws back and forth, so that the turbine is always optimized to the wind. These designs have a single mooring system, so that instead of yawing just the turbine itself, you're yawing the whole hull.

AJOT: Are engineers investigating other innovations for offshore wind turbines?

Dagher: There are some designs that are looking at putting the generator down at the base.

AJOT: You've said that with floating wind turbines, you can adapt current fixed turbine technology. Does that include the new generation of 12 and 15MW turbines?

Dagher: Yes. When we started in this business, we were doing two megawatt turbines. The one that we're designing today, that we're putting off the coast of Monhegan Island in Maine, is 11 megawatts. And we've been able to adapt our designs, our current turbines, to that. We are also looking at 15 and 20 megawatt turbines as we speak and looking at adaptation. At least going from two to 11 [megawatts], it has been possible. Can we go from 11 to 15 and 15 to 20 [megawatts] cost effectively? Going from 11 to 15, I'm very optimistic. That's very doable. Going from 15 to 20, I think I'll reserve judgment.

AJOT: In terms of commercial adaptation of floating wind, we're still talking 2028, 2029, at the earliest, and that's probably being generous. Does it frustrate you that adaptation is taking so long? Is there a way to speed it up or is this just the way things are?

Dagher: There are technology developments that are needed, physical infrastructure, development of port facilities that are needed for the industry. Finally, there are permitting requirements. You've got technology, you've got port facilities and you've got permitting. These are three different, separate issues, that really result in the schedule you're talking about. But the good news is that back in 2013, we actually put the first floating turbine off the US coast. We've learned a lot since then and now we're in the middle of doing one that's full-sized, bigger than the Washington Monument.

AJOT: You mentioned the need for advances in port facilities. Why can't we utilize existing facilities or the ones now under development for fixed bottom offshore wind? Is it too difficult to adapt fixed-bottom facilities to floating?

Dagher: It's not just difficult. In some cases, it's impossible. You've got to fabricate floating turbines dockside and these units are bigger than the Washington Monument. How do you get those in the water? You need deep water ports. You need facilities that have water depths of 30 feet or more, because some of these will draft 25 feet. Maybe you could dredge some existing facilities, but that's a whole other project.

The other thing is the fabrication methods that you need for floating wind turbines are different from fixed bottom. You need the port facilities to fabricate and assemble these hulls and they're different. With fixed bottom, you typically use mono-piles. These are essentially 20-25 foot diameter steel towers that you can bring [to a port] and assemble. It doesn't take the same amount of space and real estate that it takes to assemble a floating hull, which are much bigger and much more complex. You need dedicated facilities that can fabricate big hulls like that. The existing fixed-bottom facilities haven't been designed specifically to do that. You will need quite a bit of acreage if you wish to build a commercial floating facility, 50 to 100 acres and more, depending on what you are trying to do.

AJOT: Because the hull is made of concrete, is one advantage that it can be fabricated in Maine or wherever?

Dagher: It certainly could be fabricated locally. We want a technology that creates local jobs, and that's really why we went to the concrete hull, we have no ability to mass produce these hulls at this time. And that's why we went in that direction, right? The first of the concrete hulls we have are less expensive.

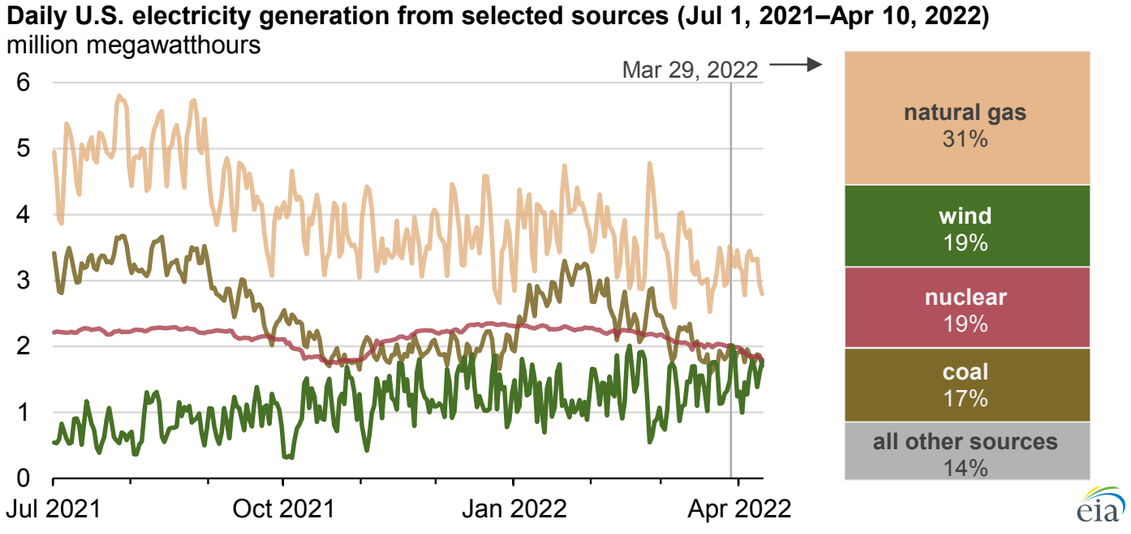
AJOT: Are you concerned that transmission issues, the technology, and the infrastructure necessary, may lag behind the development of floating offshore wind?

Dagher: The difference between a floating turbine and a fixed-bottom turbine is that the floating turbine has what we call a dynamic cable. It floats in a water column, has buoyancy modules, and is fixed to the seabed. Each turbine is going to have a dynamic cable and it's typically a 66KV cable. So, it's not low voltage, but it's not extremely high. You're going to daisy chain these, one to the other to the other to the other, connecting five up to 10 turbines on one line. So, each group of 10 turbines then has one of these cables coming out of it, bringing it together [with others] into an offshore substation. That offshore substation then increases the voltage from 66KV to something over to 200KV. And the reason we do that is you have a lot less losses in the line by having a higher voltage.

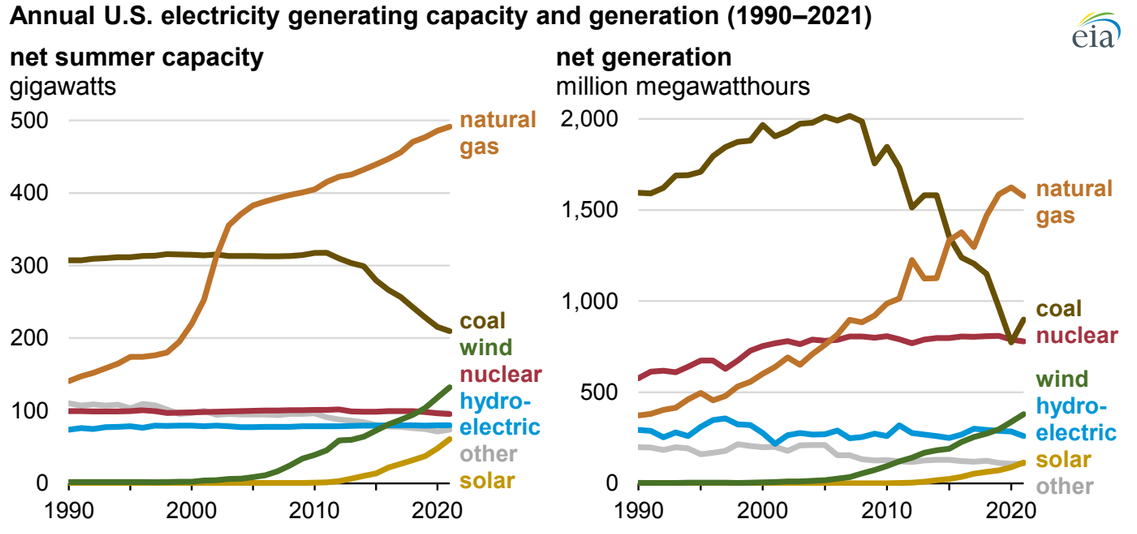
Particularly if you're 30 miles offshore, you need a substation there that will pick up your voltage and send the voltage out in one or two cables for the whole farm to shore. Then onshore, you connect that to a control substation.

So, the technology for these dynamic 66KV cables already exists. The technology for the offshore export cable already exists. The technology called the inner array cable that daisy chains the cables to get the turbines together already exists. What doesn't exist today is the high voltage dynamic cable from a floating substation to the ground, and that's being worked on as we speak. That's what is left.

[fig 1.]
Source: U.S. Energy Information Administration, Hourly Electric Grid Monitor



[fig 2.]
Source: U.S. Energy Information Administration, Electric Power Monthly



SOUTH JERSEY'S PORT OF SALEM

PART OF A DEVELOPING DE RIVER WIND-ENERGY LOGISTICS CHAIN

Redevelopment and upgraded rail connectivity are a good start, but the one-time fishing harbor needs more funding to bring a regional vision to fruition.

By Peter Buxbaum, *AJOT*

Brendan Dugan, assistant executive director SJPC

Ten years ago, officials of Salem County, New Jersey, thought it wise to invest $40 million to upgrade the Salem Rail Line, a county-owned short line serving the small southern New Jersey Port of Salem, and secured funding for that purpose from the State of New Jersey and the United States Department of Transportation (USDOT). The idea was to stimulate economic activity in an area with an eroding industrial base, notably in glass production. Up until recently, those investments might have been considered a bust, but recent developments in the burgeoning New Jersey offshore wind industry indicate they could start to pay dividends—if the port can make further improvements.

The Port of Salem, a one-time fishing facility that currently handles containers and dry bulk cargoes, is also the recipient of a 2021 U.S. Department of Transportation grant of $9 million—matched with an additional $6 million from the South Jersey Port Corporation—to lengthen a wharf, demolish old structures, and do some paving and fencing, as part of a larger plan to redevelop the port. These improvements will be of use in current port operations—but the port will need more if it is to play in the wind-energy game.

The $300 Million "New Jersey Wind Port"

Current port users include Bermuda International Shipping Ltd., which carries 13,000 containers of perishables and consumer goods annually on a weekly service from Salem to Hamilton, Bermuda. U.S. Concrete barges 400,000 tons a year of locally quarried sand for construction projects in the New York metropolitan area, a volume that is expected to grow as spending from the federal multi-trillion-dollar infrastructure program starts to kick in.

Building the $300 million wind port seven miles down the road from Salem represents a significant expansion opportunity for the port. Major construction activities at the New Jersey Wind Port, located on an artificial island in the Delaware River, began in December 2021 and operations are scheduled to begin by early 2024. The Port of Salem figures to expand its portfolio to support the development of the New Jersey offshore wind energy industry by accommodating offshore wind component manufacturing facilities and with a rail-to-barge service to supply components to the wind port. The port's improved rail connections could play prominently in that effort, finally justifying the $40 million investment.

"The rail system at the Port of Salem has been disused over the years," said Brendan Dugan, assistant executive director of the South Jersey Port Corporation (SJPC). "It was upgraded based on the desire to generate economic development in Salem, which experienced a spike in unemployment when glass manufacturing facilities closed. There was some agricultural business that was handled by the rail line and the hope was that it would increase but it really hasn't."

With the upgrade in place, Salem can boast of some impressive rail connectivity, especially for a small port. The Salem Rail Line runs 19-miles

northeast to Swedesboro where it connects to Conrail, which, in turn, hooks up with the Class I carriers Norfolk Southern and CSX Transportation and the continental rail network. Also in Swedesboro, short-line operator SMS Rail Lines serves the Pureland Industrial Complex, a 3,000-acre facility that is home to over 120 companies, many of which utilize local rail/truck intermodal capabilities to distribute goods to New Jersey, Pennsylvania, Delaware, and Maryland.

Now that the port has received grants for its revitalization, Dugan views Salem's rail prowess as a key advantage, especially since the wind port will not enjoy that kind of connectivity. "There is not enough room at the wind port for all of the manufacturing required for regional offshore needs," he said. "We view Salem as a potential manufacturing and fabrication site for secondary wind components. The rail line could be used to bring in steel to fabrication facilities, and the expanded berth can be used to barge finished components for final assembly at the wind port."

Granting a New Vision for Salem

But the $15 million dollars now being invested in port redevelopment will not be enough to bring that vision to fruition. The grants received were less than what the SJPC requested, and that necessitated scaling back immediate plans for the port. What was originally planned as a first-phase wharf expansion to 500 feet now stretches to 400 feet. Plans call for eventually expanding the wharf to 1,250 feet.

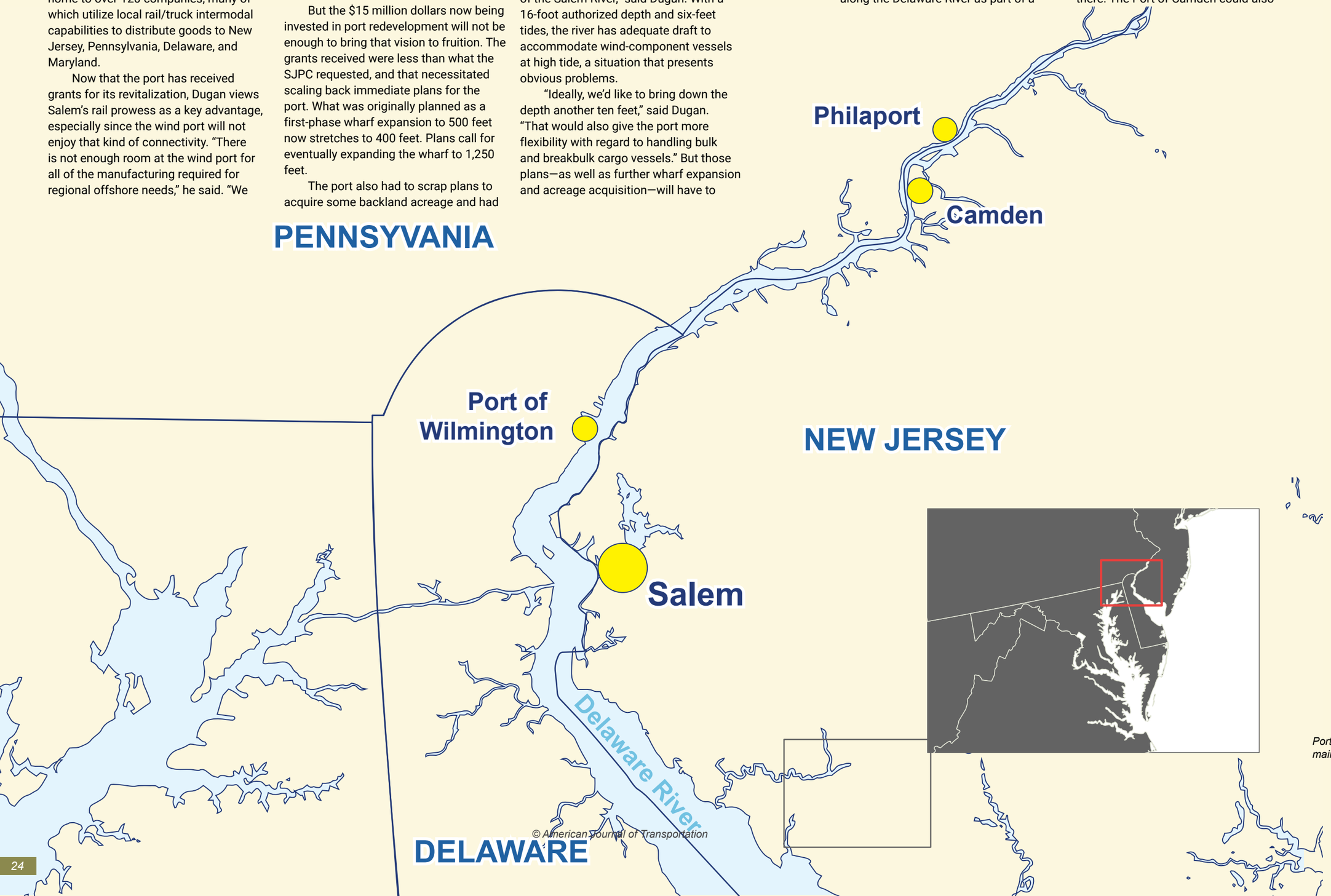
The port also had to scrap plans to acquire some backland acreage and had to put off dredging the four-mile stretch of the Salem River that leads to the Delaware River. Several parcels of abandoned industrial real estate could be put to use as sites for wind-component fabrication facilities and for cargo marshaling activities.

"The big nut to crack is the deepening of the Salem River," said Dugan. With a 16-foot authorized depth and six-feet tides, the river has adequate draft to accommodate wind-component vessels at high tide, a situation that presents obvious problems.

"Ideally, we'd like to bring down the depth another ten feet," said Dugan. "That would also give the port more flexibility with regard to handling bulk and breakbulk cargo vessels." But those plans—as well as further wharf expansion and acreage acquisition—will have to await the availability of additional funding.

Current developments and future plans for the Port of Salem represent one component of a larger SJPC strategy to position the southern New Jersey region and its ports to become an integral part of the nascent New Jersey offshore wind industry. "We view these various nodes along the Delaware River as part of a complete logistics chain," said Dugan, "the wind port being one and the Port of Salem being another."

SJPC's Port of Paulsboro also has a place in this strategic picture, with a facility to manufacture monopiles—part of the foundation of offshore wind installations—currently under construction there. The Port of Camden could also be handling some wind components imported from overseas, according to Dugan, which could be floated by barge to the wind port or to the Port of Salem. As for further redevelopment at Salem, Dugan said, "SJPC is pursuing additional grant opportunities."



Port of Salem is nestled just off the main Delaware River channel

BBC Chartering®

ANYTHING ANYWHERE.

BBC Chartering leads the industry with the world's largest fleet of more than 140 multipurpose and heavy-lift vessels ranging from 4,325 to 56,800 dwt able to lift up to 800 metric tons. We are always close to you with our world-class teams of chartering and operations professionals throughout our global network of 30 offices. Be it project, heavy-lift, or general cargoes, with our people and our fleet we can take almost anything almost anywhere.

bbc-chartering.com

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 = ISO 14001
OHSAS 18001