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2020 REVIEW & 2021 OUTLOOK SUMMARIES

Drybulk

Fearnleys

During one of the first days of 2020, we saw a quote from a steel trader in China who said there could be some shutdowns of steel production in the Wuhan region due to an unnamed virus. It was unusual news, and therefore hard to make much of it. After all, minor shutdowns of steel production on a regional basis in China have been frequent the last years due to environmental considerations, without this having had any material impact on the dry bulk markets.

In hindsight, this proved to be an early warning of a global catastrophe, as China and subsequently the rest of the world imposed previously unthinkable lockdown measures to prevent the spread of the new virus. Financial markets panicked, economic data plunged to depths obscuring all other movements going back over 100 years, and unemployment rates soared to heights dwarfing the levels seen during the worst of the financial crisis.

The Capesize market fell to rock bottom levels in late January and stayed there until early April, whereas the Panamax and Supramax segments fared relatively better during this period, averaging around 7.000 USD p/d primarily helped by grains. Notwithstanding the relative outperformance of the mid-sized segments, the outlook for the future remained highly uncertain amongst economists and analysts.

We were among those taking a more optimistic view, for several reasons.

- It became clear during March that China would start ramping up activity in April.
- There were significant stimulus measures in the pipeline even before heading into 2020, with these being added to massively because of the shutdowns.
- Historically, the steepest economic downturns have been followed by the steepest economic upturns.
- The COVID recession was and still is centered on the service sector. A divergence between the services and manufacturing sectors could therefore be expected.

Notwithstanding our positive views, in April we were still relatively cautious in our expectations for the second half of the year as the global economy had taken such a nosedive. We expected a 2016 like recovery trajectory, i.e., steadily rising rates, although with higher earnings averages than then.

The middle of May marked the bottom, after which the Supramax and Panamax markets swiftly rose to around breakeven levels, whereas the Capesize market had by all measures its quickest market rise in history. On June the 1st, the Baltic Capesize index stood at 3.648 USD p/d, and on July the 6th it stood at 33.760 USD p/d. The second half of the year saw Capesizes average 19.000 USD p/d, Kamsarmaxes 12.500 USD p/d, and Supramaxes 10.300 USD p/d, respectively.

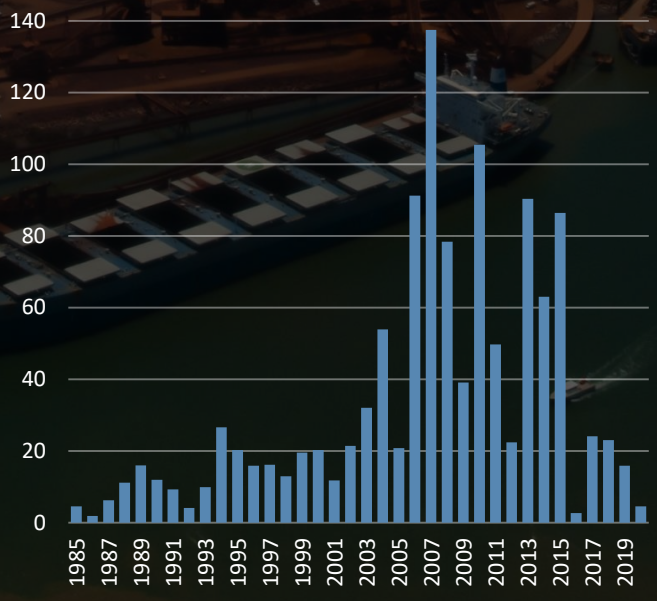
During the uncertain and tumultuous months between February and May, the outlook for asset values was strongly debated as well. Many potential buyers stayed on the side-lines for perhaps a bit too long, in anticipation of values falling to the levels of late 2015/early 2016. The abovementioned swiftness of the market upturn was one factor that made sure this did not happen.

Additionally, the SnP market situation was very different in Q2 2020 than in Q1 2016. For one, balance sheets amongst owners were significantly less leveraged due to post-2016 restructurings and next to no forward commitments towards newbuilding orders. There was as a result significantly fewer sellers in the market than back then, which our SnP team believed would act as a floor on asset values. In hindsight, the floor proved to be around the bottoms of 2012, which although is quite a bit above early 2016 levels, are still low compared to historical averages.

Notwithstanding the established floor, second-hand values did not rise during the second half of the year despite markets recovering, as sentiment remained subdued, reflected by muted reactions in the FFA markets to the upturn in spot, especially for Capes. We have gotten used to muted reactions in the FFA markets the last couple of years, which we believe reflect generally less capital in the Dry Bulk markets. Banks and Private Equity funds have continuously reduced their exposure to the segment the last years, which is reflected also in share prices and the Newbuilding markets.

With regards to the Newbuilding market, the continued depression there did not help second-hand values either, with prices continuously under pressure from the historically low ordering activity. In 2020, we registered a mere 5 million deadweight placed for order, which is comparable to 2016 levels (and before that the early 1990s). Another comparison is that during 2013 and 2014 there was 1,961 vessels placed for order, whereas between 2015-2020 we registered 1,744 vessel orders (1,062 of these were Tier IIs “placed” in 2015). Apart from 2015 and 2016, the Baltic Dry Index averaged higher than 2013/14 every year (except last year which was just slightly lower than 2013). As ordering activity has remained low for several years, the orderbook to existing fleet ratio dropped to slightly over 5% (in terms of number of ships) – the lowest for around 20 years.

Newbuilding orders, million dwt by year since 1985



The averages for each segment in 2020 ended at 13.070 USD p/d for Capes, 9.923 USD p/d for Kamsarmaxes, and 8.189 USD p/d for Supramaxes.

Total supply growth ended at 4.9%, and demand growth ended at around -2.5%. The VLOC fleet grew by 1%, while the Capesize/ Newcastlemax fleet grew by 4.9%, the Panamax/Kamsarmax fleet by 5%, and the Supramax/Ultramax fleet by 4.7%.

On the demand side, coal fared the worst as discharges ended -10.5% lower than 2019 levels. Minor bulk commodities were also hit hard by the COVID lockdowns, falling by -6.3% compared to 2019. Grains was the best performing commodity group, rising by just under 7%, driven by strong Soybean demand from China. Iron Ore trades also fared better than in 2019, growing by 1.8%, driven solely by China as the rest of the world's demand contracted.

2021/22 Outlook

We have been, and still are, optimistic about the market outlook for 2021. Above we mentioned four key factors that made us optimistic about the future during the worst of the COVID lockdown situation. With all these factors confirmed we have moved out of the first phase of the recovery, and will in our opinion during the first half of 2021 move into a confirmation phase of the bull market/economic up cycle.

We see the following factors supporting the market through this year:

- Government stimulus, high private sector credit growth, lower interest rates and lower energy prices (through most of 2019 and 2020) usually supports the macroeconomic cycle for up to two years. This will primarily support coal and minor bulk commodity demand.
- Steel production is returning in the world ex-China, with most Manufacturing PMI readings in the high 50s or 60s.
- Forecasted growth in global grains trades of around 2.5% by the International Grains Council.
- Fleet growth to fall from 4.9% last year to around 3.0% this year.

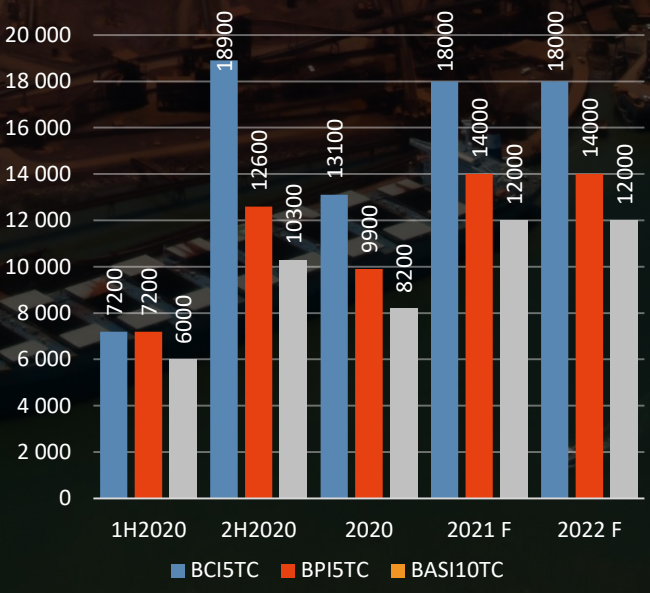
There is understandably a lot of focus on the supply side of the market in respect of what now seems to be a consensus view of a strong 2021 for Dry Bulk. However, as the above factors lay out, the demand side of the market will be the main driver for higher earnings this year in our view. Next year, unless ordering activity picks up, extremely low supply will probably result in even higher rates than this year. It is still a bit early for us to be definite in our views for 2022 as our leading indicators are not yet covering the whole year, which therefore raise uncertainty with regards to the second half of the year. However, if in the worst case we see our indicators start moving downwards now, we can make a direct comparison to 2018, when demand growth was falling throughout the year, but earnings still averaged higher than 2017, as deliveries was so low. If we see that growth during this up-cycle is likely to hold through 2022, we could see significantly higher earnings next year.

So, in any case, we believe it will be very hard to be bearish on 2022 relative to 2021.

Our forecasts for this year and the next, which we made in Q2 last year, are displayed in the chart below. We will wait until Q2 before revising the 2022 forecasts, and perhaps 2021 which given the good start to the year means we might see higher earnings than forecasted.

Fleet Growth since 2014, and forward indication basis current orderbook, no scrapping or delays

2020 Averages and 2021/22 Forecasts (Made in Q2 2020)



Oil Tankers

Fearnleys

2020 – A year of extremes

2020 was an eventful year for the tanker market with several unexpected turns, but all-in-all the development was like so many other aspects of life highly affected by Covid-19. While starting off on a very positive note, the impact of Covid-19 on both the oil and tanker markets meant a gradual softening through the year due to unprecedented oil production cuts. For a while it seemed like our $60,000/day VLCC rate forecast would hold true, albeit for all the wrong reasons, but in the end VLCC rates averaged 'only' $53,000/day due to the soft second half. We expect a soft start to this year before a sentiment turnaround in the second half on returning of oil production.

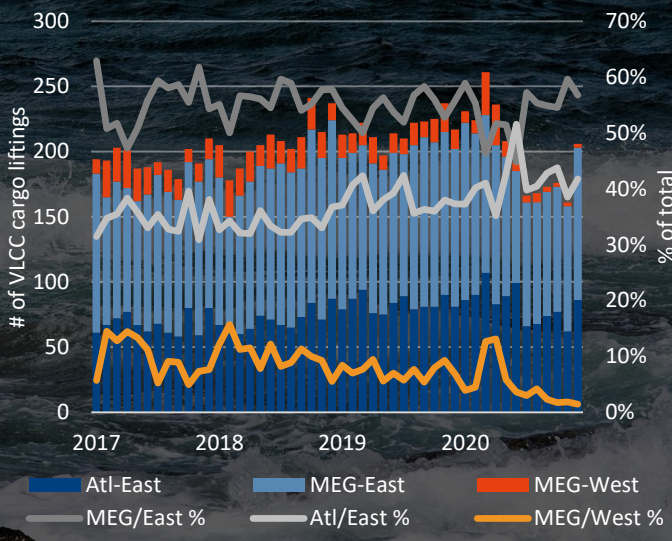
Entering 2020 the tanker market sentiment was firm following the sanctioning of 26 Cosco VLCCs in late 2019 and strong oil demand and production growth. Oil prices also rose due to turmoil in the Middle East and unrest in Libya. Despite strong tanker volume development early in the year, earnings nosedived in February upon the return of the Cosco vessels at the same time as Covid-19 spread to slow global trade. In March, however, the tanker market was again set ablaze when Saudi Arabia and Russia could not agree on further oil supply cuts, and rather ended in a (short-lived) supply war. Along with an extraordinary global oil demand drop to around 75 mbpd in April, this led oil prices to plummet, even reaching negative territory, with the forward curve sent into steep contango. As onshore inventories quickly filled, floating storage was necessary. A fundamentally tight tanker market responded with soaring TC rates and spot rates hitting near all-time high. In April, average VLCC spot rates for the month were a staggering $189,000/day, with 6- and 12-month TC rates north of $100k/day and $80k/day, respectively.

Eventually, the OPEC agreed with Russia and various other producers about an astounding oil production cut of nearly 10 mbpd, in an effort to balance the market. Furthermore, Saudi Arabia, Kuwait and the UAE cut an additional 1.18 mbpd in June. This inevitably affected tanker volumes, and although the cuts tapered through the year, MEG volumes were steady at low levels with VLCC rates reaching a low of $7,800/day in November. In 2H'20 MEG VLCC loadings were 23% lower than the first half. The Atlantic initially fared better than the Middle East, but eventually low oil prices led to shut-ins in the Americas, the Norwegian government pledged to cut around 300 kbpd and West African production declined as part of the OPEC+ agreement. All told, second half Atlantic VLCC loadings were down almost 22% vs. the first half. For the full year, VLCC loadings from all main loading areas were down -7.8% y/y. Here, there was a bigger difference between the MEG and Atlantic, with the former down -12.1% vs. the latter only -0.9%. The Atlantic outperformance was driven in part by record U.S. and North Sea loadings early in the year, and almost equally strong loadings in December. 2020 USG VLCC loadings were actually up 12.3% y/y, and North Sea loadings were up a whopping 68.4% following the commencement of the Johan Sverdrup field at the end of 2019.

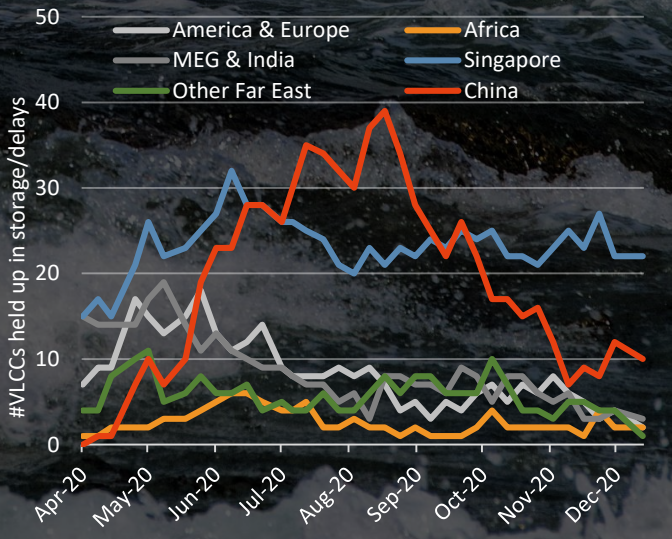
From the low in April oil demand gradually recovered toward the end the year. China led the way, where products consumption from April through October was up 2.1% y/y, although down 3.5% y/y when including January through March.

In India there are also indications that consumption picked up to near flat y/y numbers in the last few months of the year. So, the main laggards were Europe and the U.S., which in Q4'20 were estimated to make up 70% of the global shortfall vs. Q4'19, although also here the arrows pointed (slowly) up toward year-end. Jet fuel consumption was hit the worst among products by Covid-19 due to international travel restrictions. By end-Q3'19 global jet fuel consumption was still down 4.5 mbpd after recovering almost 2 mbpd from the lows. Global flights since then suggest flattish development through Q4'19, apart from a stronger Chinese recovery. All told, this was sufficient to draw OECD inventories well off the peak of some 260 mbbls above the 5-year average in June to an estimated 160 mbbls in November, at the same time as OPEC+ production increased by more than 3 mbpd.

VLCC loadings by main areas, monthly



Geographic development, VLCCs in storage/delays



Oil Tankers

Fearnleys

A total of 20.5m dwt newbuilds were delivered in 2020 in all segments above 25,000 dwt, the lowest since 2015. This was well below the 27m dwt scheduled to be delivered at the beginning of the year, partly due to extensive Covid-19 related delays at yards, but partly also end-of year slippage on weak earnings. There was little scrapping, only 1.8m dwt, not too surprising given overall strong earnings. Other reasons were alternative employment through floating storage and high prices achieved for old vessels. Toward year-end scrap prices rose, which coupled with soft earnings and higher bunker prices gave more incentive for owners to consider scrapping the older ladies. Net, the tanker fleet above 25,000 dwt grew by 18.7m dwt last year, or 3.3%.

Another factor affecting fleet growth last year was floating storage. At most we counted 91 VLCCs and 85 Suezmaxes tied up in floating storage or delays. We count both as some overreport vessels tied up in congestion and delays as floating storage too (and both factor into short-term effective fleet availability), but do not count FSOs or the NITC fleet. For a while there was a lot of congestion and delays off China as a Chinese buying spree when oil prices were low in the spring led to capacity constraints in import ports. When the oil market started to rebalance and onshore storage drew, freeing up cheaper storage space, the count of floating storage vessels gradually declined from late June. As the year came to a close the number of tied up vessels was back below where we started counting in April, suggesting most of the added fleet growth effect had been taken out.

At the beginning of the year ship values soared to heights not seen since 2015. However, like in 2015, values were still cheap relative to earnings. Again, newbuild prices held things back, as low order intake from other shipping segments left pressure on prices. As rates came off over the summer and autumn, values followed. Recently, values and TC rates have reverted to normalised levels per historical correlation, and as newbuilding prices seem to find a floor on more orders at the end of last year, we do not see significant downside to secondhand values from here.

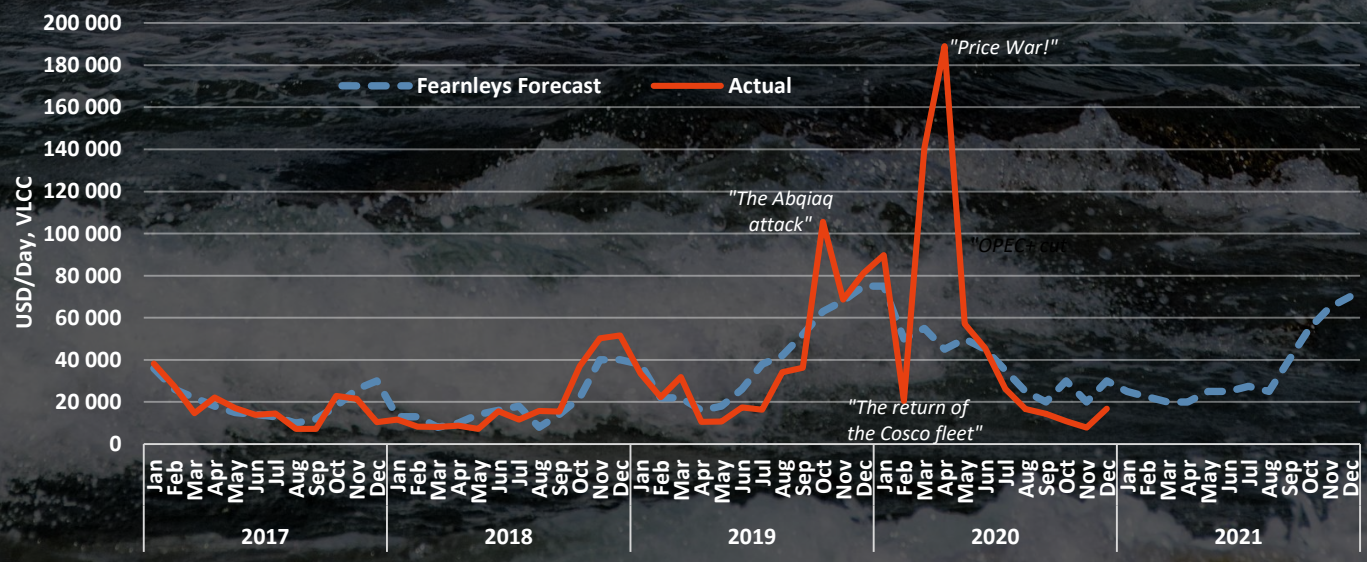
Outlook

For 2021 we expect a slow start to the year given Saudi Arabia's pledge to voluntarily cut oil production by 1 mbpd in February and March. There are some mitigating factors in that this is against January production which for OPEC+ was up 0.5 mbpd vs. end-2020. There will also be 75 kbpd higher production from Russia and Kazakhstan in the same months, and up to 0.3 mbpd added production from Norway. Combined with relatively high delivery pace in the first few months of the year this likely means soft rate development through at least the first quarter.

As the year progresses, the development is likely to be more positive. The IEA forecasts 5.7 mbpd oil demand growth, which compared to last year's OECD inventory build of less than 0.7 mbpd suggests much higher oil production even though inventories need to be drawn. Relatively softer demand forecasts for 1H'21 means it could take until the summer before inventories are back to the 5-year average, but after that we expect the oil production taps of OPEC+ to be opened. An oil production delta of up to 5 mbpd is likely to have a clear positive impact on tanker market sentiment and earnings toward year-end – taking the average forecast for the full year to $35,000/day.

Building on the strength from the end-2021, we forecast very strong 2022 earnings with VLCC rates of $60,000/day. Oil demand growth beyond pre-Covid levels means yet higher oil production and tanker demand. Furthermore, this could push the oil market toward a supply crunch, given minimal investment in new production capacity for many years and few new projects coming on. This could give a 2008 like psychology to the market, which although likely short-lived, can produce very high rates. The flipside is that this likely means lower rates again come 2023. However, the timing of a supply crunch is uncertain, and highly dependent on Covid-19 development from here.

VLCC monthly Forecast vs Actual Spot TCE



LNG Shipping

Fearnleys

Ship balance
LNG trade 0%
Distance 6%
Fleet 6%
Flat balance

Spot charter ($/day)
Steam: 44k
DFDE: 62k
2-Stroke: 72k
# of Fixtures +30%

LNG prices ($/MMBtu)
US 2.1
Europe 3.3
Asia spot: 4.4
Asia contract: 6

Fleet (LNGCs)
32 deliveries
49 orders
Orderbook
133 LNGCs
Deliv.2021: 54

2020 in a nutshell

A relatively flat LNG trade in 2020 compared to 2019 was disappointing considering the commissioning of 20mtpa of new liquefaction capacity. Still, LNG fared much better than other energy commodities since Covid-19 became widespread. The combination of higher Asian demand, higher US exports and lower supply from the East helped to keep fleet utilization flat. Sailed distanced pushed tonne-miles to grow 6% in 2020 matching a similar growth in the LNG fleet. With no relative changes in fleet balance, it was the weaker LNG price environment what brought down spot charter rates 8%-10% in 2020.

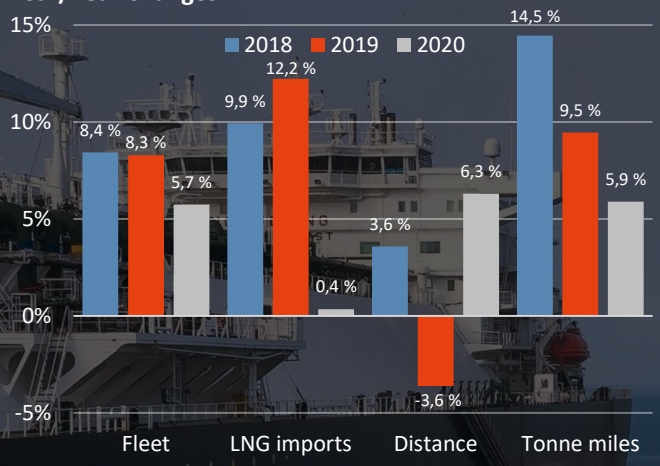
Dynamics throughout 2020 were a lot more interesting that what annual average numbers imply. We can split the year in three phases. A strong supply-driven start keeping fleet utilisation high and pressuring LNG prices to lower levels. Although we were expecting LNG cargo cancellations this year, Covid-19 exacerbated the difference between supply and demand and pushed gas prices to historically low levels (both for a weekly reference and annual averages). From May we saw a reversion as supply started to show year-on-year (YoY) drops and newbuildings deliveries kept coming (ascending delivery profile in 2020). 32 newbuilding deliveries fell short of the over 40 previously scheduled for 2020. Finally, in Q4 as Asian LNG price recovered, US LNG increased strongly but other projects could not keep up. This began a domino effect that resulted in new records for Asian price benchmark in January 2021. Increasing sailed distance, logistic bottlenecks such as in Panama Canal and record profits to be made in the spot market made ship sublets disappear and supported sky high shipping rates. Cue to the highest paid vessel charter in history: 175,000m³ LNG Abalamabie carrier for a Bonny Island, Nigeria to Europe voyage in early February at around $350,000/d. Despite strong LNG demand, LNG loadings in December 2020 remained below December 2019 levels.

Spot chartering activity and newbuilding orders showed strong numbers. With 30% annual growth measured by number of spot and multi-month fixtures, the growing liquidity in the shipping market continues. We registered 49 newbuilding orders for conventional LNG carriers. All linked to term business and upcoming projects. Most of them for Arctic LNG-2 and Mozambique LNG project.

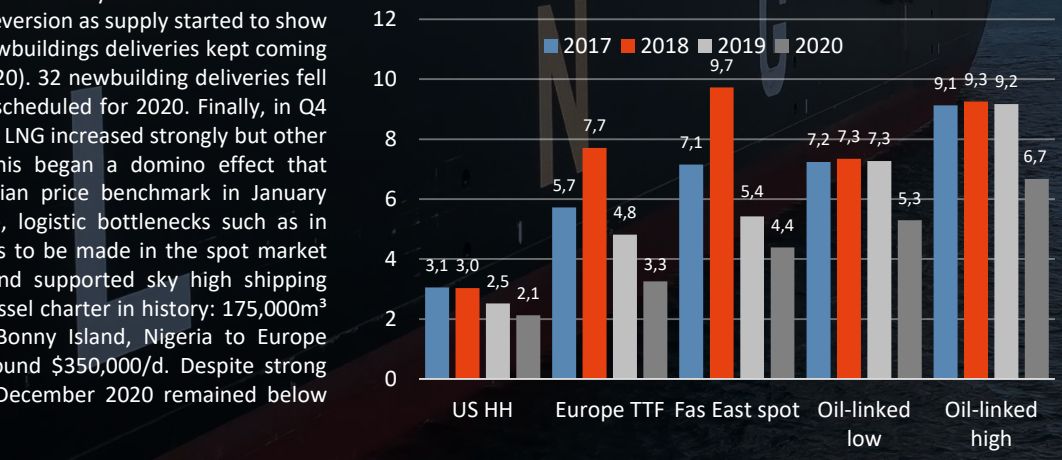
Asset values dropped USD 10 million (-5%) however we see some upside risk for newbuilding prices ahead. Strong falls in 2nd hand values could trigger new transactions in the near future.

Only one LNG project reached FID in 2020, 3.5mtpa Costa Azul Mexico (Sempra). This is a very interesting project in the west coast of Mexico that will use US molecules with the advantage of not needing to us Panama Canal to reach Asia.

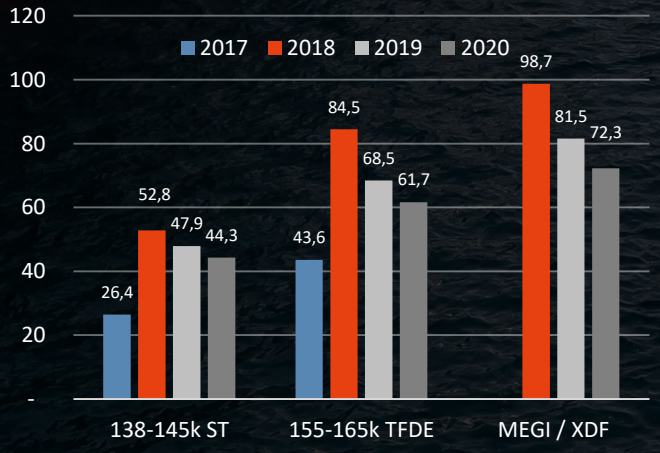
Year/Year Changes



Gas Prices ($/Mmbtu)



Charter Spot rates, '000 USD per day



LNG Shipping

Fearnleys

Looking ahead

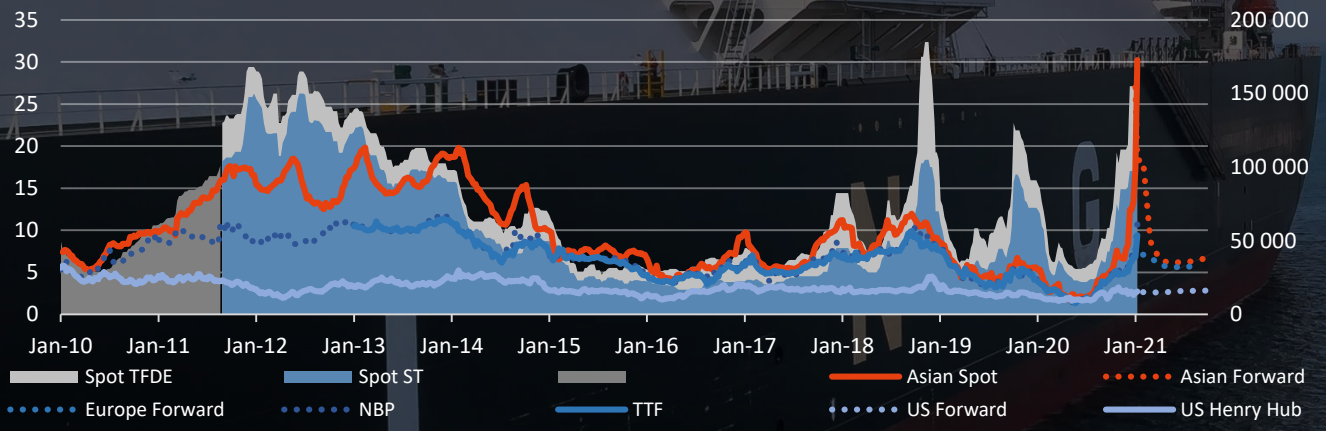
Before this winter we expected some slight increase for spot charter rates in 2021 followed by a steady improvement of fundamental and a structural recovery for LNG shipping from 2022 towards 2025. What changed with this winter?

2021 will probably show a stronger average for spot charter rates. The statistical drag from Q1 is too strong. We also see ship owners defending next winter at higher winter levels, as the winter risk is back on the table. We need to acknowledge that lower storages make the refill season more interesting this year. Does this mean we won't see US cargo cancellations? Probably not.

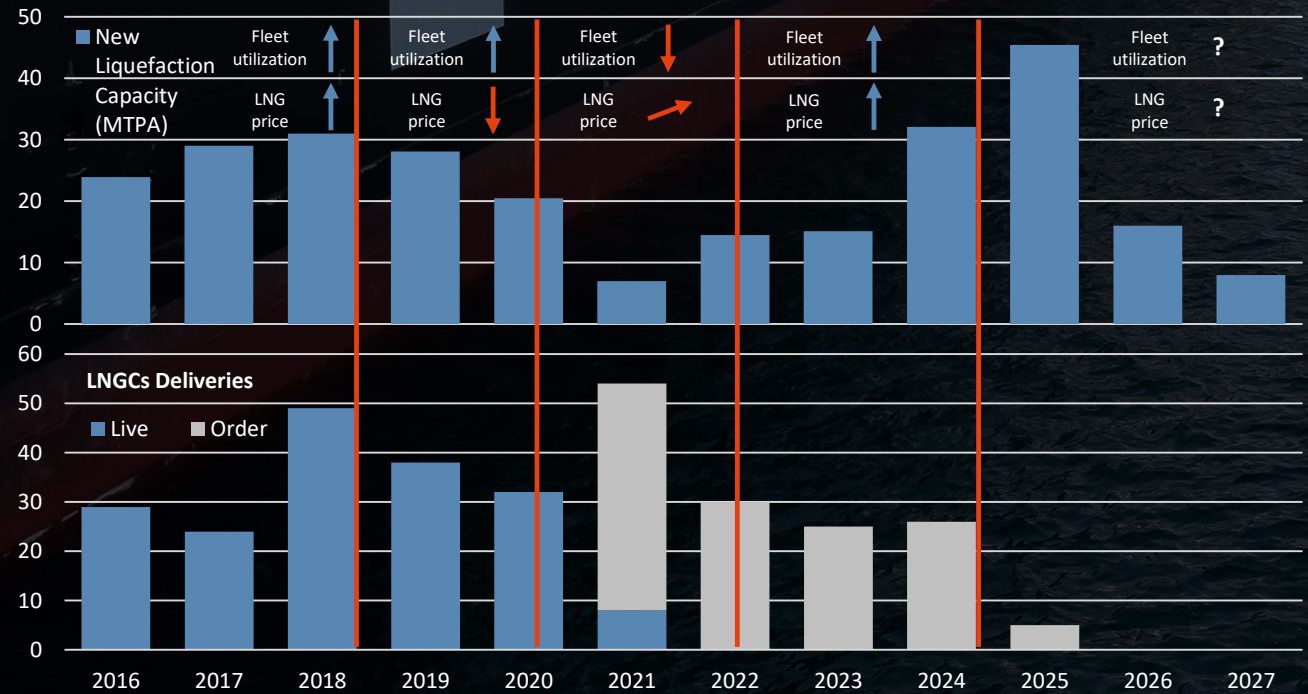
We still support a base case with high seasonality and some cancellations which would be the result of prompt LNG prices dropping below what current forward curves show. However, we would not be surprised if we see market participants adapting to what we saw in 2020 and developing a very different development. One with strong flows throughout the summer, keeping fleet utilization higher but at relative low LNG prices, and reaching the start of next winter with high flows. This could make the start of the high season a little slower than expected.

The results of next winter will still depend on temperatures and the length of winter. With 54 newbuilding deliveries scheduled in 2021, we still believe the recovery in charter rates will depend more on LNG balance as fleet utilization will struggle to show YoY gains on continuous basis. While 2022 may look relatively worse given the statistical effect of Q1 2021, we remain optimistic to a structural improvement in shipping market from the second part of 2022 until 2025.

Spot charter rates and LNG prices



Fleet utilization and LNG market balance to determine charter rates



LPG Shipping

Fearnleys

2020 market summary: The VLGC market performed strongly in 2020, with daily rates averaging close to USD 50,000 per day. To be exact and weighing the scrubber and VLSFO split in the fleet rates ended at USD 48,000 per day, a 7% outperformance of our forecast.

As can be seen in the chart, the freight stayed relatively close to our forecast in 9 of the 12 months, with the extremes being the low freight in June and July in the aftermath of Covid and low oil price that had hit the market a couple of months earlier, and the ultra-high rates seen in December following the combination of wider arbitrage levels and substantial fleet inefficiencies.

To be honest; when the pandemic hit in the early months of 2020, seeing an immediate impact on trade and volumes (of course coupled with the oil price crisis in March-May), we did not believe the markets would get near our forecast. Such an unprecedented period with two major crises impacting the markets at once. The pandemic took out supply chains and global consumer demand, while the oil price war lowered Middle East LPG volumes substantially. Being the second-largest hub for LPG exports (after the US), ships soon experienced an increase in idling days waiting for cargoes.

Now, the market balance in the VLGC market is very sensitive. Throughout the year the fleet began to experience several inefficiencies that would stretch the fleet and cause less availability of tonnage. This coupled with an increased oil price (from July 2020), we suddenly saw the arbitrage as well (which had been dead closed in 1H'20) moving towards levels supporting additional trade. The inefficiencies contributing to the ever-increasing rates as seen in second half last year was in particular:

Drydocking: More than 70 vessels had to drydock in 2020. Most ships could be related to the immense newbuilding program the markets experienced in 2013-2015 with delivery 4-5 years back. In addition, there have been several owners retrofitting scrubbers and dual-fuel systems adding to the already long drydocking list.

Operational congestion: The market has experienced severe congestion both in loadings zones such as the US Gulf, with fog and hurricanes being the two major reasons, while in India and China there have been challenges caused by infrastructural bottlenecks and ullage situations.

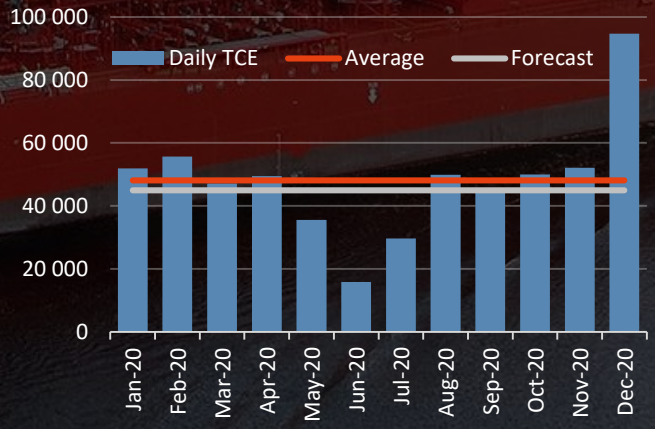
Routing: Periodically throughout the year the market has experienced more routing south of Cape of Good Hope, resulting in a 'stretched' fleet, contributing to the inefficiency factors supporting higher freight.

Panama Canal congestion: There is no secret that the new locks in Panama have experienced challenges. These have been divided between low water levels in the lakes, congestion as a result of increased global trade (container, LPG and LNG in particular), as well as Covid-19 precautions leading to a somewhat more challenging operation. As the VLGC vessels are not the favoured ones due to size and fees, the market has experienced up to 15 waiting days per ship, especially on the Southbound leg, of laden VLGCs enroute to Asia.

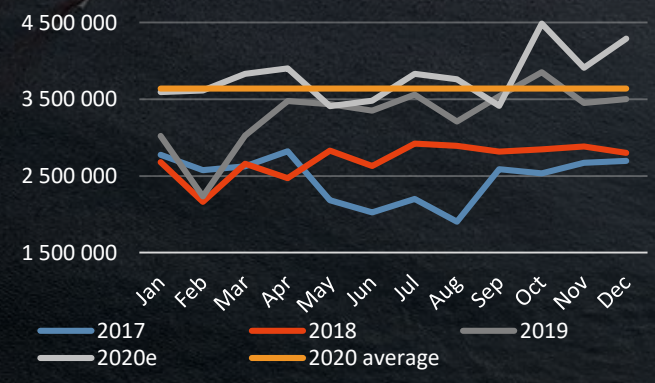
2021 market outlook: Rates have dropped sharply last two weeks, coming off from the peaks of USD 110k per day. Rates are now getting closer to our yearly forecast of USD 45,000 per day for 2021. Although the recent drop seems very substantial, rates have primarily been driven by inefficiencies and the arbitrage. While the inefficiencies are still present, the arbitrage has lately narrowed. The arbitrage is still strong, however not strong enough to support freight 3-4x of CAPEX. Rates as we are entering the final week of January 2021 is USD 57,000 per day. Well above our average, and more than twice of the industry CAPEX average (~ USD 22,5k/day).

We believe the current oil prices will continue to support a moderate to strong arbitrage, while US production and export will remain key to sufficient volumes to meet the demand-increase expected from Asia post-covid (~ 76% of all LPG demand is East of Suez). Furthermore, we expect the fleet to be fairly balanced as we are looking at another year with a heavy drydocking schedule, close to 80 ships are expected to carry out repair work during the year which will put pressure on availability. This inefficiency is likely to be joined by fog season in the US, as well as a periodically continued congestion in Panama on the new locks. Although we do not expect the recent rate peak to be the new normal, we remain confident that the VLGC market is set for a 2 to 3 year cycle of strong freight, where the oil price, US and MEG volumes and inefficiencies remain key to the market balance

Daily TCE, VLGCs in 2020 by month



U.S. LPG Exports, all vessel sizes, millions



PCTC

Fearnleys

The PCTC market has been challenging for the last years, mainly due to a fleet capacity which has been a couple of sizes too large for demand.

This, however, has been nothing in comparison to the major blow this market received from Covid-19. Light vehicle sales ground to halt very quickly, and by April/May most of the global auto industry went into lockdown.

During the second quarter we saw a significant number of PCTCs entering lay-up and a huge share of the fleet was outside normal operations. By the end of April/beginning of May, we estimate that more than 40% of the fleet was outside normal operations.

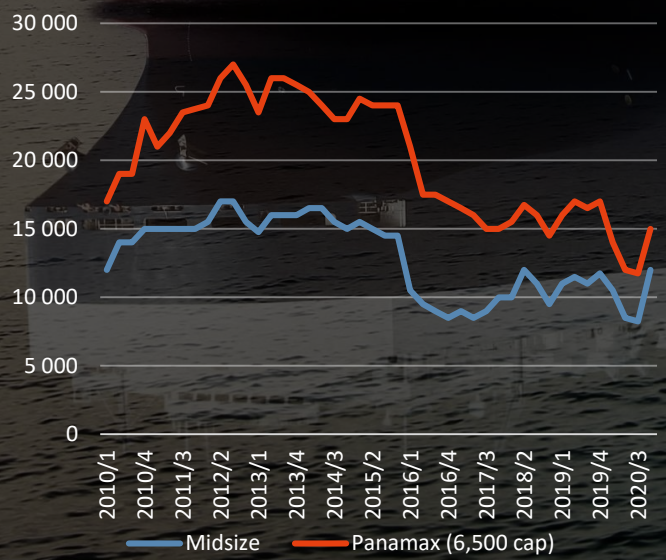
Demand remained weak for light vehicles, but also for agricultural, mining, and construction machinery. However, we observed improvements in auto sales towards the end of the year, and although 2020 sales are significantly down from 2019, the drop looks to be far less than feared.

As the chart displaying idle PCTC capacity below shows, the share of vessels outside normal operation declined steadily into the third quarter and rates rose.

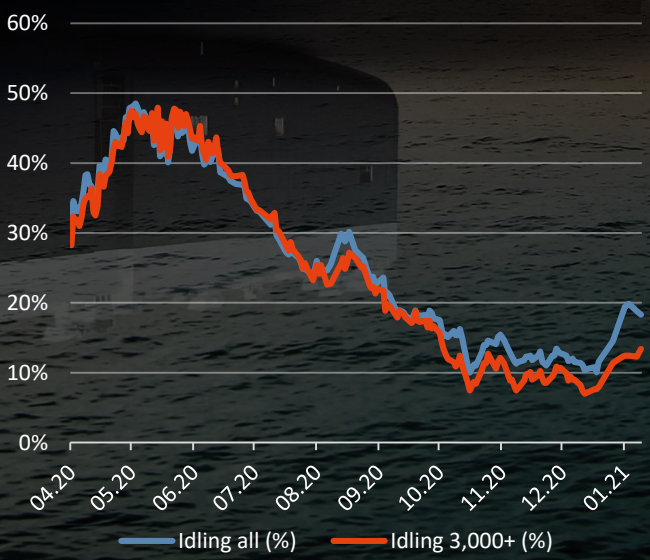
During the 'crisis summer', several owners decided to let go and recirculate many vessels. 23 vessels were removed, resulting in a 1.3% contraction in fleet capacity. We believe this supply side effect was as important as the upturn in demand in the autumn to cause a rebound in earnings.

The pandemic continues to weigh heavily on the demand side but with a current order book counting a mere 16 vessels (13 in 2021) combined with a significant demolition potential, we believe the supply side of the equation looks very promising. With a normalization of the demand side as the pandemic fades, we believe the ground is set for a return to healthy market conditions in the PCTC market.

PCTC Earnings, USD per day



Idle capacity, % of the PCTC Fleet



Offshore Wind

Fearnleys

Despite the pandemic, 2020 was a good year for offshore wind. International Energy Agency (IEA) released in November that the total global capacity addition will be 5.3 GW for 2020. Large contributors to this were the Borssele 1 and 2 in the Netherlands, and East Anglia One in the UK, with respective capacities of 752 and 714 MW.

Dogger Bank, which when commissioned will be the largest offshore wind farm in the world, started construction in January 2020. Dogger Bank is located around 130 km off the North East coast of England, and is a three-phase project (A, B and C). In September, Dogger Bank released their decision on using GE's 13 MW Haliade-X for Dogger Bank A and B, and later announced that Dogger Bank C will use the even more powerful turbine, the Haliade-X 14 MW. In November, financial close was reached for the two first phases of the huge offshore wind project developed by a Joint Venture between SSE Renewables, Equinor and Eni.

China was by far the country with the most additions in offshore wind. Around 50% of offshore wind additions in terms of capacity in 2020 were in China. 22 wind farms reached first power, accounting for 6.6 GW when fully commissioned. CGN Yangjiang Nanpeng Island went into full commissioning at the end of 2020. This is the among the largest wind farms in China with its 400 MW. The country does however have numerous larger projects in early phases in the pipeline, reaching up to 11 GW for a single project. As a comparison, Europe had around 2.5 GW of added offshore wind capacity in 2020. A target of 300 GW of offshore wind by 2050 was set by the European Commission in their EU Offshore Renewable Energy Strategy released in November.

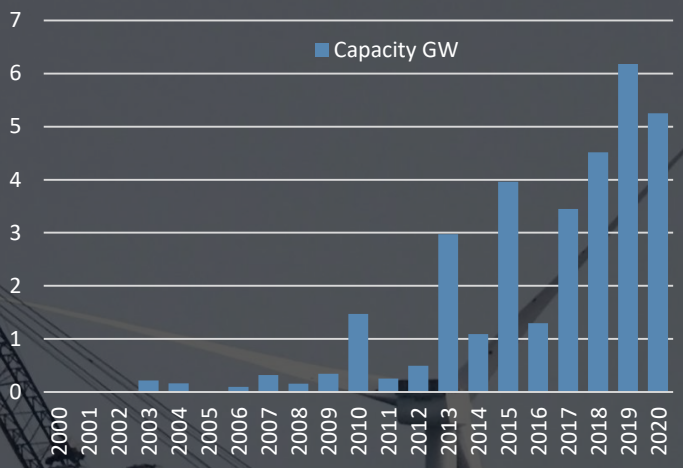
The Ocean-Based Climate Solutions Act in the US have set a goal of 25 GW of installed offshore wind capacity by 2030, being a significant increase from their currently installed 42 MW.

In terms of floating offshore wind, 25.8 MW were commissioned in 2020. WindFloat Atlantic, a floating wind farm off Portugal, accounts for 25 MW, with the remaining capacity consisting of two demonstration projects. WindFloat Atlantic consists of three 8.4 MW turbines, each mounted on Principle Power's semisubmersible foundation, the WindFloat.

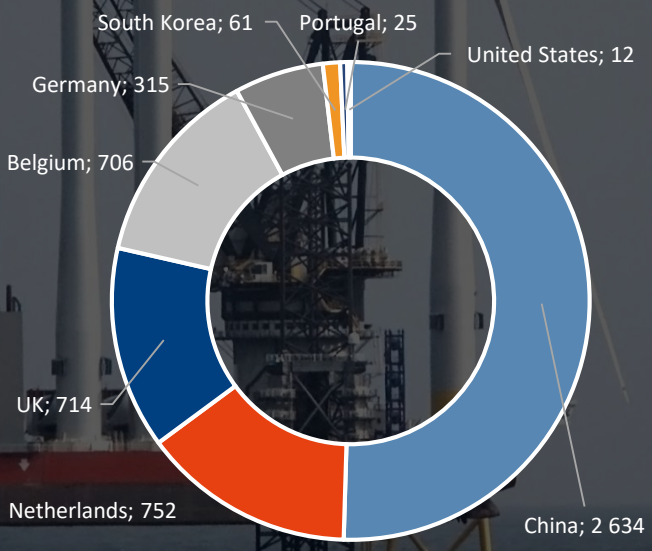
Three floating foundations for the Kincardine floating offshore wind farm off UK were ready for load-out from the Navantia yard in Spain in September. These foundations are also semisubmersible WindFloat foundations and will have 9.5 MW turbines installed on them, which will be the largest turbines ever to be installed on floating foundations. The first fully assembled turbine on the semisubmersible foundation was towed to the installation site 15 km off the coast of Aberdeen in December. Full commissioning of the wind farm was planned for November 2020 but has been delayed to June 2021 due to Covid-19 related supply chain delays.

October marked an important milestone within floating offshore wind, as construction started on Hywind Tampen at the Kværner Stord yard. This will be the largest floating offshore wind farm, with a total of 88 MW, and will be located by oil and gas fields Snorre and Gullfaks to provide the installations with power.

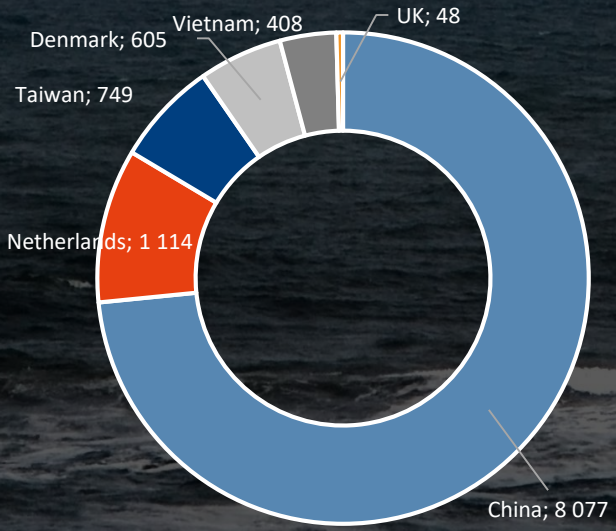
Yearly offshore wind global capacity additions



Offshore wind capacity additions in 2020, by country



Planned offshore wind additions to be commissioned in 2021



Offshore Wind

Fearnleys

Both GE and Siemens Gamesa launched their largest wind turbines in 2020. Siemens Gamesa launched their 14 MW turbine, SG 14-222 DD, which can reach 15 MW with their Power Boost function. Serial production is planned for 2024. GE launched both the Haliade-X 13 MW and 14 MW turbine. Its predecessor, Haliade-X 12 MW, set a record in terms of electricity produced when the prototype was tested in the Port of Rotterdam in February.

With the installation of the 12+ MW turbines, there are several existing Wind Turbine Installation Vessels (WTIVs) not capable of installing the turbine of the future. The future holds both newbuilds and upgrades for WTIVs.

In August, Havfram (previously Ocean Installer) and Vard went into partnership to develop an installation vessel for the future turbine. Ulstein released the news in October that they will develop a Hydrogen Hybrid WTIV. The Voltaire, Jan De Nul's WTIV currently under construction, signed a contract with Dogger Bank in August and will perform turbine installation for the wind farm with planned start in 2023.

Swire Blue Ocean renamed to Cadeler and listed on the Oslo stock exchange. They also announced that they will upgrade the cranes on both of their installation vessels, as well as order a new-build installation vessel with option for a second one. OHT announced that they will add two jack-up installation vessels to their fleet, and later shared that the contract is signed for their first jack-up installation vessel.

At the end of 2020, the keel was laid for the first Jones Act compliant WTIV. The vessel is designed by GustoMSC and is being built in Texas by Keppel AmFELS. The vessel will be operational by the end of 2023. Around the same time, it was announced that Ulstein will design the first Jones Act compliant, inclined fall pipe vessel for subsea rock installation for offshore wind.

Other specialized vessels for offshore wind have also been ordered in 2020. As an example, Van Oord ordered a cable-laying vessel for offshore wind from Vard. Several service operation vessels (SOVs) and crew transfer vessels (CTVs) for the offshore wind industry were also ordered in 2020.

Outlook 2021:

2021 is expected to be a new record year in terms of installed capacity. Projects with total capacity of 11 GW are planned to go into full commissioning in 2021, but Global Wind Energy Council (GWEC) and International Energy Agency (IEA) have forecasted additions of 9.7 and 7.3 GW respectively. 73% of the planned 11 GW of capacity is in China, with their 28 wind farms adding up to 8 GW. Taiwan's Yunlin wind farm is expected to be in full commissioning by the end of the year. Vietnam has seven wind farms expected to be commissioned in 2021, however of smaller size.

Europe's additions will consist of Netherlands' Borssele 3 and 4 (already commissioned on the 6th of January) and Windpark Fryslân, as well as Denmark's Kriegers Flak. An important milestone will also be reached when floating wind farm, Kincardine, goes into commissioning in 2021.

Regulations

Fearnleys

2020 was a remarkable year with respect to new rules and regulations on environmental protection impacting the shipping sector.

The year started off with the IMO Sulphur Cap becoming effective on New Year's Day. Now, at the beginning of 2021 we can look back and probably consider the sulphur cap merely a bump in the road compared to what has been agreed in 2020, and what we see coming.

Both the IMO and the EU sanctioned new rules and regulations to limit air pollution from the maritime sector:

The IMO:

- Accelerating the timetable for the implementation of EEDI phase 3
- Introduction of an Energy Efficiency Index for existing ships
- Enhanced Shipboard Energy Efficiency Management Plan (SEEMP)
- Introduction of a Carbon Intensity Index (CII)

The EU:

- The European Green Deal (December 2019)
- Revisions to the MRV regulations adopted by the EU Parliament
- The European Taxonomy – inclusion of the maritime sector

At their 74th session in 2019, the MEPC agreed on a proposal (adopted at MEPC 75) to accelerate the timetable for the implementation for EEDI phase 3 threshold values. Phase 3 was originally scheduled for 2025, but has been moved forward to January 1, 2022, for certain ship types. The types covered are general cargo vessels, gas carriers, certain types of LNG carriers, and container carriers. This regulation calls for these ship types to meet the EEDI reference value – 30%-50% three years earlier than originally scheduled. Particularly large container vessels phase a huge challenge as the new threshold value is set at the reference EEDI – 50%.

The schedule for tankers and bulkers is unchanged. But interestingly, we observe that very few of the vessels delivered in 2020 meet the threshold value (Ref. EEDI – 20%) effective from January 1, 2020. Admittedly, the ships delivered in 2020 were not 'new' considering the EEDI regulations, and therefore had to comply with Phase 1 (-10%) values. Still, the 2020 delivered vessels must be considered state of the art with respect to fuel economy and we believe meeting phase 2 levels will prove to be a major challenge. Let alone phase 3.

In its 75th session the MEPC agreed on a proposal for introducing an energy efficiency index for existing ships. For tankers and bulkers (20-200 kdwt) the threshold level is set to Ref. EEDI – 20%; for 200 kdwt+ vessels, ref. EEDI – 15%; for container carriers – 20%-50% depending on size, and LNG carriers -30%.

The agreed rules are expected to be adopted at MEPC 76 in June 2021, but meanwhile the IMO will develop guidelines for interpretation. We believe that the EEXI might result in some vessels having to reduce service speed – especially container carriers.

At the same time, we see that steam turbine LNG carriers could struggle to meet the criteria and that some measures might be taken to mitigate undue negative effects.

The enhanced SEEMP contains new mandatory elements and measuring a CII and setting a mandatory CII in line with IMO ambitions in 2030. Each ship will be required to meet the 2030 CII target, however there will be some flexibility on goal attainment. It is up to the owner/operator how to achieve results, but the (individual) ship must document the CO2-emissions per transport work and follow a trajectory towards about 40% reduction in 2030. A plan for such decarbonization must be submitted for every ship (400 GT+) and approved. Larger vessels (5000 GT+) will have to calculate a CII (E.g. AER or EEOI) and the ship will be rated (A-E). If an individual ship does not improve its rating in line with the trajectory set, the certificate might not be renewed and subsequently the ship cannot sail.

In the European Green Deal announced in December 2019, the EU Commission made it abundantly clear of its intentions to include the maritime sector in the EU ETS. This was followed up in the EU Parliament in September where the Parliament adopted a proposal to change the MRV regulation. The adopted proposal clearly states that the maritime sector is to become a part of the EU ETS. Already in 2022.

Now, we believe it takes more than parliamentary sanctioning as the EU Commission will have its' say, as will the EU Council. It is assumed that everything will be packaged into the coming new EU Climate Law due in 2021. Meanwhile, an impact study is underway, and the final word has not yet been said. Still, we are quite convinced that the maritime sector will be included in the EU ETS in 2024/25. This could mean that all emissions on voyages to, from, or between EU/EEA ports will have to be balanced through purchasing of EUAs. The EUAs have been hovering above 30 €/mt in December and so far in January – it does not take much imagination that the inclusion of shipping in the EU ETS will have significant (cost) impact on shipping.

Finally, the maritime sector was originally not included in the EU Taxonomy, but a draft act is due for Commission adoption. Now, the proposed rules cover vessels 'not dedicated to transporting fossil fuel'. In other words, tankers and gas carriers are excluded from raising 'green capital' under the Taxonomy. For the rest of the fleet, it seems also close to impossible to take part in such financing given the requirements put forward.

To sum up, decisions made by the IMO and the EU in 2020 are wide-grasping and will have a serious impact on how shipping is conducted, as well as significant cost-implications.

In our view there are three factors determining the future: Consumption, consumption, and consumption. The design of a vessel is always a set of compromises where certain elements usually precede others. Going forward we believe the governing factor for the final design is lowest fuel consumption possible – in combination with lower carbon fuels.

The Research Team

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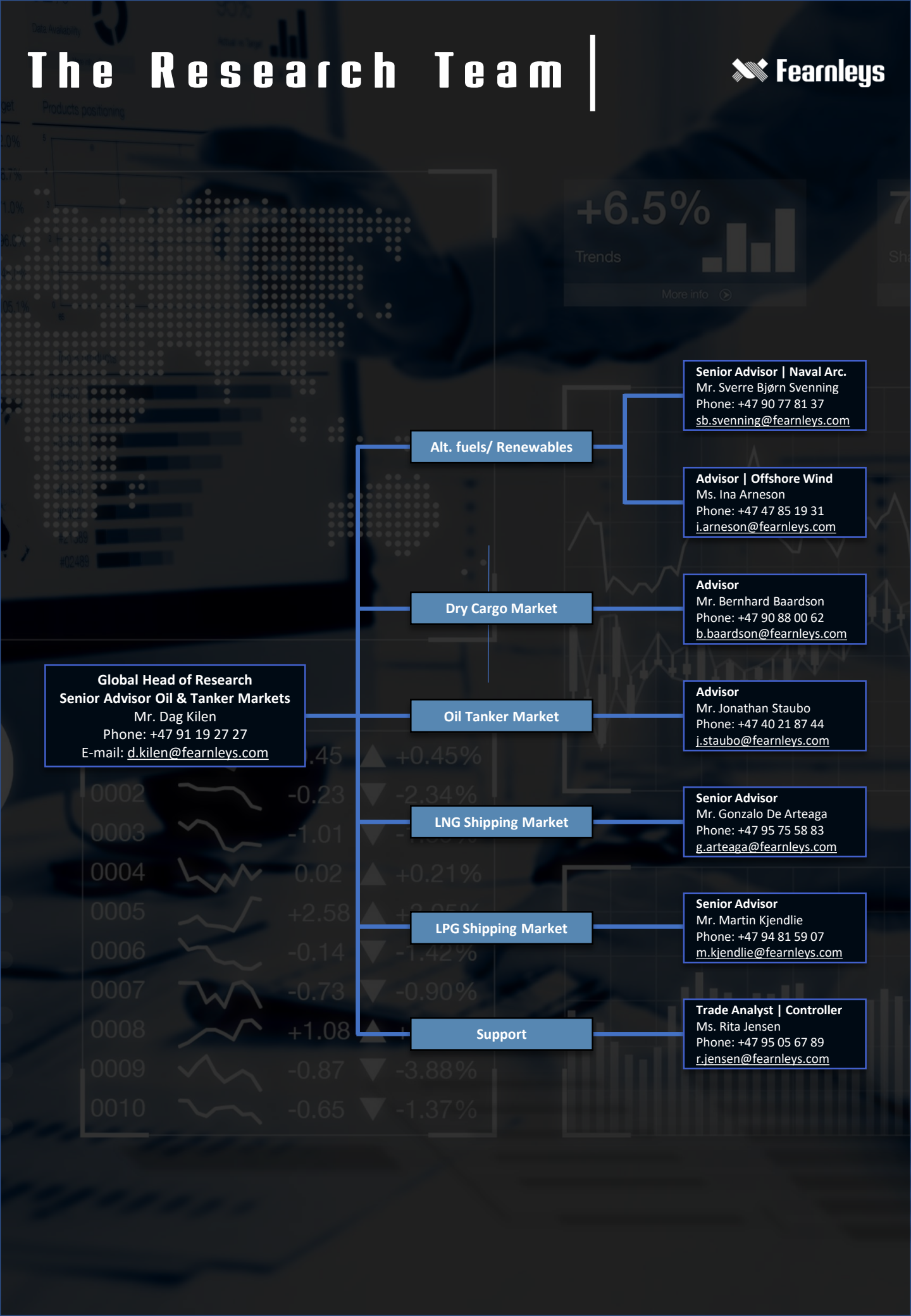

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