DCi DRY CARGO international

ISSUE NO.199 FEBRUARY 2017

FEATURES

- Global Coal Trades
- Coal Handling
- Enclosed Storage
- Ships' Agents
- Coal Terminal Developments

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Cover photos illustrate PEBCO's loading capabilities in rail, truck, ship and barge.
Aerial shot: Coal mine South Africa
Top right: Cement terminal in Montana, USA
Bottom left: Transfer terminal, Indiana, USA
Bottom right: Coal export terminal, Australia

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Hazy outlook for coal trade

During the past twelve months increases in commodity imports, in some countries around the world, were prominent, offsetting reductions elsewhere. A small rise in global seaborne dry bulk trade seems to have resulted. In 2017 a similar pattern may unfold, supporting a continued upwards trend.

Recent forecasts for economic activity point to a slight strengthening of momentum this year, although there are great uncertainties. An IMF update published a month ago estimated global GDP growth improving from an estimated 3.1% last year, to 3.4% in 2017. The quicker US expansion envisaged is a big contributor to the overall acceleration while China, by contrast, is still expected to continue slowing.

Coal

Uncertainty about the coal trade outlook is particularly large. Negative influences last year were accompanied by an unexpected strong upturn in China's imports, which restrained the pace of decline in the world total. During the year ahead, another large rise in China seems unlikely, and there are not many signs of expansion in other countries which could provide a boost.

An Australian Government forecast, published last month, suggested that global steam coal trade (including land movements, but mostly seaborne) could be 1% lower in 2017, compared with the previous year, at 1024 million tonnes. Metallurgical coal trade is expected to be flat at an estimated 314mt. In both categories China's imports are predicted to weaken, and European steam coal import demand could decrease.

Iron ore

Figures compiled by the World Steel Association show that in 2016 weakness was a feature of steel production in many countries which import raw materials. Further output reductions were seen, and where increases occurred, these were marginal. The dominant producer China saw crude steel output rise slowly by just over 1% last year, reaching 808mt, although iron ore imports increased much faster. In Japan, the steel total was flat at 105mt, while in the European Union a 2% decline to 162mt was seen. Currently there are tentative signs of limited increases in steel production in some countries over the next twelve months, assuming that demand from steel-using industries remains fairly solid or improves.

Grain

Estimates of grain trade in the current 2016/17 crop year ending June now point to only a marginal reduction from the previous twelve months, instead of the much larger decline expected earlier. Lower purchases by China are the principal negative change foreseen among buyers, accompanied by increases in numerous other countries.

Imports of wheat, corn and other coarse grains into China are likely to fall by about one-third in 2016/17, to 15.4mt, based on International Grains Council calculations, amid attempts to reduced excessively high domestic corn stocks. European Union grain purchases also may decline, by 11% to 19mt. However, India is buying a much larger volume. The result of all the changes is a predicted minor 3mt or 1% decrease in overall world grain trade, to 340mt.

Minor bulks

One large element of the huge and diverse minor bulk trade category saw a reduction last year after expanding rapidly in previous years. Exports of steel products (coil, plate, sheet, etc) by China reportedly were 3% lower at 109mt, under pressure from a number of importers to restrain volumes. Global steel products trade in total may have been slightly lower in 2016, partly as a result, and prospects for this year are unclear.

Bulk carrier fleet

The world fleet of bulk carriers increased by about 2% in 2016, boosted by a large volume of newbuilding vessels delivered by shipyards, totalling over 47 million deadweight tonnes, as shown in table 2. Scrapping of old or uneconomical tonnage had been expected to rise, but instead fell, contributing to a sizeable net increase in fleet capacity. In 2017 continued, possibly slower growth seems quite likely.

TABLE 1: KEY ASIAN SEABORNE COKING COAL IMPORTERS (MILLION TONNES)

	2011	2012	2013	2014	2015	2016*
Japan	68.7	70.5	77.0	74.1	70.6	72.0
South Korea	25.9	25.7	26.4	29.9	32.5	31.5
Taiwan	10.7	10.5	10.9	10.9	10.8	10.5
China	44.7	53.6	75.4	62.3	48.0	56.0
India	33.0	35.5	39.0	47.9	50.0	48.0
Total of above	**183.0**	**195.8**	**228.7**	**225.1**	**211.9**	**218.0**

source: various & BSA 2016 estimates * *estimate*

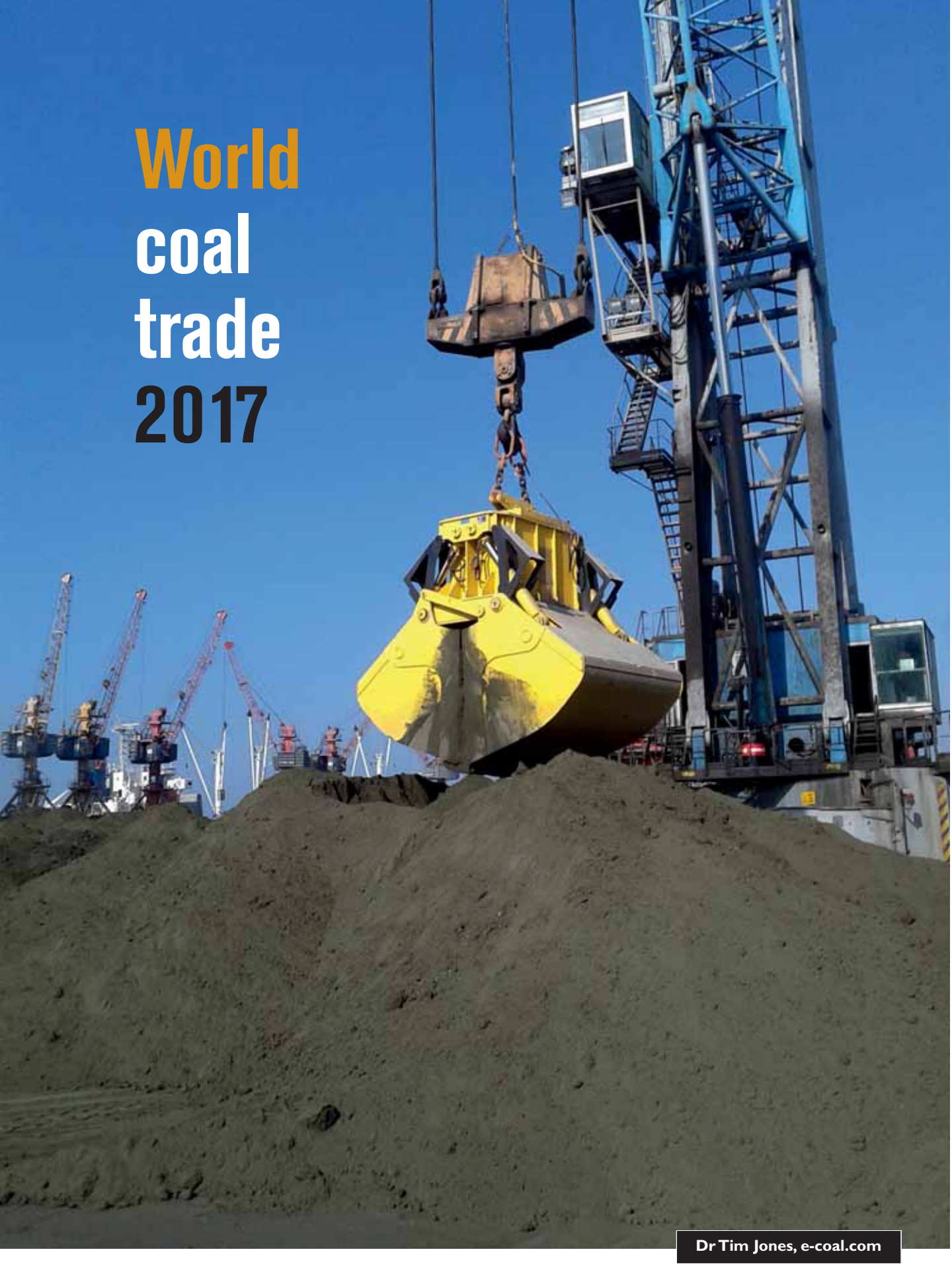
TABLE 2: BULK CARRIER NEWBUILDING DELIVERIES (MILLION DEADWEIGHT TONNES)

	2011	2012	2013	2014	2015	2016*
Handysize (10-39,999dwt)	10.2	10.5	6.3	5.4	6.6	4.7
Handymax (40-64,999dwt)	22.0	20.9	14.7	11.4	16.0	13.4
Panamax (65-99,999dwt)	22.2	27.0	19.9	12.8	9.9	9.5
Capesize (100,000dwt and over)	45.6	41.9	22.0	18.5	16.9	20.3
Total	**100.0**	**100.3**	**62.9**	**48.1**	**49.4**	**47.9**
% change from previous year		0.3	-37.3	-23.5	2.7	-3.0

source: Clarksons Research & BSA estimates for 2016 * estimate

by Richard Scott, Bulk Shipping Analysis, Tel: +44 (0)12 7722 5784; Fax: +44 (0)12 7722 5784; e-mail: bulkshipan@aol.com

World coal trade 2017

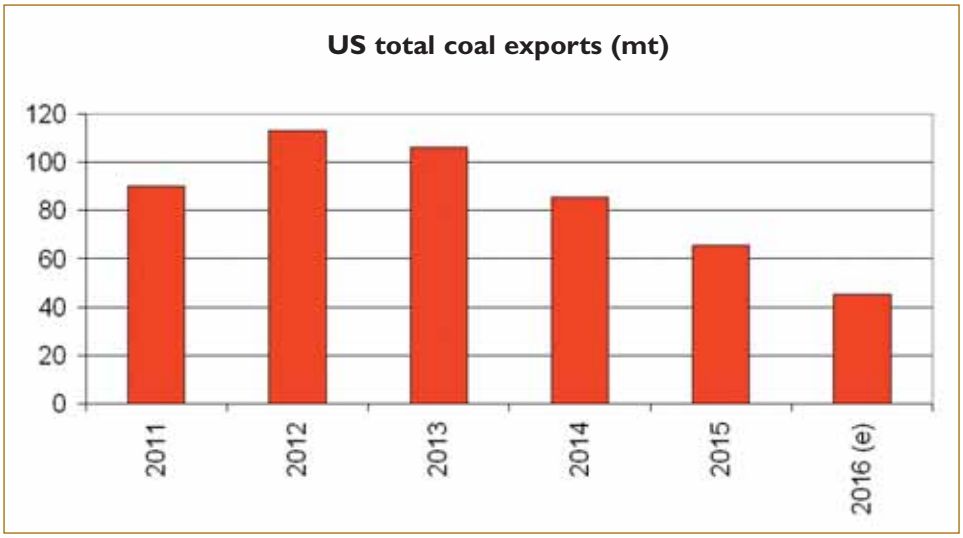


Dr Tim Jones, e-coal.com

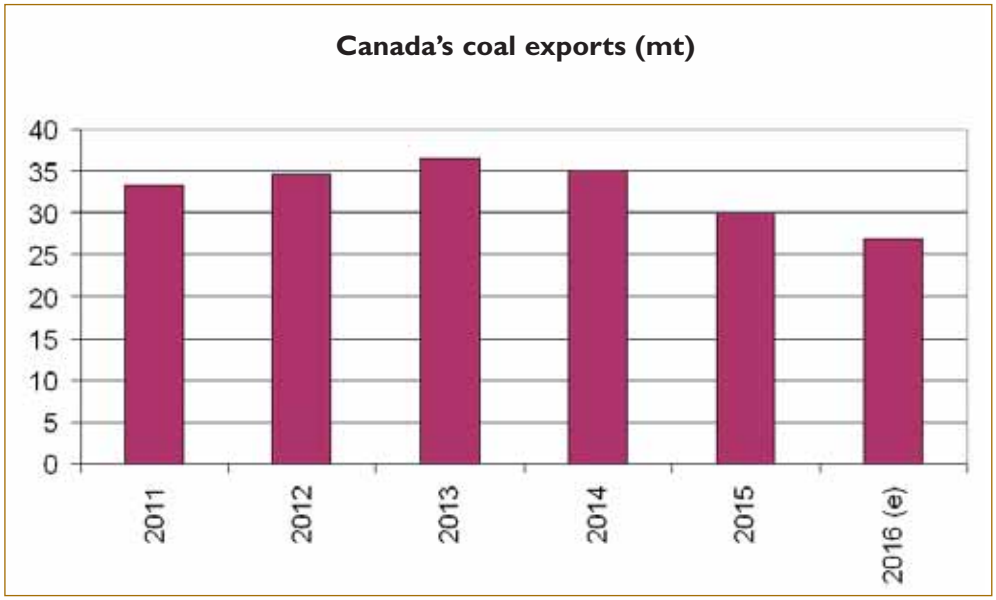
The past year has seen improvements in coal trade which were beyond the wildest dreams of most market players a year ago after they had survived many years of drifting around in the coal doldrums. The surge in demand and soaring prices in the second half surprised many, and even the few who had anticipated an improvement would not have foreseen the extent of the greater change in the coking coal market compared to the thermal coal market.

Some of the major coal producers around the world have seen significant improvements in their bottom line as the rise in coal prices materialized, combined with benefits resulting from their cost-cutting exercises over recent years. They appear to

have been more wary about ramping up production as prices began to firm, however, and that has not been leading to higher supply issues impacting the market balance. One thing that is likely to happen in 2017 is to see coal producers investing in projects which have been on hold for a while, and if they are not so keen there are signs that the banks are looking at the opportunities to make some profits amid the more positive price climate.

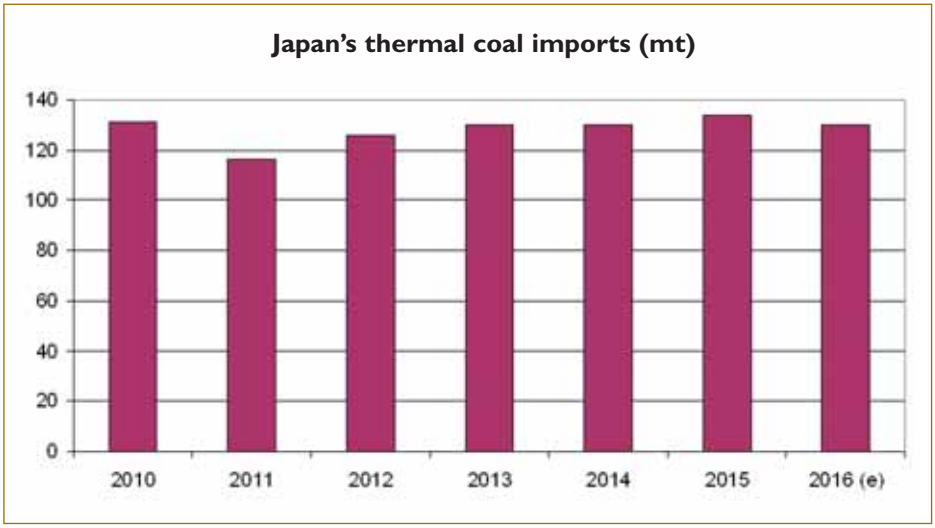


Some traders and market players expect the more buoyant markets to continue as 2017 gets under way, with potential oversupply scenarios in major producing countries including China, USA, and India being less of a concern compared to that of recent years. China continues to be the main uncertainty in the international coal market, however, and unexpected action by the government there is likely to take the market by surprise if it were to happen again. A change in government attitude to the coal market in mid-2016 has been attributed to the strengthening in the market, and that is seen by many as the main driving force in the recovery seen over the past few months elsewhere around the world. There are also some indications that the larger Chinese miners are aware that increasing production could upset the strength in the market they are now making the most of, and they might be more resistant to government intervention than they have been able to be in the past.



The spot price of thermal coal around the international markets recovered well during the second half of 2016. A year ago, the price at Newcastle was about US$50.00/t FOB (free on board) basis 6,000kcal/kg NAR (net as received) and by the beginning of 2017 it had reached about US$86.00/t FOB same basis. The Richards Bay spot price had reached about US$80.00/t FOB basis 6,000kcal/kg NAR by late December 2016 compared to about US$51.00/t same basis a year earlier. A greater price improvement was seen in the Colombian spot market where similar CV coal had plummeted to only US$45.00/t FOB at the beginning of 2016, but had increased to about US$87.00/t FOB by the end of December — almost doubling in price in 12 months. There has been speculation that the Colombian exporters have been back in the

Coal handling at the Port of Le Havre in France.



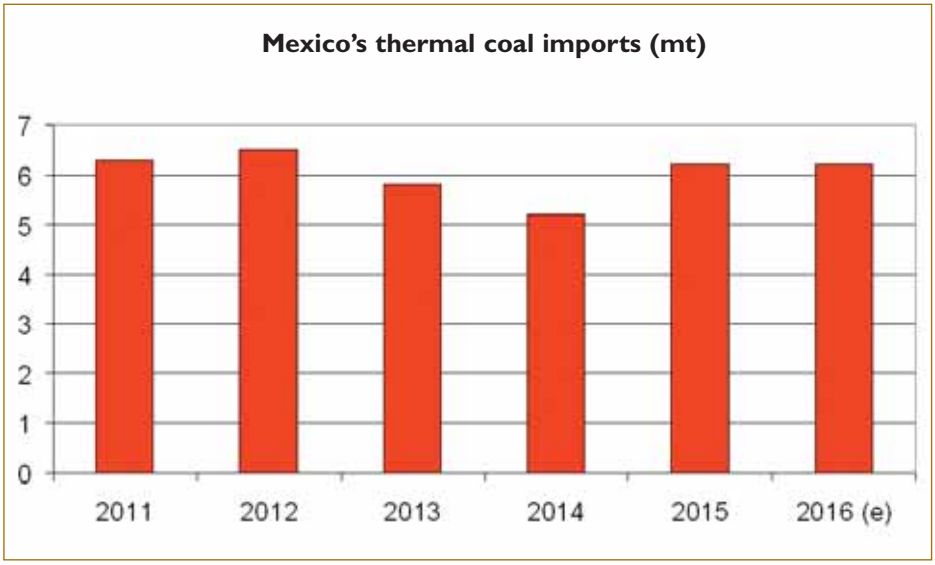
Asian markets in recent weeks, with rumours of new deals being done for tonnage to be delivered in 2017. The USA was historically the 'swing supplier' entering the Atlantic market when prices were high, but absent in times of low prices. At recent levels, some US producers have been watching the opportunities if their domestic commitments are first fulfilled, knowing that loyalty to their home market is what they need to display in the long term.

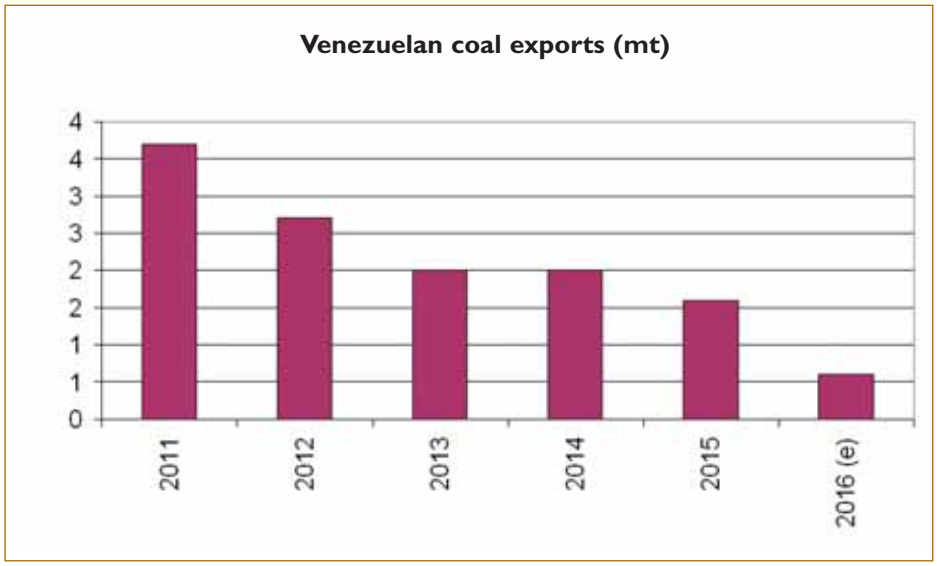
When the market was close to its lows last year, some players felt it could not go any lower. Now that prices are at current higher levels, there is a view that prices cannot go any higher. The unpredicted large upward movement seen in the second half of 2016 is an indication that forecasting the future of coal is in many ways still guesswork — somewhat like that shown to be the case for opinion poll organizations on more than one occasion in 2016!

In the coking coal markets, prices for premium hard coking coal soared during the second half of 2016, passing US$300/t in Queensland in November. This compares with around US$110/t a year ago. After Chinese demand had been satisfied, however, prices weakened again and have been decreasing significantly in recent weeks. Nevertheless the coking coal market is much firmer than it has been for several years now. Some market players are now expecting no bounce in the market, and for Chinese demand to remain subdued in the coming months.

The influence of Chinese New Year holidays on the thermal and coking coal markets is awaited at the time of writing. Market players currently expect diminished interest from China during the first quarter of 2017, and maybe into the second quarter, but as was seen a year ago the eventualities of the coal market are not always predicted. The remainder of the northern winter elsewhere could influence the thermal coal markets if an unexpected cold snap set in over the coming weeks, boosting demand in the short term.

Over the next four years or so, China is planning to reduce its coal production capacity by 300mt (metric tonnes) as the government seeks to eliminate old mining practices. A total of 800mt of old capacity is to go, while being replaced by 500mt of new mining technology by 2020. Reports on this policy by the government suggests there could be demand from the country for imported coal if domestic output cannot meet demand in the later years of the project which would be good news for exporters supplying China from other countries. Some current forecasts indicate that China will have a domestic supply shortfall of around 200mt of coal in 2020. While these numbers might appear large, it has been reported that China closed 250mt of capacity in 2016 alone.

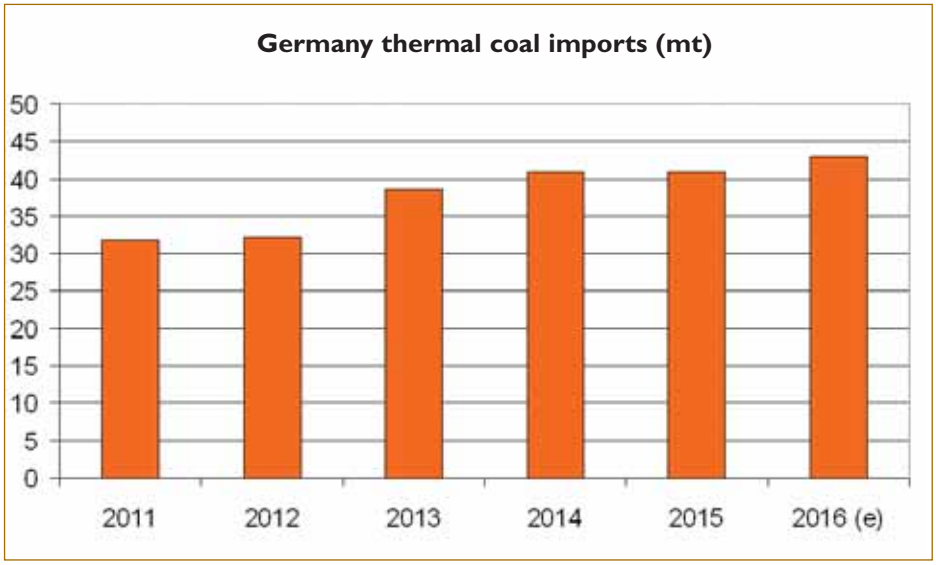




In the Pacific market, a Capesize cargo from Queensland to Japan was priced at only US$3.65/t at the start of 2016. This rate had increased to around US$7.50/t at the end of the year. A Panamax shipment from Kalimantan to India would have cost US$3.45/t in January 2016, but this had risen to around US$6.00/t by December.

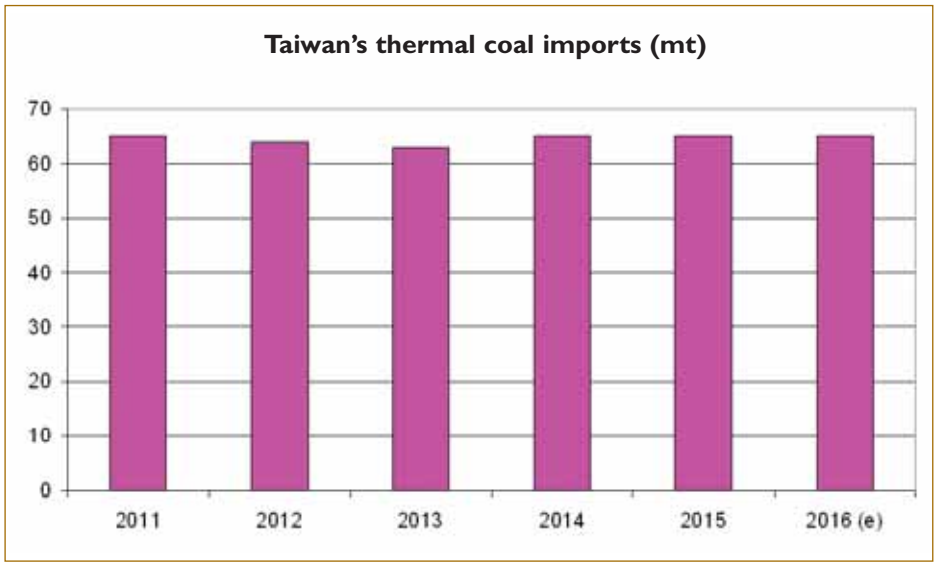
In recent Atlantic market news, Energias de Portugal is reported to have purchased four Capesize cargoes of Colombian coal plus two Baby Capes of Russian material for delivery during 2017 and starting in April. The price is rumoured to have been index-linked plus about US$5/t. The Russian coal is rumoured to have attracted a premium despite the smaller vessels and lesser sailing distance to the ports of Sines or Gijon. EdP has been seeing steady power generation at its facilities at Sines, Abono, and Soto lately.

During this decade so far, more than 7,000 mines have been closed with a reduction in older operations amounting to some 550mt. China aims to have about 6,000 coal mines in operation in 2020 which is a reduction to just over one third of the total a decade or so earlier. More than half the output in 2020 is to come from the large mines with capacity of more than 50mt, and with new technology and mines focusing on opportunities located in the western side of the country.

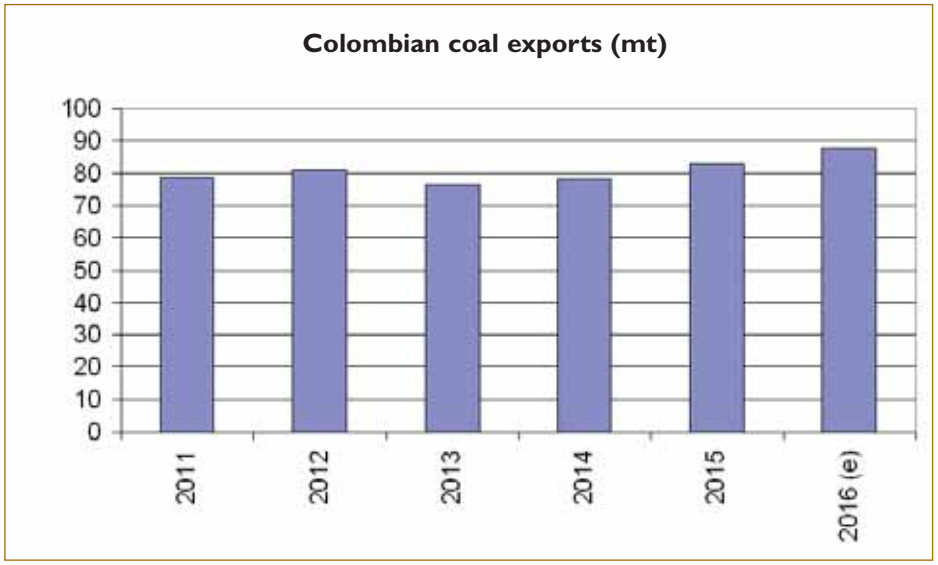


The freight market strengthened substantially during 2016 from the very low levels seen at the beginning of 2016. The price for a Capesize vessel on the Richards Bay to Rotterdam route started the year at only US$2.85/t which was well below the historical average. By the end of 2016 this had increased to around US$7.00/t which is closer to the historic average. A Capesize cargo from Puerto Bolivar to Rotterdam would have cost just US$3.95/t at the start of 2016, but by the end of the year this had risen to around US$7.75/t.

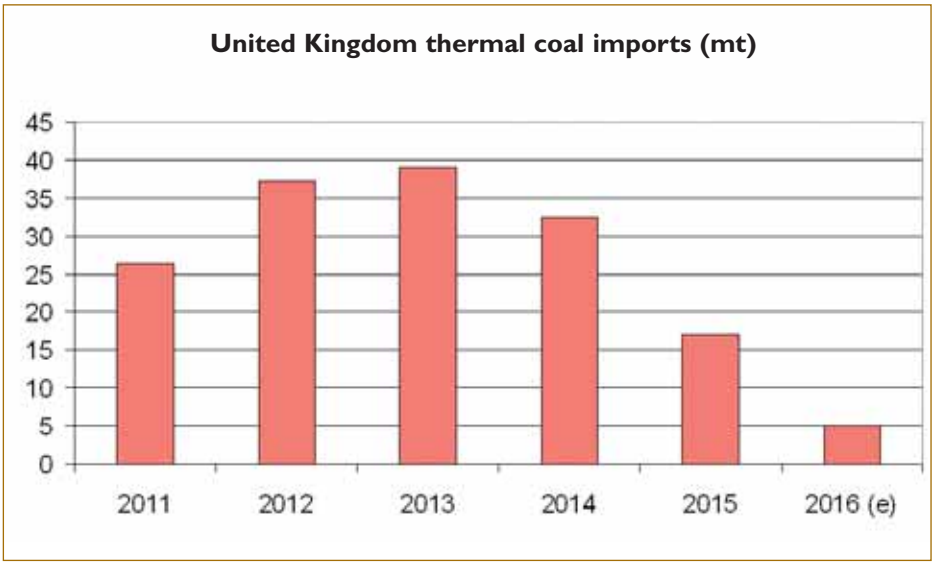
Croatia's 330MW Plomin power station recently purchased five Panamax cargoes of coal for delivery in the first half of 2017. The price is rumoured to have been index-linked plus about US$10/t which suggests the buyers were looking at a maximum price of about US$100/t delivered basis 6,000kcal/kg NAR for initial cargoes in 2017. Market players indicate the majority of the coal is Russian, but other supplier countries may also have won some business. The freight cost would have been about US$10/t. Plomin burned a substantial quantity of US coal in 2016, as well as material from other supplier countries to satisfy its demand for just under 1mtpa.



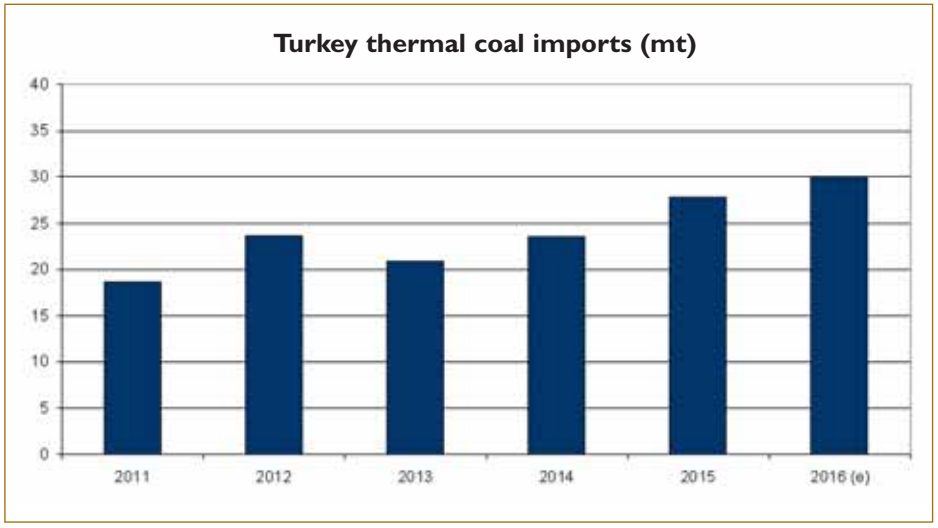
In the United Kingdom, at the time of writing, coal production has been significantly lower during 2016



compared to the previous year. In the first ten months of 2016 a total of 7.62mt of coal was produced, which was only just over half the tonnage produced in the same period in 2015. Output from the UK's remaining opencut mines was a third lower than in the same period in 2015 with a total of 3.8mt recorded compared to 5.45mt a year earlier. Production from underground mines was down by more than a half in the ten months to 31 October 2016 at 3.82mt compared to 8.16mt a year earlier. Coal stocks had also been depleted substantially to about 9mt compared to some 17mt a year earlier. Imports of thermal coal have been weaker over the past year. One of the main sources of coal for the United Kingdom is Colombia, but imports from that country were only about 2mt in ten months compared to more than 5mt in the same period in the previous year. The United Kingdom had been importing substantial quantities of coal from Russia but this has decreased significantly. In the ten months to 31 October last year a total of only 1.1mt was imported from Russia compared to some 6.2mt in the same period in the previous year.



In Asia, Taipower has purchased 1.68mt of sub-bituminous coal for delivery in 21 Panamax cargoes. One deal involves 480kt of material for delivery during January to May 2017 in six Panamax vessels, after tendering for 1.2mt in 14 cargoes. Specifications include CV 4,800kcal/kg GAR [gross air dried] (min), S 0.2% (max) adb, and ash 6% (max) adb. Tiger Energy Trading was successful with two cargoes priced at US$61.00/t FOB basis 4,800kcal/kg GAR for delivery during January to March, and two cargoes for delivery during April to May priced at about US$59.50/t FOB same basis. The Indonesian coal is rumoured to be coming from the Sakari Resources mines at Jembayan and Sebuku. Meanwhile, Adaro was awarded four cargoes for delivery during April to May priced at about US$61.50/t FOB basis 4,800kcal/kg GAR. The other deal involved 1.2mt of sub-bituminous coal for delivery during January to May in 15 Panamax cargoes. The range of prices is reported to be US$93.00-97.00/t CFR (cost & freight) basis 6,322kcal/kg GAR. Eight cargoes



were awarded to Advance Trading, supplying US coal, and Glencore was awarded five cargoes of Russian coal. LG International and Glencore were awarded one cargo each of Indonesian material to complete the required tonnage. Specifications included CV 5,000kcal/kg GAR (min), S 1.1% (max) adb, and ash 11% (max) adb.

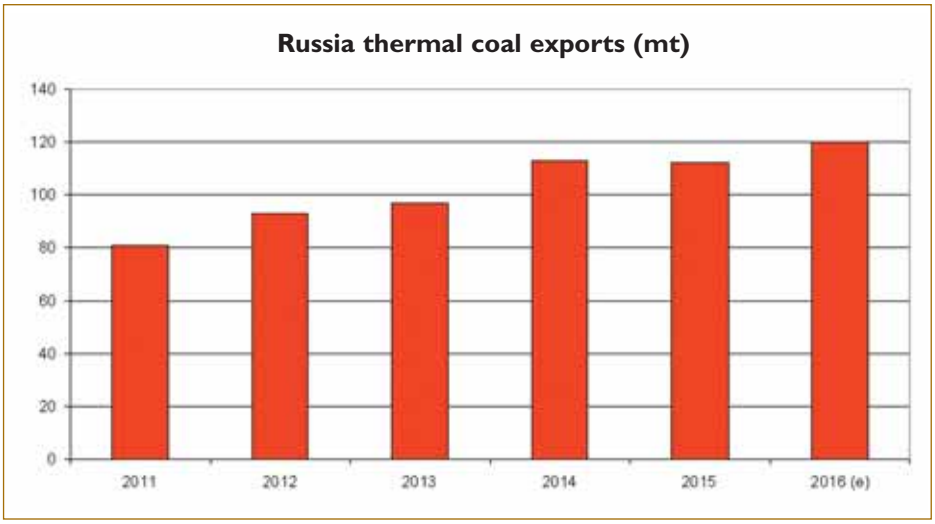
Formosa Plastics Group was also in the market recently with three tenders seeking bituminous coal with CV 6,000kcal/kg GAR (min) for delivery during the first half of 2017. One cargo was for delivery to Phumy port in Vietnam, with the other two for delivery to Taiwan. The requirement for Vietnam was 165kt for delivery in Panamax vessels during March to April. In the Taiwan tenders, one was restricted to Australian, Indonesian, and South African shippers and had no specified tonnage. Capesize cargoes on an FOB basis were required for delivery during late February to early April. The other required unspecified tonnage in Handysize or Panamax vessels during mid-February to April and was not restricted to specific country suppliers. Formosa Plastics Group was also in the market in late 2016 seeking sub-bituminous coal for delivery to the Philippines.

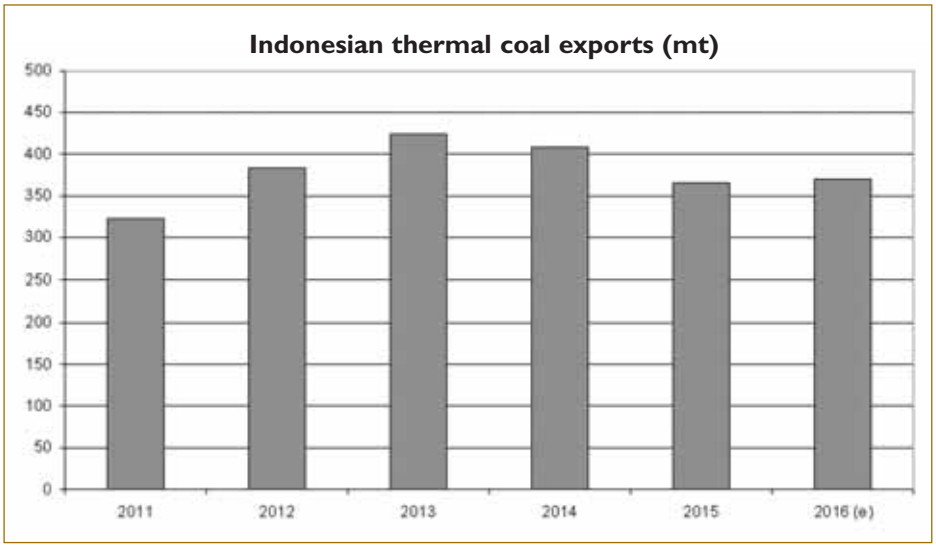
Elsewhere in Asia, the Korean Gencos have been seeking 1.51mt of coal during the last weeks of 2016. Their latest purchases have included 0.6mt of Australian material plus 0.54mt of Indonesian product. Korea East West Power bought coal from those countries in December following three LT tenders seeking supply for five years. Anglo and Rio Tinto won two Capesize cargoes each and will supply Australian coal for delivery beginning in February to June this year. The price for the coal with CV 5,700kcal/kg NAR (min) is reported to be US$78.25-78.75/t FOB basis 6,080kcal/kg NAR. In early December, Korea Western Power (Kowepo) purchased two Capesize cargoes of Australian coal for loading during February to April. The price is understood to be about US$75.50/t FOB basis 6,080kcal/kg NAR for material with a minimum CV of 5,700kcal/kg NAR.

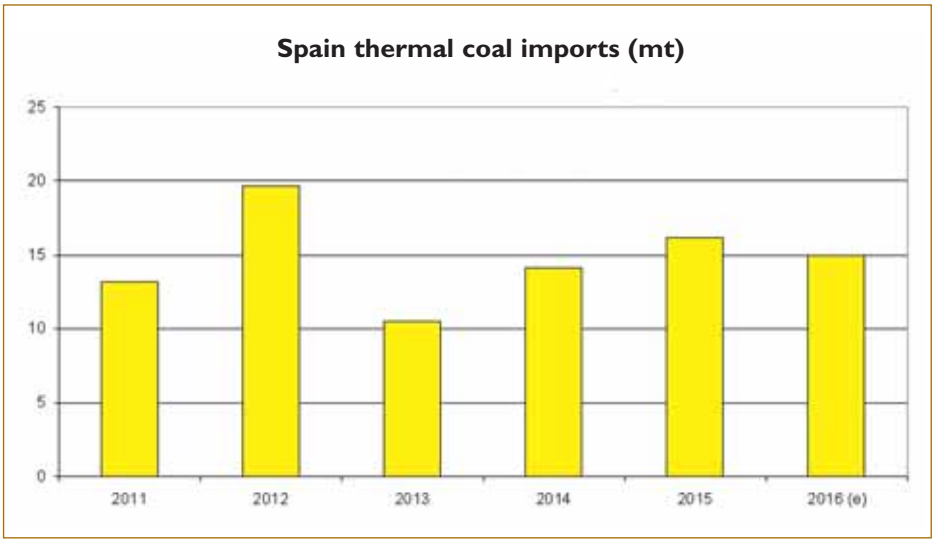
EWP purchased four Panamax cargoes of Indonesian coal from Avra in December 2016. The price is understood to have been US$66.00/t FOB basis 6,080kcal/kg NAR for material with a minimum CV of 4,600kcal/kg NAR. Delivery is required during March to June as part of the five-year contract.

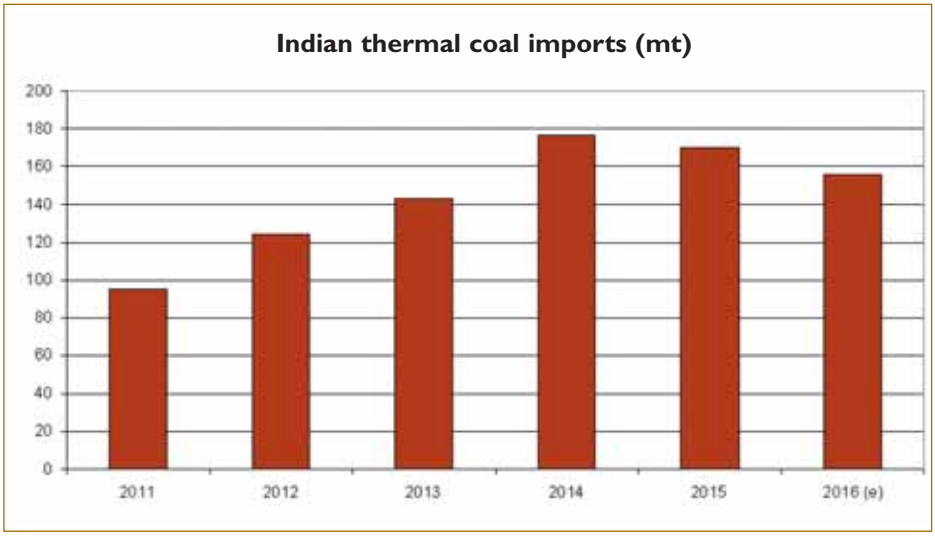
Korea Midland Power (Komipo) purchased two Panamax cargoes of Indonesian coal for loading in February to March at a price of about US$76.00/t FOB basis 6,080kcal/kg NAR. The coal has a minimum CV of 4,600kcal/kg NAR. The recent LT contracts signed by the Gencos involve a doubling of the Indonesian tonnage in subsequent years to 0.6mtpa.

Meanwhile, Korea Southern Power (Kospo) purchased three Panamax cargoes of Indonesian coal for loading in January to February. The price is believed to be around US$69.00-70.00/t





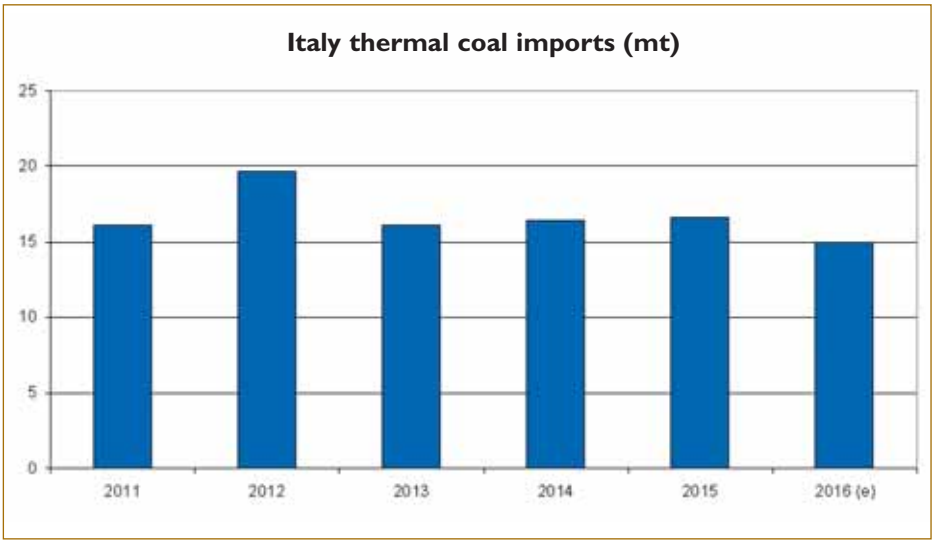




FOB basis 6,080kcal/kg NAR for material with a minimum CV of 3,800kcal/kg NAR.

The high price of coking coal which arose in the second half of 2016 saw a new record being set for exports of Colombian material in November. The sellers and traders were Bulk Trading, Camco, Coquecol, and Trafigura. A total of 360kt is reported to have been shipped in that month and followed increased production by the Colombian miners. Japan took 130kt of the coal, while Brazil was the main buyer at 170kt. Turkish consumers purchased 50kt for November.

At the time of writing, final trade data for the calendar year 2016 is some weeks off. Where data is available, some indication of how the year has developed is that one of the major trading countries, Colombia, had exported about 10% more thermal coal during the 11 months to 30 November than in the previous year. The total had reached over 80mt by then, with growth coming from markets in Asia and the Americas, while trade in Europe was about 3% lower than in the same period in 2015.



Europe remains by far the largest market for Colombian coal, and had taken more than 50mt by the end of November. Turkey was the largest European country market with almost 15mt shipped there in 11 months. From very little in 2015, the Asian markets purchased almost 7mt in that period, and India led the way with some 2.6mt.

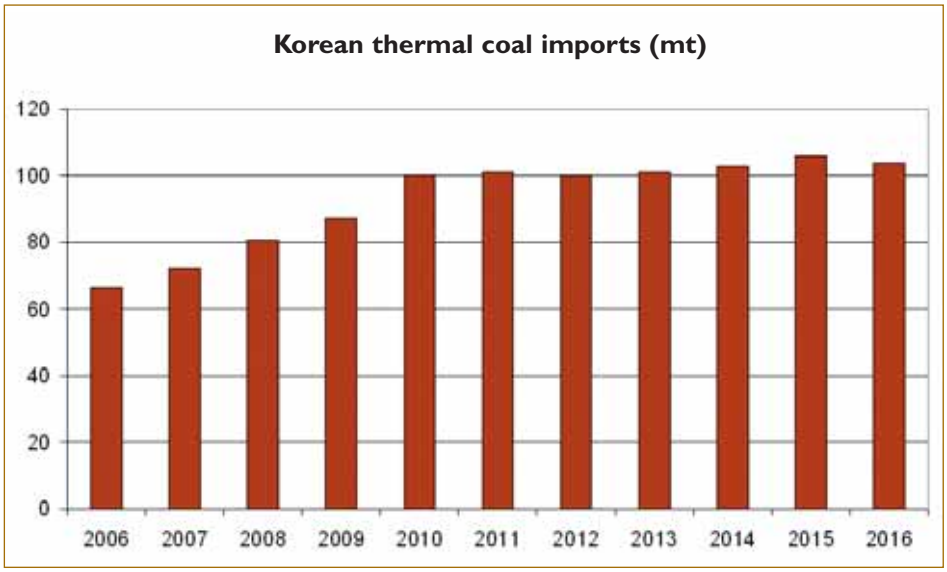
Australia is expected to have exported a total of about 384mt of coal in 2016 which is close to that recorded in 2015. The tonnages taken by its market countries showed variation during the year, but overall trade was large and fairly steady. The rise in the demand for coking coal and an expectation of the increase in price had been anticipated by one e-coal.com source very early in the year, but even they had not expected such a strong surge as eventuated in the second half of the year.

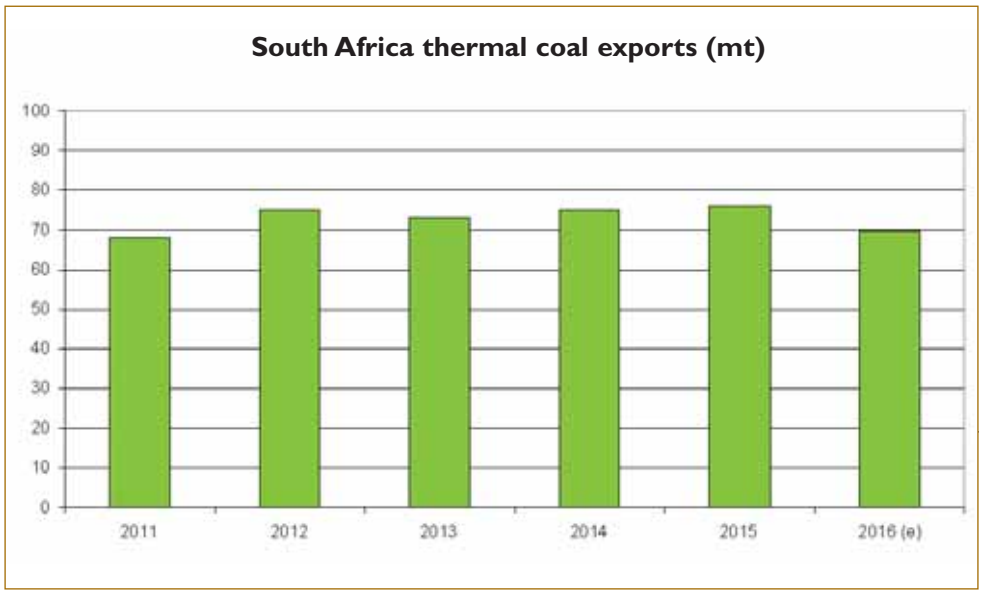
Estimates for the total thermal coal imported by India in 2016 suggest the figure is around 155mt after the rate of receivals had slowed by about 10% in the first three quarters of the year compared to the same period in 2015. Imports during the Indian Financial Year which ends on 31 March are currently expected to be about level with the previous year.

Regarding industrial relations in the main coal trading countries, a new three-year labour agreement was signed by Glencore and the coal union Sintracarbon in Colombia at the end of 2016 after the company proposed a seven-year deal against the union's two-year proposal. The agreement involves workers at the 10mtpa Calenturitas mine in Cesar department and at the Puerto Nuevo port in Ciénaga. About 75 out of the 300 workers are union members now, compared to around half the

workforce at about the time of previous agreements. The agreement includes a signing bonus of US$2,420 and a salary increase linked to the consumer price index plus 0.42% in each of the three years. As usual, negotiations were drawn out and went to the wire before agreement was reached, avoiding strike action or arbitration.

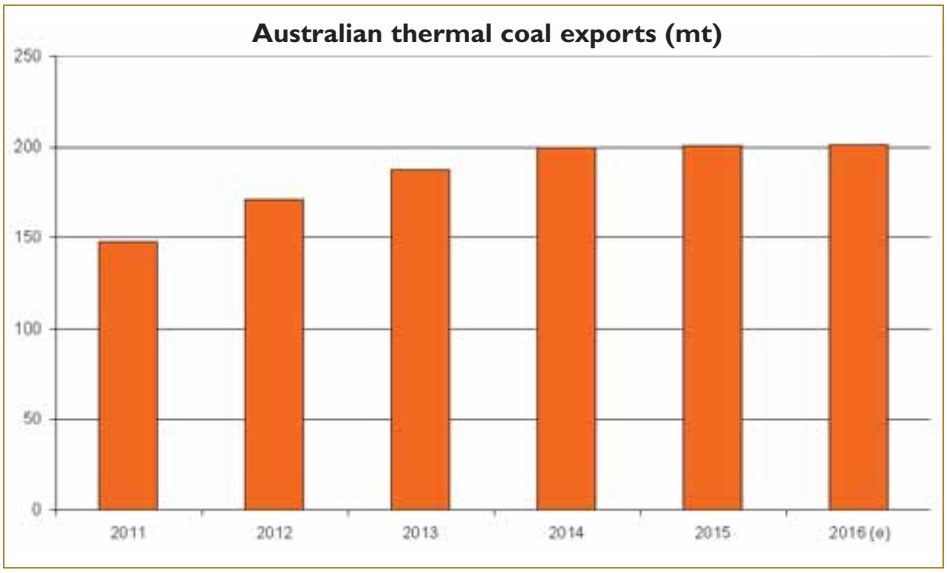
Still in Colombian industrial relations, Fenoco reached agreement on a new labour deal with its rail worker members of the Sintraime union at the end of 2016. Coal produced by Drummond, Glencore, and Murray Energy is hauled by Fenoco, amounting to some two thirds of the country's coal exports. The company's proposal of a five-year package including a salary increase linked to the consumer price index plus 0.4% in the first year, and CPI plus 0.3% in subsequent years was agreed. The workers were also given a US$4,000 bonus for signing the agreement.





Korea is expected to be seeking more higher CV coal this year due to government intervention on the tax on imported coal. In the meantime, those requiring lower quality material are expected to be busy before the changes take effect in April. The rate of tax is set to increase by KRW6,000/t then, and this reduces the purchasers' effective 'bang for their buck' if they buy lower CV coal compared to higher CV product from overseas.

While the international markets now expect things to ease off somewhat in early 2017 after the recent boom, it appears the coal industry is in for a better period compared to the struggling that has been going on for a number of years now. Improvements in the bottom line of some operators is already leading to expectations of new investment in coal, but it will probably depend on how steady the market turns out to be in the first few months of 2017. Each year, predictions are difficult, but it would be quite unfortunate if things went back to the way they were just one year ago. With the recent change in politics in Europe and the USA, there may be new attitudes to industry over the coming year which would be interesting for participants in the coal sector and observers alike. DCi



Dr Tim Jones is Director of e-coal.com Consultancy and Editor of the weekly publication Coal Market Intelligence *which covers 11 spot markets worldwide, gives key information on the latest deals and tenders, company news, people and jobs, industrial relations, and ports, shipping, and freight rates.*

Iron ore defies the odds

Tom Albanese, CEO of Vedanta Resources, gives his views on the improving minerals market

Kunal Bose


Tom Albanese.

Proving forecasters wrong, iron ore prices made marked advances in 2016, though not as much as metallurgical coal. In an interview with Kunal Bose of *DCI*, Vedanta Resources CEO Tom Albanese says the size of global ore inventories at well above historical average, universal concern over climate change and supplies from new mines, particularly in Brazil and Australia will have a bearing on price behaviour in 2017. Albanese says many brokerages don't see a runaway rally happening in iron ore this year.

Q: *Iron ore defied price forecasts by major research groups to register sharp price rises in 2016. Metallurgical Mines Association of China says average seaborne iron ore price in 2017 will rise moderately to over $60 a tonne. What is your price forecast?*
A: On the demand side, steel production was moderately up driven by Chinese stimulus. The most important factor was on supply side like we saw with price increases last year in metals. There had been contraction of high-cost Chinese iron ore production despite last year's dramatic price increases. On the seaborne ore supply, production was ramping up in Brazil and Australia but at a muted pace. Finally, surges in coking coal prices put a large value-in-use premium on higher index grades of iron ore. Lower grades like what we export from Goa in India are not, however, seeing any marked rises in prices.
Q: *How do you look at liberalization of Indian exploration policy and new mines ownership coming through auction bidding?*
A: New Delhi is enthusiastic about boosting the sector through reforms. The amendment to the Mines and Minerals (Development and Regulation) Act that allows transfer of captive mining leases not granted through auction will boost natural resources sector in the medium to long term. Mergers and acquisitions in sectors that rely on natural resources will benefit from the amendment to the Act.

However, some legacy issues such as land ownership pattern, quality of mineralization studies, small sizes of deposits put on auction and end use restrictions are weighing heavily on the mining sector. These need to be addressed. A pro-reforms government in New Delhi and India's ascending global stature conjures up image of Australia during the 1970s, when the natural resources industry was nascent in that continent. Today that industry in Australia offers the best-in-class infrastructure and use of low emission technologies. I believe India has the means and the will to come Australia's level quickly.

What further gives me confidence is New Delhi's reinvigorated hydrocarbons policy that encourages greater private sector participation. As the regulatory system matures and awareness spreads across communities and carbon neutral technologies are introduced, the natural resources sector will continue to evolve robustly with high levels of contribution to the country's GDP.

Q: *The Indian iron ore industry had been through much tumult in recent years with court-ordered mines closures. The rules of the game then got changed because of the amendment to MMDR Act in 2015.*

What will be your prescription to restore normal mines operation?
A: Prior to the ban, India was one of the world's largest exporters of ore. That coincided with a booming commodities sector, with China principally driving global demand. But last year beginning the world faced headwinds such as fears of a China slowdown, sluggish economic recovery in the West, concerns over growth sustainability in emerging markets and surplus iron ore supply. In any case for over a year, the market entertained fears of lower world metal demand on the back of China entering a mature period in its materials consumption cycle.

But the fear sentiment that this generated disappeared when Beijing introduced a stimulus programme in the second half of 2016. Liquidity flowed into infrastructure and real estate sectors. In the process ore demand was reignited. Donald Trump winning the US Presidential election convinced commodity bulls of a rally in 2017.

As for India production caps have led to a fraction of the quantum being produced before the ban. For example, a cap of 20mt (million tonnes) a year in Goa falls way short of production that can be sustainably mined there. Our suggestion to the government is to lift the cap gradually and introduce checks and balances to ensure sustainable mining.

Q: *But will not the bulls have to contend with global high inventories of ore and commissioning of new large mines?*
A: True, ore inventories are rising and these are at this point well above historical average. Given this situation, a legitimate question is to what further extent can spot prices climb. Then, global concern over climate change will be an interesting factor to watch out for. Some softening of ore prices of late is ascribed to Beijing asking steel mills to stay shut till the smog has cleared. The Chinese steel sector stuck with old technologies has higher emission levels than its peers in many other countries. Are we going to see Chinese industry making mass transition to a new environment friendly technology or will Beijing rest content introducing a stricter regime for steel mill operation? Answers to these questions as they unravel will decide the course of ore prices.

Q: *What could be the impact of price improvement on ore output?*
A: That there is a trickle-down effect of higher prices on ore production is accepted. In the past couple of years the focus of miners was to improve operational efficiency and cut costs to weather low prices. This might now change to more action on ore price improvement and demand supply outlook being less overcast. Brazilian Vale's $14.3 billion Eliezer Batista S11D complex near Canaa dos Carajas in Brazil stands as an example of how greenfield and brownfield activities in iron ore industry may kick off. Miners in general are cautiously optimistic about how ore prices will play out this year. While some brokerages expect prices to average $60 a tonne, there are others who dismiss the recent rally as a "fluke". In any case they don't see a runaway rally happening in 2017.

Q: *Aluminium is doing well with LME three-month price quoting over $1,790 a tonne. Alumina prices too are up in tandem. How do you see aluminium performing in 2017 and beyond? Where do you see Indian aluminium capacity by 2030? Should India take alumina abroad for smelting where power comes cheap?*
a: Demand for aluminium has continued to be strong over the past several years, as new applications are found for this important metal. However, this demand growth has been more than met by very rapid smelter capacity expansion in China in particular. This has kept the white silvery metal in surplus, with low prices. Hopefully capacity growth is moderating in China, helped by rising coal and alumina costs. Another factor that has reduced the stockpile is the price and availability of alumina. Aluminium may see an upside in 2017 to factor in the rising cost of raw materials. Increasing input prices such as that of caustic soda will have a critical bearing on aluminium prices. Any increase in green energy cess will add up to aluminium manufacturing cost.

Alumina smelting in India is relatively expensive due to higher cost of power and freight. However, to move smelting offshore may not be rewarding, if one considers long-term dynamics. Favourable trade policy such as increasing customs duty and placing minimum import price on aluminium shall be instrumental in protecting Indian producers of the metal. With New Delhi promoting the natural resources sector, attractiveness of alumina production in the country will grow.

The average *per capita* consumption of aluminium in India is 2.2kg against a global average of 8kg. That is a pointer to the huge potential for aluminium consumption growth in the country. With India remaining the fastest-growing major economy in the world, aluminium use can only rise. India has vast reserves of bauxite and that will prove handy in future smelting capacity growth.

Q: *Zinc has been one of the best-performing base metals in 2016. Will this again be the case in the current year?*
Q: In a rising base metals price environment in 2016, Zinc led the way with a gain of over 70%. Zinc has a multiplicity of industrial applications and its demand is linked to global industrial production and GDP growth. Considering that China, India and now Brazil are chugging along at a fair speed, the demand for zinc will remain steady. If the US infrastructure ramp up moves forward according to Trump's plan, that would give extra fillip to zinc prices.

But what has clearly come out of zinc's track record over the years is that supply will decide prices to a large extent. A number of large zinc mines closed during 2015/16 as reserves were exhausted or operational costs became too high. It will be hard to replace this lost production.

Most analysts are predicting strong zinc prices for 2017. There is a chance for significant further price improvements. This may, however, be self-defeating as it could become a catalyst for new supply. This may make any such rally short-lived.

Q: *What exactly has triggered the turnaround in commodities — minerals and metals — when the IMF has cut global growth forecast by 0.1 percentage point to 3.4%? The IMF says the Brexit vote implies a substantial increase in economic, political, and institutional uncertainty, which is projected to have negative macroeconomic consequences, especially in advanced European economies. Your comments.*
A: Yes, global GDP estimates have been recently tempered downward. But at the same time the US and China will both see synchronized growth for the next few years. This is to happen for the first time in over a decade. While the UK and EU economies may suffer some uncertainty, it won't be enough to significantly reduce overall global metals demand. The main story for metals will happen on supply side. After years of sharply reduced capital spending, surpluses are turning to deficits and metal inventories are beginning to fall. It will be hard to reverse this macro sector-trend.

Hydrex scores at home and away with afloat hull plate repairs

When a high-speed support ship arrived at a yard in Curaçao needing emergency repairs to hull plating, drydock unavailability created a new dimension to an otherwise standard repair job.

A Hydrex Underwater Technology technical dive team was mobilized to the Caribbean island to figure out a solution.

Hydrex Production Executive Dave Bleyenberg, explained: "The shipyard and the owner agreed that our idea to build a cofferdam was the optimum solution, allowing yard staff to carry out the work from inside the vessel at its berth. The difficulty lay in the fact that the vessel had an aluminium hull, preventing any wet welding work.

"The hull had been damaged in two locations so we planned to move the cofferdam to the next area after completion of the first repair. Because of the deformation of the bottom plating, we had to build a second cofferdam and cover up both damaged areas at the same time. This proved to be the much quicker solution and resulted in us finishing the job well before drydock space became available, much to the satisfaction of the owner."

In less warmer climes, Hydrex divers were called out to Zeebrugge, Belgium, to repair the hull of ro-ro vessel that had collided with a quay wall.

"The operation started with a detailed underwater inspection of the damage, said Bleyenberg. "This revealed a 780mm-long crack on the bulbous bow, two metres under the waterline. Crack arrests were drilled on each side of the damaged area to prevent the crack from spreading further, after which a 850mm × 60mm doubler plate was positioned over the damage and secured with wet welds."

Leak tests confirmed the integrity of the repair, which was subsequently approved by the classification society.

"While this was not a complicated project, the nature of the emergency repair demanded an immediate response due to the type of vessel. We managed to repair the vessel without disrupting its tight operational schedule.

"Both vessels were able to continue sailing without the need to drydock, saving their owners considerable time and money," said Bleyenberg.

Antwerp-headquartered Hydrex is renowned for bringing drydock-like conditions to ships and offshore units. This helps owners to extend their vessel's drydock interval and eliminates the loss of time and production brought about by drydocking.

Using it patented Mobdock concept (mobile mini drydock), Hydrex diver/technicians can perform permanent repairs to all parts of the underwater ship propulsion system, as well as steel work or crack repairs in drydock-like conditions.

Because of the nature of repair work, it is often necessary for solutions to difficult problems to be worked out in a short time period, sometimes even after an operation has already started. Through a worldwide network of offices and service stations, Hydrex can provide start-to-finish solutions economically at any location.

GB Railfreight wins new contract with B-Logistics

GB Railfreight (GBRf), one of the UK's leading rail freight companies, has won a contract with B Logistics, the Belgian rail freight company, to move kaolin between Belgium and Scotland.

The contract, which started on 3 January 2017 for 12 months, will see GBRf transport china clay slurry from Antwerp to Scotland. This flow is fondly known as the 'silver bullet' train throughout the rail industry and is a well-established freight service on the network. GBRf will be using a mixed traction strategy across their element of the 1,000km journey, with its Class 92 electric fleet delivering the train through the Channel Tunnel, running the service as far north as Carlisle, where it will then switch to its Class 66 diesel traction for the leg into Scotland.

John Smith, Managing Director at GB Railfreight says: "This contract win is a recognition of the outstanding reliability and performance our customers have come to expect. Our first service in this flow arrived four minutes early into the rail terminal and we aim to deliver this level of service through the duration of the contract. We're very pleased to be working with B Logistics to connect Belgium and Britain and deliver Kaolin to the paper mill in Scotland."

GB Railfreight has a fleet of over 130 locomotives and 1,100 wagons, providing a wide range of rail transport solutions and rail services to its customers. Its team of 650 people operates over 1,000 trainloads a week, moving 15% of UK's rail freight.

Founded in 1999 and headquartered in London, United Kingdom, GB Railfreight is the third largest rail freight operator in the United Kingdom, with a turnover in excess of £120m. GB Railfreight is one of the fastest growing companies in the railway sector and transports goods for a wide range of customers.

Drewry positive on dry bulk rates for shipping

Global shipping consultancy Drewry has put forward several observations based on how it thinks the dry bulk market could develop in the next few years. It believes that, if vessel supply growth is moderated while the overall market outlook improves, current chronic over-capacity in the sector could be cut and prospects for dry bulk shipping improved.

Although Capesize one-year time charter rates in 2016 have been at an all time low, Drewry forecasts that these will double over the next five years. This is because the reasons driving what is a sharp contraction in the supply and demand gap are all now positive: high rates of scrapping are leading to a slowdown in vessel supply, and low levels of new deliveries are now prevalent and new orders scarce.

Furthermore, the impending cost of installing Ballast Water Treatment Systems on vessels is also expected to mean owners will continue scrapping ever younger tonnage, since many owers have been struggling to even cover their operating costs, so will not be able to absorb this additional cost, since it will result in increased losses.

Private sector investors have understandibly shown themselves reluctant to finance new vessel build in the dry bulk market, which will result in limited new orders for shipping yards for more than two years, helping to cut the total tonnage overall.

Nevertheless, while supply is cut, demand is expected to grow strongly. In particular, China's increasing reliance on Brazil for supplies of iron ore should drive higher tonne mile demand. However, should the rise in Chinese iron ore production not be as high as expected, the simple fact that it now looks towards Brazil for its raw materials will boost vessel demand significantly.

Vietnam, Korea and Taiwan, in particular, are all expected to boost coal imports to fuel ever greater numbers of coal-powered generating plants. This is just one factor to prompt Drewry to claim that demand for coal should remain strong over the next five years, too.

Rahul Sharan, Drewry's lead analyst for dry bulk shipping, says that "Dry bulk shipping has bottomed out and a market recovery is under way, albeit a slow one. Rising demand for ships to cater for increasing raw material consumption, together with the effect of shifting trade routes will help increase tonne miles. With investment remaining out of reach from dry bulk owners, even a modest growth in demand will help support market recovery. Meanwhile, the increasing cost of running an old ship will mean more vessels go to scrapyards, tightening supply over the next five years."

Barry Cross

Hempel launches new coating and continues DNV GL co-operation

Hempel launches versatile new epoxy coating for marine newbuildings

Last year, major world-wide coatings supplier Hempel announced the launch of Hempadur Quattro XO 17820 in Canada, the US and Mexico. Responding to customer needs, this high performance two-component pure epoxy PSPC (Performance Standard for Protective Coatings) compliant coating has been developed for the marine newbuilding sector.

Hempadur Quattro XO 17820 was developed for water ballast tanks in new vessels, however it can also be used as a uni-primer for most vessel areas — above and below the waterline — providing high quality performance and peace of mind for customers.

Hempadur Quattro XO 17820 has been created specifically to suit the working methods of shipbuilders and so accommodates shorter re-coat intervals and reduces maintenance costs. Additionally, its higher (80%) volume solids ratio means fewer volatile organic compounds (VOCs) are released into the atmosphere, which is preferred in North America.

IMO (International Maritime Organization) requires the use of a PSPC certified coating for water ballast tanks. The launch of this new coating represents innovative pure epoxy technology that delivers the optimized performance demanded by Hempel's customers.

Benefits of Hempadur Quattro XO 17820 include:

- high quality pure epoxy technology offering superior crack resistance, edge retention, coating flexibility and impact resistance;
- high efficiency for shipyards due to fast drying and year around applications from 14°F/–10°C to 104°F/40°C.
- option to upgrade with aluminim pigmentation and proprietary fibre-reinforcement technology to enhance anti-corrosion properties and long-term durability with reduced maintenance expectations.

For the decision makers, the high quality and robustness of Hempadur Quattro XO 17820 provides simplicity and reduced maintenance costs.

Speaking of the launch, North America Marine Product Manager Tracey Wilson commented: "This innovative new coating has been developed in consultation with our customers to offer additional choice for the specific requirements of owners and yards. Hempadur Quattro XO 17820 has been in development for three years and builds on the wide success of our existing Hempadur Quattro epoxy coatings. Utilizing pure epoxy technology and in conjunction with aluminium pigmentation and our proprietary micro-fibre reinforcement technology, this coating will ensure exceptionally high protection at a competitive price."

The launch in North America completes the global availability of Hempadur Quattro XO, which is now stocked in all major regions of the world.

Hempel delivers trusted solutions to the protective, decorative, marine, container, industrial and yacht markets.

Hempel and DNV GL continue co-operation to embrace new hull & propeller performance criteria ISO 19030

ISO 19030, published in November last year by the International Organization for Standardization, defines a set of fully transparent methodologies to measure changes in hull and propeller performance.

As a leading coatings manufacturer, Hempel pioneered the performance guarantee based on achieving efficiency savings from maintaining a fouling-free and smooth hull. Therefore, Hempel warmly welcomes the introduction of this internationally recognized and accepted set of measurement standards.

Hempel is proud of its ongoing cooperative agreement with DNV GL which utilizes DNV GL's ECO Insight solution to offer customers clear, comprehensible and verifiable analytics which track and assess hull and propeller performance. ISO 19030 will strengthen this arrangement, as Hempel's Hull Performance Team Leader, Dr. Marcus Tullberg, explains: "The ISO 19030 provides a foundation and a transparent framework for vessel performance analysis. We expect to combine this standard with the more advanced hull and propeller performance methodologies delivered by ECO Insight to give even greater efficiency benefits to the world's fleet".

Endorsing the initiative, Dr. Torsten Büssow, Director of Fleet Performance Management at DNV GL – Maritime, says: "We value our collaboration with Hempel and welcome the opportunity to measure the actual performance of hull coatings using our ECO Insight solution. ECO Insight complies with the ISO 19030 standard, allows for more advanced analytics, and can therefore offer ship owners and operators a holistic overview of their hull coating's efficiency."

Hempel has been deeply involved with the development of ISO 19030. The key performance indicators of the standard will be used to quantify, amongst other variables, any degradation in hull and propeller efficiency of a specific vessel over a period of time.

Therefore, it is expected to become a useful tool to optimize the management of hulls and propellers for fuel efficiency – an initiative which Hempel and DNV GL have been working towards for many years.

Christian Ottosen, Hempel Group Vice President Marine, summarizes: "The new standard will have a positive impact on the maritime sector, allowing our customers to document and measure the contribution that premium coatings make on reducing a vessel's operational costs through fuel savings. More advanced analytics, such as that delivered by Hempel together with DNV GL's ECO Insight, will give our customers the opportunity to benchmark their fleet and further maximize their energy efficiency strategies".

Hempel is proud to make a continued commitment to the maritime sector by taking an active role in industry changing initiatives such as ISO 19030 and by providing trusted and innovative hull coating solutions that enable its customers to achieve significant efficiency gains.

About Hempel

Since 1915 Hempel has been a world-leading coatings specialist, providing protection and inspiration to the world around us. Today it has over 5,500 people in 80 countries delivering trusted solutions in the protective, decorative, marine, container, industrial and yacht markets.

This includes many recognized brands like Crown Paints, Schaepman and Jones-Blair.

Hempel is proudly owned by the Hempel Foundation, which supports cultural, humanitarian and scientific causes across the world.

ETE Group celebrates 80th anniversary

ETE Group has strong focus on internationalization

The ETE Group celebrated its 80th anniversary at the Naval Rocha shipyard in Lisbon, Portugal, in the presence of the President of Portugal, Marcelo Rebelo de Sousa, the Minister for the Sea Affairs, Ana Paula Vitorino and the Minister for Environment, Matos Fernandes. During the celebrations, ETE Group confirmed that its current focuses are the internationalization of its business portfolio and the development of river operations.

According to Luis Nagy, the CEO, "at ETE Group we are starting the ninth decade with a strong focus on the internationalization of our operations, which have been growing and, we hope, will represent, in five years' time, 30–40% of our turnover, against the present 10%. We are particularly focused on markets that we can bring value to, in areas where we have a great deal of experience and know-how, as is the case of river navigation."

Latin America is one of the priorities for the ETE Group. In Colombia, after a four-year presence, a new operation has been launched. This involves the transport, by pusher and barges over a distance of 100km, stone and sands for infrastructures construction. Additionally, there are ongoing operations with floating cranes, river navigation, support to port and maritime construction and maintenance services, as well as logistic operations with local partners. In Uruguay, with Transfluvial (in partnership with Schandy and Ultramar), ETE runs an operation to transport wood logs by river, for the world's largest paper mill, as well as cargo transshipment and shipping operations.

Another ETE Group investment is in Cape Verde. According to Luis Nagy "recently we qualified first in an international public bid for the privatization of CABNAVE, the country's shipyard in S.Vicente island; the next step will be the financial agreement and the final contractual terms for a 30-year concession."

The focus on river operations is the answer to environmental challenges

Environmental challenges require integrated cargo transport solutions. Transport by inland waterways is an area in which ETE has a leading role in Iberia, one that has great potential to increase. In this, ETE is focusing strongly on environmental protection. For Nagy "as ETE Group is the only Portuguese firm operating cargo from barge to ship, we have a duty to contribute towards the development of the river transport mode and of calling decision maker's attention to its strategic relevance,

Notable developments

- recently launched a new river operation in Colombia;
- the Group qualifies first in international tender for Cape Verde shipyards privatization;
- focus on inland waterways transportation is a response to environmental challenges; and
- the construction of the river port of Castanheira do Ribatejo is forecast to start this year, and will be a catalyst for the Tagus River economy

particularly due to environment concerns."

Inland waterways transport emissions (CO_2 and NO_x) are but a fraction (10%) of road transport emissions. Fuel consumption is nearly eight times smaller; furthermore, road congestion is reduced as one barge alone carries as much as 70 trucks' load.

Aiming at fostering inland waterways transport in the Tejo and Douro rivers, the ETE group has recently started operating a new tug-pusher vessel. This low draught, short length and high power innovative Portuguese project by Navaltagus will operate in narrow, winding and low draught river areas, thus contributing to increasing the economic value of these inland waterways. Further, the ETE Group has commissioned a new project for the construction of a second vessel, which will be LNG-propelled.

> **"Government must offer similar conditions to those of other community countries"**
>
> Luis Nagy, CEO, ETE Group

The new Castanheira do Ribatejo pier will foster intermodal cargo transport

The ETE Group has begun construction of an inland waterway pier at Castanheira do Ribatejo just upstream from Lisbon. The pier will begin operating in the third quarter of 2017 and will bring a new dynamic to ETE's inland waterways operation. According to Nagy, "this investment will also contribute to developing intermodal transport in the Port of Lisbon by connecting the port's terminals with Castanheira do Ribatejo logistics platform. The pier will be a significant contribution to road traffic decongestion in the Lisbon area as we're estimating a 250-750 lorry reduction per day in circulation".

The effective development of the national economy of the sea implies, according to Nagy, "that the Portuguese government defines and implements urgently a national strategy that contributes to project its enormous potential. There are various entities like the ETE Group, focused on the growth and internationalization of this hyper cluster, but for this to happen the government must offer national companies in the shipping, port operations and river navigation business area, similar conditions to those of other European countries. ETE Group needs this competitive context to maintain and continue to invest in activities developed in Portugal, but also to export its knowledge and operation to other geographies, thus contributing to strengthen the importance of Portugal in the economy of the sea'.

About ETE GROUP

ETE GROUP began in 1936, with Empresa de Tráfego e Estiva, at the time specialized in inland water transport, having pioneered in 1950 the introduction of midstream operations concept using floating cranes, barges and tugs. Currently ETE GROUP is the operator with the largest number of port concessions in Portugal, the largest shipping company and the market leader in shipping agency in Portuguese ports. Its vast experience in the maritime, port and river sectors makes the Group a major force in the maritime economy at national and international level, being present in five countries (Cape Verde, Colombia, Mozambique, Portugal and Uruguay) and three continents. Its six main areas of activity are port operations, inland waterways transport, maritime transportation, shipping agents, logistics operations and engineering and ship repairs, integrating more than 40 companies.

Left to right: Luis Figueiredo (shareholder), Ana Paula Vitorino (Minister of the Sea), Marcelo Rebelo de Sousa (President of Portugal), Luís Nagy (GRUPO ETE CEO), Filipa P de Carvalho (shareholder).

Quality ship agents

the cost of providing value

For centuries, as parties have sought to buy or sell goods that require a ship for transportation, ship agents have been employed to provide professional services to promote and protect the interests of these different parties in ports of loading and discharge, *writes Arthur Savage of A. R. Savage & Son, LLC.* These parties vary from the most fundamental form of ship charterer, who hires the ships, to the ship owner, who agrees to carry the cargo. Many other parties are needed to facilitate and support these shipments such as: ship brokers, who bring the parties together to form the charter; ship operators, who charter in tonnage to again charter out to third party charterers; ship managers, who support the crewing and technical managements of ships; and bunker brokers, who arrange for the fuel to propel the vessels, to name a few. Once the charter is formed or 'fixed' and a vessel starts to perform the voyage, at which point even more parties are employed in the ports such as the pilots, tug boats, line handlers, terminals, stevedores, surveyors, ship chandlers, security firms, repair firms, doctors, dentists and the like. Who can provide the invaluable service to pull this all together to insure that this particular phase of the voyage is carried out in the most timely and cost effective manner? The ship agent.

The different phases of a shipment can be broken down into pre-fixture, post-fixture (loading and discharging) and settlement. The charterer is the party that drives this process from their initial contemplation of satisfying their cargo needs to supply their factory, stores or that of their customers. Once their inventory needs are determined, their next step is to charter a vessel to pick up and deliver their goods. This process is begun by accessing the vessel markets through their ship broker, who sends inquiries to the different owners and operators suitable to bid on the business. Further inquiries are then made to the load and discharge ports to assess the myriad items such as port costs, dimensions of the port and terminal, terminal load and discharge rates and so on to add to the other voyage costs in order to form a bid for the charterer. Who is contacted to provide timely and accurate information used for their bids to the charterer? The ship agent.

Which ship agent is contacted to provide the information needed? Depending on the type of charter party used, the charterer may 'nominate' the ship agent or the ship owners may have this right. The ship owner typically will have the right to 'appoint' the nominated ship agent to confirm his agreement to use the nominated agent. Of greatest importance, which ship agent has the most experience with the type of cargo, terminals and vessel? Will they provide an honest and accurate picture of the port, congestion and costs or will they paint a rosy picture by underestimating costs to win my business? This is why the parties should be committed to identifying a quality ship agent.

A principal should select a ship agent who is committed to providing information accurately and in a timely manner, with the experience and commitment to execute the port call efficiently. As with any product or service, it is important to identify differentiators to aid in your decision making. Look for a quality ship agency by starting with the fundamentals. Ownership, are the owners committed and capable to run their business? Do the company's owners and their managers show leadership in their industry by promoting it while remaining current on all of

the rules, regulations and customs? Does the company have depth in personnel and are they committed to hiring the best people? Does the company support its employees by providing them with training and equipping them with the best tools to enable them to provide great service to their principals? Is the company fiscally responsible by exercising its fiduciary responsibility for its principal's advanced funds by employing proper accounting practices? Is it prepared to protect its risk and yours with proper insurance coverage, licences and permits? Of these differentiators, which company is willing and able to attain the highest standard in the industry by gaining the prestigious title of the Association of Ship Brokers and Agents (ASBA) Certified Quality Agent which is recognized by the Federation of National Associations of Ship Brokers & Agents (FONASBA) who awards ASBA agent members their Quality Standard? The ASBA website gives details of the standards that must be met annually to earn this qualification. Why risk your valuable ship and cargo to anyone who is unable or unwilling to meet these standards?

Throughout the different phases of a shipment, the ship agent is involved from beginning to end. In our office, through periodic testing, we have determined our average involvement from pre-fixture inquiries to final settlement of a disbursement account averages around 90 days on foreign flag ships (30 days pre-fixture/arrival, four days in port, three weeks to collect bills and send final D/A and 30 days to collect). This involves many man hours at all levels of the organization, 24/7. Let's also not forget that the ship agent's actions frequently result in time savings for the principal (time to make vessel arrangements, identifying the quality vendors at the most reasonable prices, track down missing invoices, consolidating all invoices into one agent invoice, issuing payments to the vendors, etc). The ship agent's documents are also used by the ship brokers for the final freight settlement and well into the future if needed to settle disputes.

To be prepared for all scenarios of a port call, a quality ship agency must invest heavily in personnel, information technology and training to provide significant value to its principals. Through the actions or inactions of a ship agent, the cost of a port call can be highly affected, positively or negatively. Port expenses per port call in Tampa Bay, our headquarters, can average between $30–50,000 depending on the number of berths called, days in port, delays due to berth congestion, cargo delays and weather. Who knows the port well enough to work with the different parties to establish the best arrival, docking, loading/discharge scenarios? Who is looking for the cost effective port based service providers? In today's low freight markets, a single day of dockage or savings gained by using one tug versus two can be the equivalent of a full days' charter hire. Have you selected the ship agent with knowledge who continually works to secure these savings for you?

Having invested in your cargo, ship and port expenses and vetted them all, make sure you equally vet and invest in a quality ship agent for your port calls.

About the author

Arthur Savage is the President of A. R. Savage & Son, LLC, an ASBA Certified Ship Agent, in Tampa Florida who has been involved in Trade and Ocean Shipping throughout his life. He is a fifth-generation Tampa Native whose family sailed into Tampa in 1845, established regular shipping operations and has been continually involved in the development of the port and community. He currently serves as 2nd Vice President of ASBA.

Maintaining smooth operations along the Panama Canal with BOYD Steamship

BOYD Steamship Corporation is the oldest and largest ships' agency at the Panama Canal. Founded by William Y. Boyd, who was later joined by his brother, Robert J. Boyd, and General George W. Goethals, the famed builder of the Panama Canal. Goethals was an active partner in the company until his retirement in 1926. In 1919, in the city of Colon, the Boyds opened the first bonded warehouse, precursor of the now flourishing and internationally famous Colon Free Zone.

During this period, the Boyd Corporation operated a fleet of ships transporting cargoes throughout the Caribbean and down the coast of South America.

During the Second World War, it operated some 40 oil tankers out of the Port of Balboa. Throughout the period, the Boyd organization continued its business as an agent for vessels transiting the Panama Canal.

Long considered a premier ships' agency at the Panama Canal, BOYD Steamship Corporation provides its clients with the most up-to-date information about Canal conditions, expedites ships transits by virtue of having an experienced staff on duty 24 hours per day, renders final invoices within 15 days of a vessel's sailing. It offers a full range of agency services at the Panama Canal which include — but are not limited to — arranging canal transits, bunkers, crew changes, cargo operations, husbandry services, business owners and vessel repairs. It has offices in Cristobal (Atlantic Side) and in Panama City (Balboa) and offers its services on a 24-hour, seven-day per week basis.

As an agent, it provides its client with a transit forecast and recommendation for that particular vessel. This information is updated daily and incorporates any developments that are happening which may affect the vessels transit such as lane outages.

BOYD Steamship Corporation's philosophy is based around three simple factors:

- save the customers money;
- communicate as if the operations manager of its customer's company were installed in its offices in Panama; and
- know its clients and get them to know it; in this way, it can understand better the client's needs and how to service them.

In point #1, BOYD Steamship Corporation provides its clients with a daily traffic list that projects the traffic patterns for the next 30 days. This has become the most important tool to determine how long a vessel will wait at the Panama Canal, therefore preparing customers for any contingencies; it also reflects, the number of vessels arriving and scheduled to transit plus the vessels that have booked, the slots remaining and availability of slots over the next 30 days.

Agena Tramp and NAXCO celebrate 50 years in the shipping industry

Agena Tramp is a French company based in France, founded in 1972. The ship agency provides port and marine services. Agena Tramp is an affiliate of NAXCO Group, one of the largest fully integrated shipping and logistics providers, celebrating its 50th anniversary this year. This private French group is a leading and innovative global partner, present in all segments of the transport chain.

The company's headquarters are in Le Havre and it has offices in Dunkirk, Montoir de Bretagne, Levallois, Bordeaux, Marseilles and Port de Bouc. Altogether, about 20 employees throughout France provide port and marine services. Agena Tramp covers all of France, from the North to the Mediterranean, including the Atlantic.

Agena Tramp's teams of shipping agents are based in the main French ports, ready to organize any port calls in Dunkirk, Le Havre, Rouen, Nantes-Saint-Nazaire, La Pallice, Bordeaux, Marseilles, Fos and more.

Agena Tramp is a member of two international networks — Multiport and Naxco Port Agency — enabling it to provide its services worldwide.

Services

Agena Tramp's teams are available 24/7, and manage all aspects of port agency and marine services:

- cargo clearance;
- canal transits;
- cash to master;
- crew change;
- dry-dock and repair supervision;
- husbandry;
- offshore support;
- port agent for ship-owners, operators, charterers and traders;
- port information;
- project cargo and any handling;
- protective agent;
- ship agent;
- ship supply;
- spare parts delivery;
- stevedoring;
- survey.

Current activities

In 2016, Agena Tramp handled 900 calls.

The group has activities in a variety of business sectors, primarily within the dry bulk market.

In the last year, dry bulk has been the main activity of Agena Tramp, which offers great expertise and experience at any port in France. It deals expertly with cargoes requiring special attention during loading, transportation and discharge. Agena Tramp is still largely involved in wheat, iron ore, sunflower pellets, soybean meal pellets and coal, but it also handles all types of dry bulk cargoes.

In 2016, half of Agena Tramp's business was related to dry bulk activity: grain, ore, coal, steel, fertilizer, etc. The other half of the business relates to cruise, liquid, project cargo, military vessels and containers.

The group offers high quality maritime services for a diverse range of vessel segments.

Ship agent role is essential in port

An agent's job is to be responsible for vessels before, during and after its stay in port.

Ship operators rely on port agents to act as their eyes and ears to ensure the safe and secure running of their ships because they can't have offices in each port.

So, anything a ship needs while in port is co-ordinated through the agent. Ship agents need to liaise with all parties: customs, masters, vessel owners, exporters/importers, port authorities and more. They take care of all documents, visit vessels, offer marine services if needed, and deal with logistics. Agena Tramp's teams are available 24/7 and have excellent communication and customer service skills to provide the highest standard of service.

With more than 40 years in the shipping industry, Agena Tramp has solid relations in port and is known for its professionalism.

Highlights of 2016

In this year, there are a few calls that represented highlights for Agena Tramp.

- in September 2016, Agena Tramp has welcomed for the first time, the *Oriana* ship, in Montoir de Bretagne, in France. She is the largest cruise ship ever stopped in this port (260m long, 1,820 passengers).
- in June 2016, Agena Tramp teams had the honour of welcoming in Le Havre the *Simon Bolivar*, a training vessel of the Venezuelan Navy (three-masted ship, 83m long, open to the public over several days). It handled the vessel during four days (168 crew members, official reception was held with diplomatic representatives and local maritime authorities…)
- in March 2016, the ship agency organized and co-ordinated the call of the first Panamax of the year in Nantes port (France). The bulk carrier *DST Drammen* (225m × 32m, 71,982dwt) arrived from the Mediterranean to load wheat. Only 14 calls of this type have been observed in six years.

2017 latest news

Agena Tramp is an affiliate of NAXCO Group and was one of the first agencies of the French Group. In 2017, NAXCO Group celebrates its 50th anniversary: 50 years in the shipping industry. NAXCO has successfully been expanded and developed, with 24 entities worldwide. Nowadays, about 400 employees work for the group active in the four following activities: Shipping, Forwarding & Logistics, NVOCC and Port & Marine Services.

Simplicity is key for Wilhelmsen Ships Service

Wilhelmsen Ships Service (WSS) provides full agency, husbandry and protective agency services to a wide range of customers in thousands of ports across the globe. With offices in 75 countries, supporting non-stop operations in ports worldwide, whether it is vessel, crew, cargo, or cash WSS looks after, its agents can be relied on to consistently make port calls as efficient as possible. Here, Steffen Langlete, Product Manager, WSS Ships Agency, updates us on what it is to be a ship agent in today's market.

Steffen Langlete, Product Manager, WSS Ships Agency.

Q: *What do you consider the role of a ships' agent to be?*
A: At WSS we believe our ships agents not only act as a conduit for information, but we also expect them to take an active part as a trusted advisor towards the customer. That 'part' is always using their local knowledge and influence to optimize the time and costs in port.

Driven by the ever-changing demands of the market, our customers want agents to also be something more than just their local representative. Being a truly global player within the ships agency space, we believe that the value we can create over and above what happens in port on a case by case basis, for most customers far surpasses whatever savings you can achieve on a single port call basis.

Therefore, a good agent is a segment specialist, holding the best network locally, i.e. can talk to, or holds direct access to all the local stakeholders and decision makers at any given time. Able to assist at any given time, day or night, Sundays and Holidays included, availability is essential. In addition, agents need to understand how they can contribute and help to make the business case even stronger for customers and all other parties involved. Not only on a port call by port call basis, but perhaps even more so when taking larger volumes into account.

Q: *At what ports are you represented?*
A: Today we are represented in 2, 200 port around the world, but to give a more specific answer, I would say that any port with a sizeable dry bulk, or liquid bulk import/export operation has a WSS presence.

Q: *Who are your major clients?*
A: We serve most major players in the dry bulk market, and I guess our share of the various commodities correlates well with the relative size of the commodities themselves.

Q: *Who are your major competitors?*
A: In WSS we believe in local excellence, supported of course by our global reach and uniform standards of service. There are few, if any others that can offer such combination today. If to pick the group we would identify ourselves mostly with, then it would be the many local agency companies. The reason being that we know that our clients not only expect local expertise, but that they depend on it to run their business properly.

Q: *How much of your business relates to dry bulk?*
A: Around 35–40% of our port calls relate to the dry bulk sector.

Q: *What are your main challenges?*
A: We would say that the main challenges for the dry bulk sector as a whole, which also apply to WSS, is the capability to innovate, implement and excel with the plethora of new technologies that are being made available.

On a related note, increasingly our clients expect the same level of simplicity that they take for granted when booking services through the likes of AirBnb, Uber, Lyft etc. Catering to this mindset means we need to reconsider just how ships agency can be delivered to our clients.

This is a challenge that we have been actively tackling head on and we are excited to see that our clients are with us on this journey.

T. Parker Host offers a personalized service to maritime customers

T. Parker Host has been committed to providing total solutions for customers' terminal, stevedoring, marine asset, and agency needs since 1923. It currently has a strong reputation in the maritime community for its expertise, transparency, and high standards of service.

Host Agency covers all major ports on the East and Gulf Coasts of the US and many ports in Colombia. It handles a variety of commodities, but its major clients are involved in the coal, petcoke, fertilizer, and grain industries. With each being so diverse, the agents ensure customers have personalized service and solutions to meet their objectives.

photo: Michael Brewington.

The role of an agent

An agent's goal is to ensure every ship to which it is appointed has a smooth experience at the port. Host's Vice President of Agency Operations Bobby Scott summed up the role of agents in three categories: "Money, time, and local knowledge."

- Agents are responsible for handling the payments for all the services while the ship is in port.
- They are also tasked with managing the ship's time. Their job is to provide customers with the fastest turnaround by getting the ships in and out of port as quickly as possible.
- Finally, they are the local 'eyes and ears' for their customers, providing them with local knowledge about what is going on at each port, whether that is port developments or issues that will affect their ship and/or cargo.

At Host, each of the agents is trained, present, commercially aware, and professional. Host Agency has a thorough training system and carefully developed operating procedures to guarantee that agents are knowledgeable and safe. The agents are also trained to understand the goals of each party involved in a port call so they can provide them with the best service, custom-tailored to their needs. To further their understanding of the industry, agents are encouraged to continue education courses, technical classes, and certificate programmes.

In addition to being informed and experienced, agents are present from start to finish of every task. One of Host's agents personally performs each port call. They communicate directly with their clients and provide leadership onboard each vessel.

Value-added services

Host Agency also delivers a number of beneficial value-added services:

- Host Agency takes pride in being at the forefront of putting data to work for its clients. Agents work with their clients to determine key performance indicators, then they measure, track, and report on their service.
- All Host clients receive free access to industry-leading reports that provide valuable market insight. Also provided in the monthly report is information surrounding the ports to keep clients updated on the latest news.
- Host Agency's Cargo Services Division has extensive experience in US and foreign regulations for the preparation and issuance of all relative cargo documents. They can also provide on-site supervision to ensure the quality of the operation.

Challenges and solutions

The agency business is rather unpredictable. In addition to the conditions of the overall market, agents are challenged with river restrictions, weather delays, and ship maintenance issues.

Host Agency takes a different approach to service than most ship agents. Because of their 90+ years of experience and relationships and their ongoing mission to understand all activities within their markets, Host Agency has the knowledge base to quickly resolve challenges when they arise. In a competitive market, it provides quality service and offers real solutions. The Host 'Solution Process' is: Relationship, Research, Options, Solution.

Host Agency focuses on building relationships to learn what the customer truly needs. "You can never give someone a solution unless you understand their goals," says Scott. "Our customers usually need more than the standard ship agent. They need someone to help with the unpredictable moments. Because of our continuous research, the Host team is always ready with options to solve an issue, and that's what sets us apart."

Agency services from INTER BALT in Poland

INTER BALT Poland has agency locations in the Polish ports of Gdansk, Gdynia and Szczecin Swinoujscie, and is now in its second decade of activity.

The INTER BALT company, with its headquarters located in Gdansk, began operations in 2003 and was created on the basis of the Maritime Offices in Gdansk, Gdynia and Szczecin belonging to the WEGLOKOKS S.A. Katowice company.

"Over 65 years' experience in logistics, forwarding and transportation of Polish coal of the Weglokoks Capital Group Polish coal export company — and over decade of experience in providing ship agency services and shipbroking services — guarantees that INTER BALT is a reliable business partner," said Marek Kowalski, the chief executive officer of INTER BALT Poland.

Today INTER BALT has 44 employees and provides comprehensive services — mainly forwarding bulk cargoes in all Polish seaports — and provides port clearance and agency services to vessels in seaports.

Commercial agency agreements play an important role. On the basis of such an agreement, a ship agent undertakes to represent a ship owner in the performance of ordinary navigation-related activities on a permanent basis and against payment. The Sea Code does not provide for an exhaustive list of activities that a ship agent may carry out. Art. 198.2 of the Code stipulates that the ship agent is authorized to act on behalf of the ship owner before offices and port operators. The ship agent may also carry out all activities and make statements connected with the ship arriving, stopping and leaving. On behalf of the ship owner, the ship agent is authorized to enter into transport, sea insurance and transhipment agreements, issue waybills, collect and pay all amounts due in connection with a ship calling at a port and transporting cargo or passengers, as

well as to make all and any claims under transport agreements and sea accidents.

A ship agent represents ship the owner's interests from the moment a ship enters the port until the moment it leaves. The job of a maritime agent is very specific non-stop work , seven days a week, 365 days a year, not to mention it requires considerable knowledge of the procedures related to port operations. These are operations where specialized knowledge and qualified staff are necessary.

Recently, INTER BALT agency has operated around 250 ships in Polish sea ports and shipyards per annum on average. Its agency services comprise the operation of ships transporting mainly bulk goods and additionally general cargo, liquid goods and special cargo. The above groups of cargo include, in particular: coal, coke, aggregate, scrap, steel products, liquid fuels, steel constructions (project cargo), biomass, fertilizers and rape oil. INTER BALT also provides agency services at shipyards. These services comprise, among others, co-operation with shipyards during ship renovations on behalf of ship owners, the transport of spare parts, ship inspections and related certification procedures, as well as the settlement of all necessary issues with businesses, institutions and offices, including crew issues.

INTER BALT is an active member of BIMCO, the Baltic and International Maritime Council as well as the Polish Shipbrokers' Association.

The Quality Management System of INTER BALT has been approved by Lloyd's Register Quality Assurance to the Quality Management System Standards: ISO 9001:2008.

World Marine: agency services covering all Egyptian and Chinese ports

World Marine, headquartered in Glyfada, Athens, Greece, is headed up by Mr Alexios Arnokouros. The company has served the shipping industry consistently since 1985, with its ship agency and representation services in Egyptian ports, along the Suez Canal, in China and in Hong Kong. In Egypt, it covers all the country's ports, and has its own offices in Port Said, Suez, Cairo; in China, it covers all the country's ports, and has its own bases in Shanghai, Shenzhen and Dalian.

World Marine has long experience with the Suez Canal Authority rebates policy, and has arranged for US$3 million rebates for its clients just in 2016.

World Marine Egypt

- maintains its own offices in Port Said, Suez and in Cairo;
- was awarded with ISO 9001 certification, offering better services at lower costs;
- offers round-the-clock ship agency solutions for vessels calling at Egypt, transiting the Suez Canal, loading or unloading, attending to husbandry matters in all Egyptian ports;
- specializes in Suez Canal Tolls Reduction Scheme, in case of Alternative Route; and
- services security teams embarkation/disembarkation service at a competitive cost.

World Marine China:

- with its representative offices in the heart of operations at Shanghai, Shenzhen and Dalian, provides customized services at all Chinese ports in Central, South and North China as well in Hong Kong;
- its personnel support its principals with local superintendents and facilitates their requirements round the clock;
- services vessels calling at China or Hong Kong, that are in need of ship agency solutions for cargo operations, dry dock, repairs, delivery (S&P) and husbandry matters.

Acting as extension of the principal's office

A ship agent, like World Marine Corp., represents a vital part in shipping operations, usually servicing charterers, ship owners, and operators when the ship is at port. The main duty and role of a ship agent is to be principal's office extension, where the ship calls.

As it is not feasible for any party to be represented globally, with its own office in every port, a ship owner/charterer (or other party interested on a ship's prospective port call) chooses a local ship agent for every port call — selecting the most suitable to physical attend the vessel, ensuring smooth operations in port.

A ship's agents role includes accomplishment of all ship formalities and settlements with local authorities before-during-after the ship's part call.

The agent must provide up-to date detailed information on port restrictions, conditions and tariffs, as well cargo-specific information, export documents, receipts, OBL (ocean bill of lading), issuance for loading operation, receivers arrangements to receive cargo-discharging operations.

Additional duties include dealing with crew changes, spares clearance/collection/delivery, repairs, provisions, water, bunkers, medical, underwater inspection, and ship's delivery.

All activities require an experienced agent's co-ordination for a professional and timely attendance, as every process involves interaction between several parties with local and international interests.

Major clients

World Marine serves a wide range of major owners, charterers, operators, around the world as its clients.

World Marine operations

World Marine's main competitors in Egypt and China are companies like: GAC, Wilhelmsen-Barwill, and Inchcape.

According to World Marine department heads in the Egypt and China operations desks, where it offers agency services, businesses relates:

- in Egyptian ports 60% to dry bulk; and
- in Chinese ports 90% to dry bulk.

The company's main challenges involve:

- keeping its clientèle satisfied and working with it exclusively;
- increasing its clientèle with new introductions as owners, charterers, operators, as well cargo owners-shippers and receivers in both countries, as well within countries exporting to Egypt and China; and
- adapting to steadily changing environmental, legal and operational requirements of global shipping (IMO, etc).

It remains open to possible joint ventures, synergies and strategic alliances with local and global shipping services providers.

The Suez Canal Authority (SCA) offers rebates on tolls whenever there is an alternative route (via Cape of Good Hope or Panama) in order to attract ships to pass via the Suez Canal. SCA policy is not fixed, as they study each case individually; taking into consideration various factors, i.e. present freight market, bunkers cost, vessels consumption and speed, duration of voyage, etc.

World Marine has long experience with the Suez Canal Authority (SCA)'s rebates policy, and has arranged for US$3 million rebates for its clients just in 2016. World Marine Egypt offers:

- successful rebate records with over 390 applications yearly;
- prompt SCA toll reduction estimation and application; and
- assisting and co-ordinating during vessels' discounted voyage

Therefore World Marine Egypt cannot predict what, if any, percentage will be offered. The best way to know is to submit an application and wait for the reply of SCA. All details about information needed to proceed are available by communicating with World Marine, when the vessel is fixed.

Customized service from Gans Cargo Operations

Gans Cargo Operations is a Rotterdam-headquartered shipping and forwarding company, specialized in international supply chain logistics. Its pro-active and innovative thinking allow it to keep on an even keel on a sustainable horizon and to respond adequately to new developments. It listens carefully, and understands its customers' needs, offering a wide range of tailor-made transport solutions. It can utilize (bulk) storage facilities at strategic locations worldwide and transport its customers' cargo to any destination.

Gans Cargo Operations port agency service represents almost a century of experience in serving a large number of charterers and vessel owners. A selection of its multinational customer base shows companies such as Oldendorff Carriers, FEM Brokers, BP, Oxbow Energy Solutions, Statoil, P66, Rain Carbon, Vitol, Emirates Global Aluminium, El Nasr Coke & Chemicals, Cemex, Teck Coal and many more, which are all major players in international dry- and liquid bulk markets.

Gans Cargo Operations enjoys being the eyes and ears on the spot on behalf of its customers. Its agency people go the extra mile to help solve problems and to discover solutions interactively. Its dedicated service is available 24/7. Should any problem arise, Gans Cargo Operations will be there to assist its customer on the spot.

Gans Cargo Operations strongly believes in building bridges between all parties involved, in order to ensure that both vessel and cargo is handled in a smooth and reliable manner. Therefore, it constantly invests in its people, software, communication and IT systems to ensure and maintain high level of service.

Lately, Gans Cargo Operations has been able to roll out its experience by founding joint ventures with reliable, strong and well-experienced partners in growing markets.

In March 2015, it have founded Gans Egypt Logistics Services, a joint venture between Gans Cargo Operations and Naggar Group. Through this joint venture, it serves as an agent and logistics provider in all Egyptian seaports and during Suez canal transits.

Gans Cargo Operations' most recent development is the founding of Sharaf Gans Logistics Services, a joint venture between Gans Cargo Operations and Sharaf Group. Headquartered in Dubai, this joint venture serves as an agent and logistics provider in more than 150 ports in the Middle East, Africa and the Indian subcontinent.

Other than its main competitors, which it considers to be the worldwide agency groups offering single agency service in multiple ports, Gans Cargo Operations' philosophy is to make strategic investments in value-adding assets. These assets allow it to offer to its customers a high quality supply chain logistics package against competitive rates, in the ports of their preference.

Gans Cargo Operations hold long term positions in warehouses (ARAG range and the Middle East) and open pit storage facilities (ARAG range and Egypt). Its latest investment is the purchase of four bulk grabs for its Gans Egypt Logistics Services entity. These grabs can be used in all Egyptian seaports and are currently operational in the port of Alexandria for discharging dry bulk vessels.

Biehl & Co: the tyranny of choice – how to select your local shipping agent

The shipping world is vast with many different ship types carrying an even greater diversity of cargo. The same can be said of your local vessel agents offering a great diversity of services at varying levels of service, security and cost. Considering the great sums of money in direct port expenses and the potential for savings provided by an experienced local agent, it is surprising that this industry still operates with little customer oversight or vetting. To put it differently: how can one select a trusted and competent local agent?

Tradition/recognition

Biehl has been a recognized entity in the shipping industry since the beginning of the 20th century. Biehl maintains its position by retaining highly qualified personnel and utilizing the latest technology available to assist each principal to conduct business. In addition to offering the full range of ship agency services, Biehl also acts as owners' or charterers' protective agents or as husbanding agents in connection with dry-docking and other special circumstances.

Vessel/cargo experience

Biehl is one of the largest agencies in the US with expertise in handling dry bulk commodities from petcoke and coal to grains and fertilizer. Biehl customers rely on its value-added services to not only handle their vessels but also provide them with relevant market data and up to the minute information which is critical in handling their business. Biehl stands ready to assist to evaluate project viability, verify design economics and review contractual language to identify potential issues.

Local offices/local knowledge

Serving the needs of its customers throughout the US Gulf and US East Coast, Biehl agents and offices are prepared to address customer needs. Sixteen local offices eliminate the need to travel great distances. Each location is plugged into the local community, from the port authorities to terminal operators — it acts as its customers' eyes and ears. Biehl can tailor any service or request specifically to the customer's requests. Detailed work instructions — which the customer can revise at any time — are developed and discussed to clearly outline customer expectations. Once completed, these instructions are shared between offices to ensure continuity of service and regularly reviewed to assess customer satisfaction.

Personnel/training

Biehl invests in its most vital asset: its people. Managers communicate with staff and colleagues to exchange ideas, identify trends and ensure continuity across locations. The Next Generation Program identifies talent within the organization and selects those individuals for additional specialized training. Biehl is proud of its heritage of family leadership and is eager to develop the next generation of shipping managers from within its own organization.

Liability/financials

Biehl employees are trained to anticipate and proactively address challenges. In most cases, operational issues are resolved so swiftly, customers are never aware of them. For example, draft bills of lading are prepared well in advance of the vessel's arrival

so that, upon completion of loading, only the cargo figures need to be included. Biehl further demonstrates its commitment to advance preparation by providing customers with timely port information, weather updates and most significantly, by offering customers the benefit of years of experience with a particular port, ensuring seamless vessel operation.

Quality/vetting

Biehl provides consistent quality customer service through performance measures. The ISO system tracks and records multiple aspects of its operation's processes. ISO dedicated staff members conduct internal audits at each office on a quarterly basis and all offices are subject to annual ISO performance audits. Biehl ensures a high level of performance through extensive internal training and by requiring Association of Ship Brokers and Agents (ASBA) testing and certification of all operations personnel.

As a member of both Multiport and the Association of Ship Brokers and Agents (ASBA), Biehl annually submits to two independent audits to ensure continued membership in good standing with each organization. This attention to fiscal control contributes to the company's positive financial standing with no debt and ample opportunities for expansion. The company owners allow the profits to remain within the company to be used for expansion both internally and through acquisition.

Port/agency cost

Due to the considerable amounts involved, Biehl places utmost importance on safeguarding customer funds. Both bonded and well insured, Biehl is able to cover whatever issues may arise. Its advanced accounting software enables it to create customized reports and data that can be exported to customers' specifications, eliminating double data entry and saving its customers both time and money. For some large volume customers, it also provides designated accounting services staff that are attuned to a particular customer's needs and is better able to respond to their requests.

Conclusion

Choose wisely – today there are more choices than ever before yet we possess the tools to do a proper job of vetting all aspects of a vessel call. Take the time to apply this same scrutiny to your local agents and don't be afraid to make a change if you don't feel safe and secure in your local agent. Finally, don't confuse price for service level recalling the old adage: you get what you pay for.

Transshipment update

latest news from major players

Jay Venter

Coeclerici defies gloomy market to achieve record transshipment in Indonesia

The 2016 has been a notable one for coal trade, *writes Capt. Giordano Scotto d'Aniello, Head of Commercial Department, Coeclerici Logistics S.p.A., Milan, Italy*. In Indonesia, one of the foremost countries in terms of coal production — with about 380mt (million tonnes) estimated in 2016 — the price of the commodity collapsed, reaching a minimum in February of US$50/tonne (HBA Data). Some mine producers were not even in a position to cover production costs. The volatility of the market has forced many small miners to suspend production, no longer able to cover their costs. The transshipper sector — a niche of the shipping market, with about 130 devices deployed in Indonesia — has suffered greatly. Many units have been idled, and fees have been insufficient to cover running costs. Fortunately, in the second half of last year, the trend changed and coal prices rose, so it would seem that the situation is recovering.

In this volatile situation, Coeclerici Logistics, the logistic branch of Coeclerici Group, is proud to have recorded an important achievement.

The Floating Transfer Station (FTS) *Bulk Pioneer* transshipped a total of 6,621,161 metric tonnes, the highest yearly tonnage ever since the beginning of the contract with Kaltim Prima Coal (KPC), the major thermal coal producer in Indonesia.

In addition to this milestone, in December 2016 the FTS *Bulk Pioneer* and the ship owner PLKI were granted the international safety certification BS OHSAS 18001:2007.

The acronym OHSAS — Occupational Health and Safety Assessment Series — identifies an international standard for a management system of health and safety for workers.

OHSAS certification, the application of which is voluntary within an organization, checks for a system to ensure adequate control regarding safety and health of workers, in addition to compliance with the mandatory standards.

Currently, all Coeclerici-owned transshipment vessels are certified, and they are the only transshipment units that have been granted the certification BS OHSAS 18001:2007.

The solutions and services provided by Coeclerici Logistics meet the highest international safety standards for people and the environment. This attests to Coeclerici's commitment to apply the most rigorous international protection standards for worker safety and health, both for crews and for land-based

BULK PIONEER: STATISTICS

LOA:	91.50m
Breadth:	24.40 m
Depth:	5.50 m
Draught:	4.33m
DWT:	5,974

workers, regardless of less demanding local regulations.

Talking about the *Bulk Pioneer* in detail, the FTS was designed by Coeclerici Logistics, which is also the main shareholder and directly operates the device. Since the start of operations in August 2005, the FTS has been employed in Lubuk Tutung and Tanjung Bara offshore anchorages in East Kalimantan, Indonesia, for coal loading operations: the unit is utilized to load coal, carried by barges from the Bengalon mine, into ocean going vessels (OGVs).

From a technical point of view, the *Bulk Pioneer* is capable of transferring coal directly from barges to OGVs, thanks to: two grab cranes able to lift up to 25 tonnes; two duly designed hoppers with belt-feeders; a belt conveyor system designed to handle 2,000tph (tonnes per hour) of coal; and two shiploaders with swivelling trimming spouts; and a buffer storage facility that ensures an uninterrupted shiploading process during barge unavailability or changeover.

Thanks to Coeclerici Logistics' efficiency and expertise, the amount of coal transshipped for KPC has dramatically increased over the years to reach the milestone of 6,621,161 tonnes in 2016. The current average daily loading rate is about 34,376 tonnes, with the best loading rate of 46,934 tonnes in a day. More than 1,100 vessels have been loaded since the start of operations in 2005, achieving a total of about 61mt (million tonnes) of coal transshipped. The FTS consistently performs well above the contractually guaranteed loading rates.

The above achievement is the result of:

- state-of-the-art design;
- well-programmed maintenance;
- direct control of the operation;
- expertise in coal handling; and
- minimum time lost.

It is therefore not surprising that, under the special ranking compiled twice a year by KPC to classify its contractors, the FTS *Bulk Pioneer* is considered as 'excellent'.

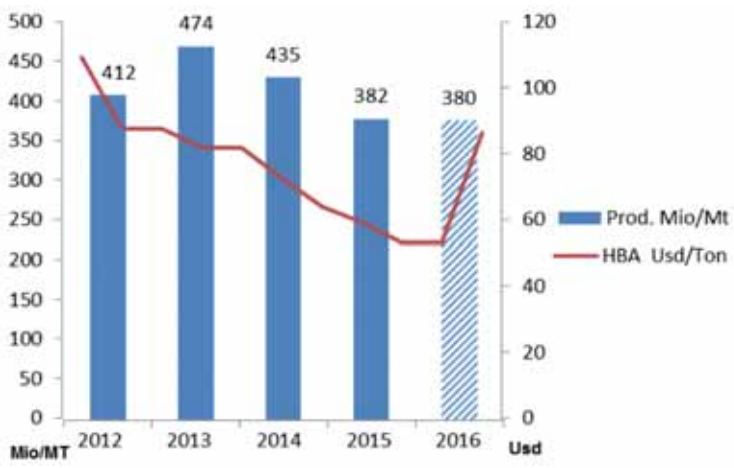
Indonesia is confirmed as a strategic country for Coeclerici Logistics as, besides *Bulk Pioneer,* the Coeclerici Group has other four Floating Transfer Stations employed there by PT Berau Coal (the fifth-largest coal exporter in the country). All FTS are working in the Kalimantan area, receiving coal from barges and loading OGVs and contributing consistently to the clients ever-growing trading activities.

Given the extensive experience it has gained over more than 120 years, Coeclerici Logistics' activities can be seen as actions carried out by real pioneer: "to try where nobody ever did" was the motto that enlightened Coeclerici when it was decided to move to the uncharted Indonesian market in the now far-distant 2005. The *Bulk Pioneer*, one of the first FTS deployed in the East Kalimantan area, was probably named after this talent, the ability to face challenges and the unknown.

With the use of this new facility concept, Coeclerici Logistics brought to Indonesia not just a modern and incisive facility for carrying out transshipment activities, allowing the country to maximize its potential coal industry, but also a new service more focused on customers' needs and requirements. Despite the deep and prolonged crisis affecting the dry bulk market, Coeclerici has been able to maintain and strengthen its position in the transshipper industry, ensuring for its clients a first-class service and reliable performance as the extraordinary example of FTS *Bulk Pioneer* shows.

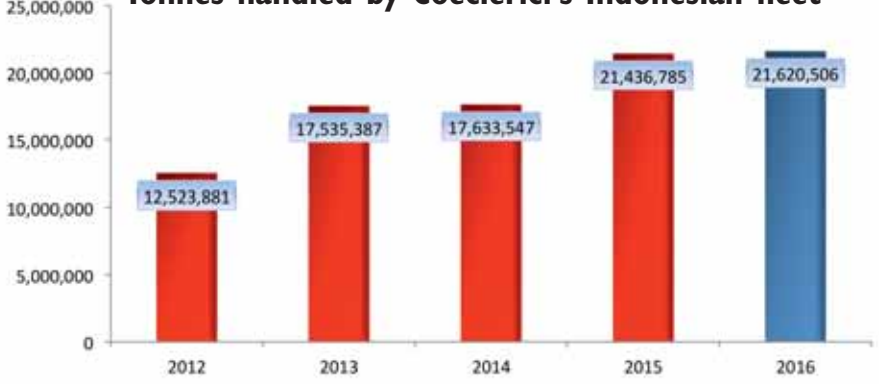
With a tradition for continual strengthening of its corporate structure via joint ventures and partnerships as well as ongoing strategic investments in areas of potential growth, Coeclerici has created a group capable of facing the most challenging global economic markets.

Coal prices 2012–2016



Source ICMA

Tonnes handled by Coeclerici's Indonesian fleet



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CSL's 'Donnacona' to be converted into transshipment shuttle vessel

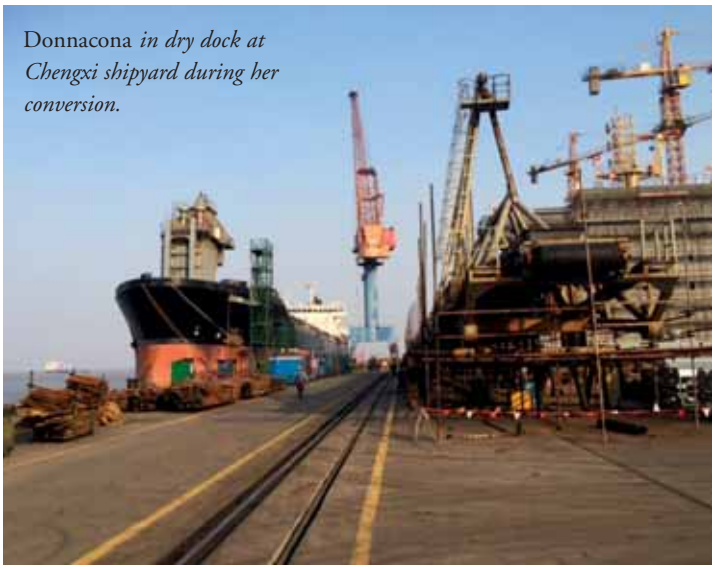
CSL's self-unloading bulk carrier *Donnacona* is undergoing a series of modifications to be converted into a highly specialized transshipment shuttle vessel (TSV) to service a new magnetite iron ore customer in Western Australia. Once the conversion is complete, the vessel is expected to handle up to nine million tonnes of iron ore per annum and reach a peak unloading rate of 4,200 tonnes per hour.

Like *CSL Whyalla*, which was the first of CSL's TSV conversions in 2013, *Donnacona* represents a new generation of high-performance, low-cost transshipment solutions. Engineered and designed by CSL's Global Technical Services team, the highly manoeuvrable TSV will load directly into an oceangoing vessel (OGV) via a system of loop belts and conveyors, all of which are covered to eliminate dust. Among its many advantages, the converted *Donnacona* will operate without tugs and feature superior productivity, increased capacity and reliability, minimal shore side infrastructure, and limited environmental impact.

Donnacona's conversion is being tailored to meet the customer's specific requirements and improve current transhipping operations at the Western Australia mine. Because of its unique design, the TSV will carry between 20,000 to 26,000 tonnes per voyage, a significant improvement over current operations.

The increased cargo capacity will require fewer shuttles, less mooring and unmooring time, and less time sailing to and from the transhipment anchorage. The TSV's unique design will also add value to the customer's operations by requiring less manning and no tugs, and by improving operability in local weather conditions where excessive wind and waves are common.

The conversion of *Donnacona* is scheduled to be completed in late March 2017.



Donnacona *in dry dock at Chengxi shipyard during her conversion.*

thyssenkrupp partners with National Ports on new super shallow draught bulker

The new super shallow draught bulk carrier can be loaded directly from the land side via shore conveyors, thus limiting capital expenditure for new port infrastructure (©National Ports).

The super shallow draught bulk carrier will be capable of self-unloading its cargo at a rate of up to 10,000 tonnes per hour into bulk carriers of any size (©National Ports).

BULK CARRIER WILL OPEN UP SHALLOW PORTS WORLDWIDE
NEW SYSTEM OFFERS MINING OPERATORS SIGNIFICANT EFFICIENCY IMPROVEMENTS INCLUDING FASTER MATERIALS HANDLING AT LOWER COST AND REDUCED ENVIRONMENTAL RISK

thyssenkrupp Industrial Solutions, partner for the engineering, construction and service of industrial plants and systems, has entered into a partnership with National Ports, an Australia-based developer and operator of large-scale floating port solutions, to make the operation of bulk carriers and materials handling equipment more efficient and environmentally friendly in shallow water ports around the world. The co-operation is aimed at further developing and rolling out a new technology, the super shallow draught bulk carrier. This self-propelled vessel will open shallow draught ports to far greater tonnages with no dredging and very limited capital expenditure.

Marco Lucido, Managing Director at National Ports: "Our new solution will open up access to shallow loading and destination ports worldwide including those affected by large tides. The system will not only be able to significantly increase cargo throughput for existing mining companies with limited draught, it can also help to make new mining companies economically viable."

The majority of global import and export ports for bulk material are geographically remote and not sufficiently dredged to handle modern bulk carriers. Such bulk carriers with a deadweight of 180,000 tonnes usually require a draught of around 19 metres including clearance under the keel. Most ports have a draught of only 14 metres or even less. At the same time, dredging is very expensive and costs increase exponentially when dredging of hard materials is required, not forgetting its negative impacts on the marine environment.

With the new super shallow draught bulk carrier, thyssenkrupp and National Ports offer mining companies and port operators around the world a fast and efficient bulk material handling solution for shallow water ports. With up to 185,000 tonnes deadweight capacity on a 14-metre draught, the new system will be able to transit ports with limited water depth. It will be capable of self-unloading its cargo at a rate of up to 10,000 tonnes per hour into bulk carriers of any size (including the Valemax with a 400,000 deadweight tonne capacity) or directly at the destination port in a safe and environmentally friendly manner. The new bulk carrier can be loaded from any ocean going vessel or directly from the land side via shore conveyors, thus limiting capital expenditure for new port infrastructure. Mine and port operators can charter the system on a per tonne basis.

Dr. Franz-Maria Wolpers, Senior Executive in the Mining Technologies business unit of thyssenkrupp Industrial Solutions: "We are delighted to be helping our clients solve one of the most complex challenges they face when operating in shallow, restricted and remote ports. In addition to opening up access to those ports the new system dramatically increases self-unloading rates into any type of bulk carrier or to the port of destination through a thyssenkrupp materials handling system. In cooperation with National Ports, we are thus offering mining companies and port operators worldwide significant efficiency improvements including faster materials handling at lower cost and reduced environmental risk."

The super shallow draught bulk carrier is technically based on a conventional bulk carrier, supplemented by so-called sponsons (attached to both sides of the bulk carrier). These provide the ship with additional flotation enabling it to operate in fully loaded condition in very shallow waters.

About thyssenkrupp Industrial Solutions

The Industrial Solutions business area of thyssenkrupp is a partner for the engineering, construction and service of industrial plants and systems. Based on more than 200 years of experience thyssenkrupp supplies tailored, turnkey plants and components for customers in the chemical, fertilizer, cement, mining and steel industries. As a system partner to the automotive, aerospace and naval sectors thyssenkrupp develops highly specialized solutions to meet the individual requirements of its customers. Around 19,000 employees at over 70 locations form a global network with a technology portfolio that guarantees maximum productivity and cost-efficiency.

In collaboration with its customers in the mining and minerals sectors throughout the world thyssenkrupp develops custom, forward-looking solutions that enhance productivity and allow natural resources to be used responsibly and efficiently.

About National Ports Corporation Ltd.

National Ports Corporation Limited is a developer and operator of integrated cost effective infrastructure solutions for large-scale floating ports, floating supply bases and super shallow draught bulk carriers, servicing markets across: energy, mining and general ports. The company developments are characterized by remote and difficult logistical requirements, avoiding the need to dredge and damage environmentally sensitive areas. National Ports' proprietary includes also a system for safe transfers between vessels of different deadweights in high seas. DCi

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Port sees tonnage surge in record-breaking year

AGRICULTURAL EXPORTS DRIVE TONNAGE INCREASE FOR 2016

In a record breaking cargo handling year, the Port of Longview moved more than 8.3mt (million metric tonnes) of cargo across the dock in 2016 — the most cargo handled annually in the last three decades. The year 2016 saw a nearly 30% increase over the 6.4mt handled in 2015.

Pushing the port over the 8mt mark was grain terminal EGT, LLC, which alone moved over 6mt of primarily wheat, soybeans and corn. This marks EGT's best year since coming on-line in 2012.

"This is precisely the tonnage outcome we were aiming for when EGT signed on at the Port of Longview," said Chief Executive Officer Norm Krehbiel. "EGT utilizes key infrastructure, such as the Port's dedicated Industrial Rail Corridor and our position on the deep-draft navigation channel, designed to efficiently move bulk commodities for the benefit of the entire region."

Although dry bulks made up the majority of the tonnage in 2016, the port had a strong year in breakbulk as well. The resurgence of wind energy cargo, coupled with oversized project cargo made for a well-rounded year and demonstrated the port's flexibility in cargo handling.

With a new year under way, cargo prospects for 2017 predict another successful year at the Port of Longview.

The Port of Longview is the first full-service operating port with strategic transportation connections on the deep-draught Columbia River shipping channel in southwest Washington State. The port is located just 66 river miles from the Pacific Ocean, 120 driving miles from Seattle, Washington, and 40 driving miles from Portland, Oregon. Port facilities include eight marine terminals and waterfront industrial property with direct connections to main-line rail and interstate highway. Cargo handling specialties include bulk cargoes and breakbulk commodities.

Taimyr coal to commence shipments in June

Vyacheslav Ruksha, Director General of FSUE Atomflot, has revealed that the first consignment of Taimyr coal to be produced by VostokUgol will be despatched on 15 June 2017.

This will be shipped via a 45,000dwt vessel from the specialist coal terminal on the Taimyr peninsula specifically built to handle such flows.

Speaking at the VI International Forum "Arctic: the Present and the Future", Ruksha stated that, in future, annual shipments from the coal terminal could amount to between 20mt (million tonnes) and 30mt. The high-quality anthracite is being mined by the Arctic Mining Company, which is managed by VostokUgol. Both a railway link from the mine and a dedicated port are being constructed by the company specifically with coal consignments in mind. Despatch will be all year round, with an icebreaker deployed in winter to ensure free movement of vessels and axle heaters to be available to keep coal wagons moving even in the worst winter weather conditions.

Barry Cross

25% increase in dry bulk at Barranquilla in 2016

The president of the Colombian port of Barranquilla, René Puche, says that the aim for 2017 is to increase the port's overall dry bulk operation. This will be achieved through the increase in warehousing capacity, with construction of four new silos, which will cost around $4 million. These will house so-called 'clean' dry bulks.

"We are going to put forward this project at the next meeting of the management board, and if it is approved, the silos should be available to operate in mid-2017," he said.

The handling of dry bulk is one of the port of Barranquilla's strong points, said Puche. "This has traditionally been a dry bulk port and, before we started handling other cargo, we were handling bulk," he observed.

By the end of 2017, the specialist terminals at Barranquilla were expected to have handled two million tonnes of clean dry bulk, which is defined as being bulk for human rather than animal consumption. In 2015, clean bulks amounted to 1.6 million tonnes, so 2016 saw an effective rise of 25%.

One of the reasons Barranquilla continues to do well in this sector is its ability to use multimodal transport, given extensive use in the region of the Magdalena River. Investment in support of this during 2017 has been budgeted at $16 million.

BC

Spanish ports handle record cargo tonnage in 2016

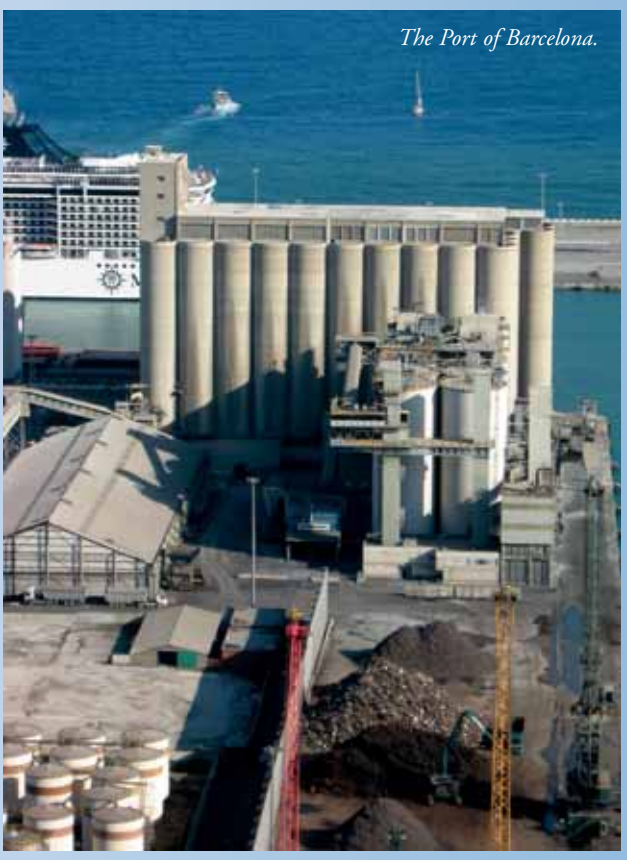
The president of Spain's National Ports Authority (Puertos del Estado), José Llorca, has revealed that the various ports under the organization's control will have handled 508mt (million tonnes) of cargo by the end of 2016. This actually breaks the previous record for cargo, which was set in 2015, when the ports handled a combined 502mt.

"We will [end the year] on the 508mt mark … which demonstrates the enormous vitality of Spanish ports in the service of our country's economy," said Llorca.

As far as he is concerned, this figure indicates that the Spanish economy is going through a good patch and is second only behind Germany in terms of export capacity and export growth, along with rising domestic consumption.

"This shows the great usefulness of the ports, which are a good thermometer showing the health of the economy, given that when port traffic grows, so does the economy. It's a positive indication that our country's economy is developing along a production path and also one based around export capacity," he said.

BC



The Port of Barcelona.

Photo source: Kacper Kowalski / Port of Gdansk Authority.

Coal Terminal Developments

Jay Venter

Record-breaking year in the Port of Gdansk with over 37.3 million tonnes of cargo and 13% increase in coal handling

The past year was long heralded as a special one for the Port of Gdansk in Poland, both in terms of the predicted transshipments and the investments carried out there, as well as on account of the fact that Gdansk moved up in the ranking of the largest seaports on the Baltic Sea.

All of these forecasts have been realized and today it can be said with certainty that the Polish port has reached a peak, taking sixth position in the Baltic Sea in terms of overall transshipment volumes for the first time.

Nearly every month brought Gdansk some good news about ongoing enhancements of the port's potential, which ultimately resulted in another record commodity turnover at the end of the year 2016 – at a level of as many as 37.3mt (million tonnes), i.e. nearly 4% more than in 2015.

This time, the largest participation in the port's commodity structure belonged to general cargo thanks to the very high volume of container transshipments, which reached a level of 1.3 million TEU within the last 12 months, i.e. 19% more than in 2015 and 7.2% more than in the record year 2014.

The volume of transshipments in the liquid bulk group was also quite high, amounting to over 13mt.

However the transshipments of coal are worthy of special attention, as they have exceeded the level of 5mt (a 13% increase compared to 2015), a level unattainable in recent years. The last best result in this respect was recorded 12 years ago, when in 2005, nearly 7mt of coal were handled in Gdansk. Since then, the transshipment volumes of this commodity group at the port have been very uneven and fluctuated within the range from 1mt in 2008 to 4.6mt in 2013.

The direction of trade in this raw material has also changed considerably. While in 2015, the predominant function was the export of coal and coke, which constituted 57% in the group's transshipment structure at the time, last year it was only 38%.

CARGO HANDLING IN THE PORT OF GDANSK IN 2016 (IN TONNES)

PORT GDANSK	2015	2016	DIFF %
TOTAL	**35,913,639**	**37,288,969**	**103.83**
in it:			
Liquid bulk	15,057,063	13,112,773	87.09
General cargo	11,600,036	14,467,118	124.72
including:			
Containers (TEU)	1,091,202	1,299,697	119.11
DRY BULK	**9,256,540**	**9,709,078**	**104.89**
including *inter alia*:			
Coal	4,487,902	5,080,910	113.21
Ores	84,941	202,394	238.28
Other dry bulk (scrap iron, steel, fertilizers etc)	3,228,358	3,277,821	101.53

Within the past 12 months, very good transshipment results have also been achieved in other dry bulk cargo — a total of 3.3mt (excluding ore) were handled on the port's quays, i.e. 1.5% more than a year earlier. Since 2014, the turnover of this type of cargo in Gdansk has been relatively stable (in 2014, it was 3.5mt, and in 2015 – 3.2mt). The commodity structure of cargo in this category was similar. Just like in 2015, the transshipment of aggregate constituted a half of other dry bulk, amounting to 1.66mt last year. Almost half a million tonnes of granulated sulphur and nearly 200,000 tonnes of feldspar were also recorded. A large — over 70% — increase in the transshipment of soda was characteristic of last year, with a total of 280,000 tonnes handled.

The year 2016 was also another successful one, in which the port recorded a large increase in ore turnover. A year earlier, about 85,000 tonnes were handled, while in 2016, the volume of ore exceeded the level of 200,000 tonnes and, as the operator forecasts, successive growth can be expected in the coming periods.

The past 12 months confirmed as well the continuation of the steady upward trend in vessel size. While in 2015, the average size of vessels calling at the port for trading purposes was 16,910 GT, in 2016, this increased by another 8%, reaching 18,304 GT. This is an increase in commercial vessel size of as much as 123% within a decade, and it can be expected that this will continue this year as well.

Taking into account this long lasting success story of the Port of Gdansk, everything seems to show that 2017 will be at least equally successful as 2016. The final summary, though, will have to wait another 12 months.

HAROPA 2016 coal figures

HAROPA trade figures & statistics

HAROPA coal traffic for 2016 reached 1.2mt (1mt in 2015), of which a third was for the Port of Rouen and two-thirds was for the Port of Le Havre. Coal is mainly used to supply the thermal power station located in Le Havre, the urban heatings located in the Ile de France region, and other industrial heaters. 2015 figures were slightly lower because of the planned renovation work of the EDF coal-fired power station of Le Havre.

About HAROPA

HAROPA, the fifth-largest port complex in Northern Europe, is a joint venture between the ports of Le Havre, Rouen and Paris. It is connected to every continent owing to a first-rate international shipping offer (linking 600 ports worldwide). It serves a vast hinterland whose core is in the Seine valley and the Paris region forming the biggest French consumer market area. With around ten Normandy and Paris area partner ports, the 'one-stop' hub now forms a global transport and logistics system in France, capable of providing a comprehensive end-to-end service. HAROPA handles over 120 million tonnes of cargo by sea and waterway each year. HAROPA business represents 160,000 jobs.

The Seaports of Niedersachsen: state-of-the-art multi-purpose terminals

Dry cargo specialists

The seaports of Niedersachsen Brake, Cuxhaven, Emden, Leer, Nordenham, Oldenburg, Papenburg, Stade and Wilhelmshaven are specialists amongst others for the transshipment, handling and warehousing of bulk cargo. This is also confirmed by the strong dry bulk cargo handling volumes in the past: From January to December 2015 the seaports of Niedersachsen handled around 15.3mt (million tonnes) dry bulk cargo out of a total of 52mt in maritime traffic.

The handling of 52mt in maritime traffic at the seaports of Niedersachsen meant a growth of 12% compared to 2014 (46.4mt). Bulk cargo made a share of 40.9mt which can again be split in dry bulk (15.3mt) and liquid bulk (25.6mt). Compared to the previous year bulk cargo handling in Niedersachsen's seaports grew by 4 % (39.3 mt in 2014).

The handling of general cargo also showed a positive development: the volume increased by 57% to about 11.05mt (2014: 7.05mt). Besides the growth in terms of handling of steel products, project cargo as well as new vehicles also an increase of container handling at Container Terminal Wilhelmshaven had a positive impact. A total of 426,751 TEU were loaded here in 2015 (2014: 67,076 TEU). Maritime handling of new vehicles in Cuxhaven and Emden was 7% above the previous year's result (1.8 million new vehicles in 2015).

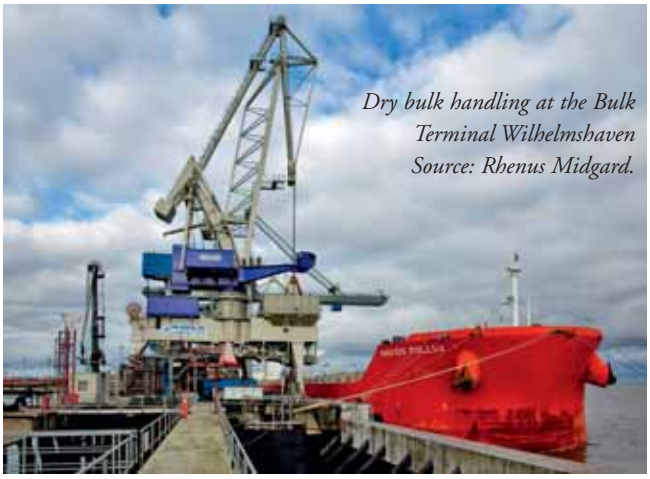
In the last year the private port operating companies as well as the federal state of Niedersachsen invested in new infrastructures, port facilities and handling equipment to be able to follow the growing demands of the customers.

The seaport of Brake managed to come out as one of the highest-growth ports in Niedersachsen again in 2015. An important project to improve the infrastructure, and a good example of the future-oriented collaboration between the state-owned infrastructure company Niedersachsen Ports and customers, is the development of the 'Südpier', in which the port infrastructure company is investing around ten million Euros. In summer 2017 there will be mooring space for two ships measuring 275 metres in length and up to 11.90 metres in depth.

The majority of loads shipped via the Niedersachsenkai in Brake are focused on land-based wind power generators. However, in September 2016, port terminal operator J. Müller proved that the site is also suitable for offshore components. Four large monopiles, each weighing over 100 tonnes and measuring around 40 metres in length, were handled in Brake for Spedition Ramm-Trans and a wind farm off the English south coast. A scale was also applied to the posts in a special paint, helping to ensure centimetre-precise alignment of the monopiles on the seabed.

In the seaport of Cuxhaven, Niedersachsen's State Secretary for Economic Affairs, Daniela Behrens, recently gave the go-ahead for the construction of berth no. 4. This will be a multi-purpose terminal at the river Elbe, as an extension of the established Cuxport terminal. The new berthing offers the possibility of handling new vehicles, wind power systems and other goods. It has a quay length of 240 metres and will be suitable for ships up to a maximum depth of 14.30 metres. The construction is expected to cost 36 million Euros. The downstream 8.5-hectare quay facility offers a variety of logistics options. Completion is planned for 2017.

In Cuxhaven Siemens' new offshore factory is progressing rapidly. As little as just under a year since the decision to invest was made, upward construction has begun with the official first cut of the spade. The soil compaction work and foundations, comprising around 1,900 concrete piles, have already been completed. The enormous production hall, which is to be up to 30 metres tall, is expected to be completed as early as mid-2017, and production of the seven-megawatt gearless offshore wind turbines is to commence from summer 2017.



Dry bulk handling at the Bulk Terminal Wilhelmshaven Source: Rhenus Midgard.

The company AMBAU, which produces foundation structures for off- and onshore wind energy units, has expanded its capacity in Cuxhaven, taking over the storage space and operation of the port formerly run by Cuxhaven Steel Construction (CSC). An existing hall, which is being converted into a partially automated coating and finishing hall for tubular steel towers and offshore foundations, is just beside the existing AMBAU factory.

The port Emden has also seen investments in its infrastructure in 2016: The modernization of the pier 'Südkai' in the port of Emden has been completed. Following a year of conversion work, the modernized 'Südkai' was handed over in summer 2016 to be used for its intended purpose. The key aim of the extensive renovation work was to develop the facility, which is about 1,000 metres long, from a simple bulk goods quay into a contemporary multi-purpose terminal. State-owned infrastructure company Niedersachsen Ports has invested a total of 6.2 million Euros in the modernization.

The company Rhein-Umschlag, based in Oldenburg, is currently driving forward the expansion and modernization of its handling facilities and the construction of an administration building at a cost of around 12 million Euros. Among other things, investments have been made in a new gantry crane in the eastern part of the port of Oldenburg and in the construction of a further trimodal handling terminal for building materials in the commercial zone of 'Dalbenstraße', to facilitate further optimization of handling processes. The expansion measures will also involve the company moving within the port of Oldenburg.

An example of the high performance in dry bulk handling at the Bulk Terminal Wilhelmshaven (BTW): the first coal carrier docked at BTW, run by Rhenus Midgard, in April 1976. Since then, over 60mt of coal have been handled for local power plants and customers in the hinterland. The year 2015 was a record one: 3.65mt were unloaded at the bulk goods handling terminal. In Germany, BTW is the only place fully loaded Capesize vessels with a load capacity of up to 250,000 tonnes and a depth of 18.50 metres can be discharged. The facility is also home to Europe's latest wagon loading station, with an output of 2,000 tonnes per hour.

Blue Water Misting celebrates first shiploader installation

Environmental best practice Chile bulk shiploader

Blue Water Misting has delivered its first dust suppression project working with a shiploader.

Terminal Puerto de Arica has taken delivery of a hatch misting system to work in concert with its shiploader to ensure that no fugitive dust is lost during the loading process. The Blue Water Misting System creates a curtain of dry fog at the hatch top stopping any fugitive dust escaping during loading.

The port is located close to urban population and environmental concerns are paramount in the port to keep the local community and workers safe

What it is

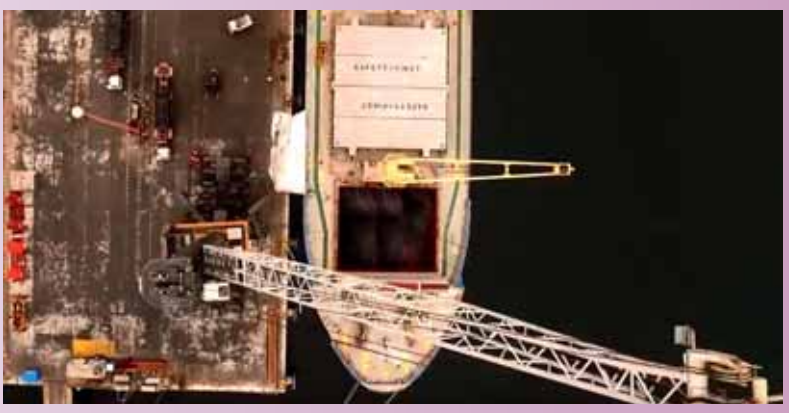
Blue Water Misting (BWM) has developed a dust suppression system that fits to the top of the vessel hatch and creates a barrier of dry fog that prevents escape of fugitive dust emissions.

The system consists of a power pack that sits on the quay connected to the power and water of the port. These deliver a high pressure spray to an array of purpose built spray bars that are temporally fitted to the hatch combing by the stevedores during loading.

How it works

The BWM system creates a complete mist screen at the top of the hatch. As particles rise after loading they collide with water joining together. By wetting airborne fines the weight of each particle is increased. These heavier combined particles of dust and water fall out of the air back to the pile.

BWM used the science and its experience to create moisture curtains in and around ship's holds to make contact with the dust fines increasing their mass and removing them from the air stream.



Dust — money blowing in the wind

While it is important for companies to reduce pollution, arguably a greater motivator for mining companies is lost product = lost money. Concentrates of copper and zinc are valuable ranging from US$1,000–3,500 per tonne. Even if you save 1% of material losses over 12 months this can add up to hundreds of thousands of dollars.

Odour

One of the first things that the people in Arica noticed was that the smell of the concentrate that was obvious during normal loading was gone. The fine mist mixing with the particles causing them to drop from the air resulted an odorless operation.

Not all dust is the same

There is a range of different materials and particle sizes. Before each new job BWM consults with the client and provides a bespoke designed system spray nozzles and bars that capture that dust. BWM can also provide a dry fog for material that can't be wet like grain or cement

All applications

The BWM system is very flexible and can be deployed with any type of loading system. Systems are currently in used with tipplers, grab and shiploaders. Soon BWM will announce a hopper-based system using baffles and misting to combine for zero dust import solution.

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in powerplant receiving from ship unloading system

Hopper Feeder & Radial Telescopic reclaiming/
stockpiling coal in stockyard of powerplant

Telestack **mobile** coal handling systems offer significant **operating costs savings** compared to traditional methods of material handling (e.g wheel loaders, mobile harbour cranes, stacker/ reclaimers etc.) as well as providing **environmental** and **health & safety benefits**. Additonal benefits include **reduced planning** permission required due to product **mobility.** Also the **flexibility** to move Telestack Mobile Conveyors off site. Telestack Conveyors can be **rapidly deployed** on site with handling rates of up to 3,000 TPH.

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SLY Inc offers customized dust-control systems

Unlike some manufacturers of dust-control systems, SLY believes in customizing its solutions to meet the exact need of its customers. The US-based company offers most major industrial dust collection technologies and designs, so without playing favourites, it is able to recommend the best technology for the application. SLY has a broad range of collectors, which enable it to act as a trusted advisor to its customers.

SLY is special, as it has its own manufacturing facilities, and is able to tailor a dust collector to its customers' exact specifications, while maintaining a competitive price. SLY does its own engineering, metal fabrication, painting and assembly, and fabricates its own cages. This means that it is able to control every step of the process and can flexibly and affordably accommodate special designs.

The company prides itself on offering:

- high temperature designs;
- pressure and vacuum applications;
- special arrangements to fit tight spaces;
- various bag sizes, SLY's or competitors';
- alloy construction;
- internal and external polishing;
- engineered support structures;
- custom inlet and hopper configurations;
- special coatings;
- exceptional customer service; and
- designs to minimize energy requirements, maximize bag life, avoid unscheduled shut downs, and provide years of trouble-free operation

Pulse-cleaned bag collectors

Because SLY doesn't outsource manufacturing, it is able to supply an economical custom solution without dela. Its pulse-cleaned bag collectors have the following features:

- steady pressure drop maintained by on-line compressed air cleaning;
- pulse pipes and bags are removed and replaced without tools;
- pulse-cleaned cartridge collectors;
- on-demand optional cleaning feature extends bag life;
- rectangular or round housings with top or side bag removal;
- sized from bin vents to large rectangular modules;
- explosion protection available;
- 50–200,000 ACFM; and
- wide variety of filter media available.

Pulse-cleaned cartridge collectors

A SLY cartridge delivers ease of maintenance and long element life. Features include:

- vertical and horizontal cartridge designs;
- cartridge change out does not require tools;
- all-welded, heavy duty construction is standard;
- down flow design; and
- high inlet.

SLY offers a broad range of cartridge media, including: cellulose/synthetics; spun bonded; FDA white; oleophobic; high temperature; nano; and conductive.

Wet scrubbers

Three types of wet scrubbers to remove vapours, gases and particulate:

- **Impinjet® Impingement:** The Sly Impinjet scrubber collects particulates, and absorbs vapours, and gases. High collection efficiencies (99+%), can be achieved with low water consumption and minimum pressure drop.
- **Venturi scrubbers:** for fine particulates. The SLY Venturi scrubber offers more advantages in separating and recovering ultra-fine particulates and liquid mists than other gas cleaning methods.
- **Eductor Venturi Scrubbers:** Eductor scrubbers are designed to remove soluble gases and particulate by inducing a gas flow using high pressure liquid focused into a venturi throat.

Loading Spouts

- **PV and XP Standard Spout:** The best value spout for most uses. Has internal stacking cones to direct material flow. When used with a negative pressure dust collection system, it is truly dust-free. Usage: truck, railcar, tote bin, flexible bulk containers, carton, drum.
- **'Model T' Hand Crank:** manually operated. Saves money, offers flexibility. Same performance as the standard spout but eliminates the motor. Usage: pails, boxes, drains, flexible bulk containers, tote bins,trucks and railcars.
- **PV and XP, OS Series Open Stacking Spout:** comes standard with product level sensors and control circuits to maintain contact between dust skirt and material pile being formed. Usage: open stacking, open rail cars, open trucks.
- **LP-8, LP-10 Low Profile Spout for Tight Spaces:** low profile spout has a retracted height of only 20" with a 36" vertical travel. Great for close quarter loading or retrofits. Usage: pails, boxes, 55 gallon drums, flexible bulk containers, tote bins, some enclosed trucks and railcars.

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TEUFELBERGER to acquire steel wire rope specialist Redaelli Tecna

By acquiring the Italian steel wire rope specialist Redaelli Tecna, a global market leader in the design and production of steel wire rope, TEUFELBERGER is taking its biggest step yet in terms of expansion in more than 225 years of company history.

To strengthen its position in the steel wire rope business, TEUFELBERGER has signed a definite agreement for the acquisition of the long-established Italian company Redaelli Tecna ('Redaelli') from the Russian JSC 'Severstal–metiz'. Redaelli specializes in the design and manufacture of steel wire ropes for: off-shore and on-shore oil and gas activities; mining; cableways; material transportation and hoisting; the development and production of innovative systems for tenso structures; and operations in distribution, service and technical assistance business with its logistic rope center Teci. Hence, the two companies will complement one another ideally in terms of their product portfolios, by featuring a wealth of rope constructions and larger rope diameters and cater to a variety of applications with new opportunities for market distribution.

Florian Teufelberger, CEO of Teufelberger stated: "We are convinced that Redaelli will be an enormous gain for TEUFELBERGER. Together, we will now be able to offer customers a product portfolio of steel wire ropes and services that is unprecedented in the industry."

Giuliano Ambroset, M.D. of Redaelli Tecna declared: "With TEUFELBERGER, we will become part of a long-term-oriented, stable family enterprise. The resulting synergies and the competences of Redaelli will open a wide range of opportunities for our companies."

This deal is expected to be finalized in spring this year, subject to receipt of antitrust clearances and other customary closing conditions as agreed by the parties.

TEUFELBERGER is a globally successful family enterprise specializing in the development, production, and distribution of high-performance steel wire ropes, fibre ropes, and strapping. In addition to its headquarters at Wels, Austria, TEUFELBERGER operates other manufacturing sites in Austria, the Czech Republic, Thailand, and in the US. In 2015, its employees generated total revenues of € 180 million, about 90% of which came from exports. In recent years, the number of global staff increased continuously to a current headcount of about 950.

Redaelli Tecna is a global market leader specialized in the development, design and manufacture of high tech steel wire ropes. In Italy Redaelli has plants in Gardone VT (BS) and Trieste, Teci logistics centre in Castegnato (BS), an engineering centre in Milan where its headquarters are also located, and subsidiaries in Brazil, China and the USA. Redaelli employs a workforce of 330 units and exports 70% of its production. In 2015 Redaelli generated total revenues of € 92 million.

Bedeschi completes commissioning of three-tower shiploader at Convent Marine Terminal

At the end of December 2016 Bedeschi successfully completed the commissioning of a three tower shiploader with a design rate of 6,000tph (tonnes per hour). The shiploader will provide shiploading onto vessels ranging in size from 50,000dwt up to 180,000dwt. The customer for the unit is the coal terminal plant of CMT, Convent Marine Terminal. The terminal is located on the Mississippi River near Convent (Louisiana), USA, and since 2015 has been owned by SunCoke Energy.

Bedeschi, founded in 1908, is a leading supplier of machinery and services to bulk material handling and mining industries with a specific focus on handling difficult materials such as sticky coal and clay or dry mining and abrasive materials like iron ore and other minerals. In addition to traditional brick and tile manufacturing equipment, Bedeschi's products cover a full range of bulk handling solutions, offshore transhipment, marine logistics and a complete line of crushing equipment.

The shiploader consists of these following major elements:

Three slewing tower loaders with telescopic shuttles

- tower three (SHL-3) receives the coal from storage facility and controls the distribution to the two loading towers downstream (SHL-2 and SHL-1) by means of a diverting hopper.
- tower two (SHL-2) can also divert the coal to tower one (SHL-1) or direct load all of the coal received from tower three (SHL-3);
- the three towers are connected by means of two link conveyors (LC-2 and LC-1) for the distribution of coal according to the operational requirements. Each loader has at the shuttle tip a telescopic chute with trimming spoon which allows the operator to direct the flow of material into the ship hold; and
- all the conveyors have been equipped with suppression dedusting water spray/mist system and belt washing system.

Advantages of this type of installation, when compared for instance to a classical A-frame shiploader travelling on rails and with luffing boom, are basically low maintenance costs and efficiency.

Low maintenance costs depend on the fact that there are no rails on concrete foundations and therefore no settlements or displacements due to quay deflections as the years go by. So there will be no costs due to wear caused by wheels and especially for civil works realigning rails.

The basic motions of the three shiploaders, i.e. boom slewing of 150° and shuttle travelling with outreach from 20m (65ft) to 52m (150ft), are respectively with geared slewing ring or pinion-rack, gearboxes and electric drive units, which need very low maintenance effort, when compared for instance to periodic inspections required by winch ropes.

Efficiency is achieved by means of the three-tower design: this makes it possible to position one loader while the other one is running, so downtime is avoided when changing from one ship hold to the other; the design of this three-tower shiploader makes it possible to load all compartments of a Capesize ship without need to move the vessel. Moreover, some types of ships have cranes or other onboard structures which require downtime due to the luffing boom positioning: with this type of design for booms, very high with reference to the ship holds, jump over obstacles on the ship is much faster and easier.

The shiploader is also 'redundant', so in the case of the sudden failure of one of the three loaders, it will be possible to finish loading operations with the other two without having to wait for reparations: this is a very important convenience, especially in marine terminals, where time is money.

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BEDESCHI services range from feasibility studies and basic engineering to complete green field, turn key installations. All design activities are performed in house in BEDESCHI technical centers in Italy and United States, while all manufacturing is carried out in the Company state-of-art workshop in Italy.

BEDESCHI has followed this way of operation for more than 100 years, resulting in complete quality control and the highest product reliability.

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Repeat orders for Siwertell unloaders: clear indicator of customer satisfaction

Siwertell wins third order for road-mobile cement unloader from Acico Construction

Siwertell, part of Cargotec, has signed a contract with Kuwait-based company Acico Construction for its third road-mobile cement unloader. Similar to its last delivery in 2015, the next-generation, road-mobile unloader will be a trailer-based, diesel-powered Siwertell 10 000 S unit. It will be fitted with dust filters and a double bellows system for uninterrupted operations and like its predecessor will have a rated capacity of 300tph (tonnes per hour). Acico also operates a Siwertell 5 000 S unit, which was delivered in 2014.

"Repeat contracts are very important indicators of performance and customer satisfaction," says Jörgen Ojeda, Director, Mobile Unloaders, Siwertell. "Acico initially enjoyed positive experiences operating Siwertell equipment belonging to third parties. This was an important factor in helping the company decide that it would like to own and operate its own unit. This positive experience has continued, making it quite an easy decision for Acico to once again choose a system from Siwertell to meet the needs of its expanding operation."

Acico Construction, part of Acico Industries Company, was founded in 1990 and has experienced sustained and steady growth. Its third Siwertell unit has been ordered so that the company can focus its operations on the increasing number of larger vessels, up to 10,000dwt, that it now handles.

The new unit will be built at Siwertell's premises in Bjuv, Sweden and delivered by the end of the first quarter of 2017. It will operate in Kuwait's second largest port, Shuaiba, located south of Kuwait City.

The Siwertell road-mobile unloaders were originally developed for handling cement, making them ideal for this commodity, although they can comfortably handle a wide variety of dry bulk materials.

"We are seeing a lot of repeat customers who cite the efficiency and reliability of Siwertell's mobile units as reasons for returning to us," says Ojeda. "We are also being approached by first-time customers looking to prioritize quality, long-term efficiency, performance and reliability over a marginally cheaper alternative investment. In the long run, a lower-priced system might prove to be considerably more expensive as a result of lower efficiencies, greater downtime and higher maintenance costs.

Acico benefits from a Siwertell Care maintenance support contract, signed in 2015. With one more year to run, it covers Acico's first two road-mobile units. The agreement includes an ongoing training element for Acico maintenance staff, covering mechanical and electrical systems and instrumentation.

"Siwertell road-mobile units are well designed and constructed and in consequence they are inherently robust and reliable. However, expert attention delivered on a timely, planned basis is the ideal way to ensure maximum uptime, a long service life and good cost control," says Ojeda.

Further Siwertell unloader contract confirms advantages of road-mobile technology

Siwertell has also secured an order for a next generation, road-mobile ship unloader for an undisclosed client. The 10 000 S trailer-based, diesel-powered unit will be used to unload cement at a rated capacity of 300tph. It will join the customer's existing Siwertell 10 000 S road-mobile unloader, which it has been operating successfully since 2015.

"This contract adds to our growing list of repeat orders for road-mobile units," says Ojeda. "The customer is very satisfied with the performance and reliability of its existing unit and turning to Siwertell technology once again was not a difficult decision.

"Customers like the operational flexibility road-mobile unloaders offer, particularly for discharging ships at multiple locations. The road-mobile unit is an excellent choice in this case because the customer does not have its own terminal. It rents space at an available jetty when a cement vessel is due."

The road-mobile unloader is completely autonomous and does not require any installations on the jetty. It is quick and easy to deploy and when the unloading operation is finished the unit is folded up and driven back to the customer's premises ready for its next operation. The dust-free, environmentally-friendly operation means that there are no jetty clean-up costs.

The new unit will be equipped with a dust filter and a double-bellows system, allowing uninterrupted discharge when changing between trucks or rail wagons. It will be constructed at Siwertell's premises in Bjuv, Sweden, with delivery scheduled for March 2017.

The customer has signed a Siwertell Service Contract that covers both units. It includes two inspection and service visits each year, along with remote support and trouble-shooting via modem connection. It also provides valuable discounts for spare parts.

"All our products are inherently robust and reliable, but proper care and maintenance are important for a long working life with minimal downtime," says Ojeda. "Our service contracts provide a cost-effective way for owners to protect their investments and get the best results from them."

Siwertell ship unloaders and loaders are based on unique screw conveyor technology, in combination with belt conveyors and aeroslides, and can handle virtually any dry bulk cargo, such as alumina, biomass, cement, coal, fertilizers, grain and sulphur. Siwertell's product portfolio includes ship unloaders, mobile ship-unloaders, shiploaders, conveying systems and complete bulk terminal solutions, all of which are designed to ensure environmentally-friendly and efficient cargo operations.

It all comes down to PEBCO

PEBCO's 40,000ft² Manufacturing facility in Paducah, Kentucky USA.

PEBCO Inc is recognized worldwide as a leader in the manufacture of both standard and customized material handling equipment for the dry bulk solids industry.

PEBCO designs and manufactures standard and customized gates, valves, diverters, mass flow feeders, air slides, dustless loading spouts, telescopic chutes, PEBCO Cascade Chute and systems for barge, ship, truck and railcar loading.

PEBCO has become established in the coal and cement industries while at the same time expanding its expertise into other materials such as ferrous and non-ferrous ores, minerals, chemicals, and forest products. PEBCO's products are also used in other applications such as mining, power generation, waste incineration, lime, fertilizer, and dewatered sludge.

The company started operations in 1977 in Paducah Kentucky USA and still today is home to its corporate headquarters and manufacturing facility and PEBCO employees are proud to keep all manufacturing and design local. The manufacturing facility spans 40,000ft² complete with blasting and paint booths.

PEBCO has been servicing the mining and dry bulk solids industries for just on 40 years and over this time PEBCO has grown to global prominence with representation all over the world.

PEBCO's engineering team treats each application individually and custom tailors products to exact customer specifications. While seeking solutions to unique material handling problems, PEBCO's experience, versatility, and innovation has led to the development of several patented products, features and options for equipment used in the dry bulk solids handling industry. PEBCO's patented products demonstrate the innovation of the company in the field of moving, storing, and weighing bulk solids. Patents include the ROLLING BLADE Gate®, Mass Flow Feeder control technology, Uni-Load Chute® and the PEBCO Cascade Chute®.

PEBCO is a company dedicated to standing behind what it sells, designs, and manufactures. It offers an array of standard products, while at the same time seeking solutions to unique material handling problems. Utilizing the matrix system of management, the company co-ordinates the functions of engineering, procurement, fabrication, installation, and preventative maintenance and service.

Systems are specially designed to best serve the needs of customers. Each product and/or project is evaluated on an individual basis allowing for customer requirements, product characteristics, environmental considerations and other elements. PEBCO's total commitment to customers is to supply equipment and systems that incorporate the most practical and most advanced technological approaches. The company totally controls design, manufacturing and quality.

Years of experience in building a wide array of systems gives PEBCO the tremendous capability to provide efficient, reliable systems based on the latest technology. It all comes down to innovation, advanced engineering tools, and experience. PEBCO can provide the equipment and service to solve customers' bulk material handling problems.

In February 2017 PEBCO will celebrate 40 years in the dry bulk solids business and is proud to say that some of its original employees now hold senior management roles within the company making PEBCO an employer of choice.

OEM Equipment

- slide gates;
- diverters;
- mass flow feeders;
- dustless loading equipment;
- high volume loading chutes; and
- hydraulic systems.

Applications

- mining (coal, iron ore, limestone, copper etc);
- cement;
- aggregates;

- grains & grain processing;
- coal fired power plants;
- fertilizers;
- chemicals;
- food;
- pet foods;
- plastics;
- ash;
- clay;
- glass;
- sludge;
- sand; and
- bio-mass.

Engineering

- mechanical;
- electrical;
- hydraulic & pneumatic;
- auto CAD;
- inventor solid modelling; and
- FEA.

Contract fabrication services

- MIG, TIG, brazing welding services;
- CNC press break;
- rolling & forming;
- machining including CNC millwork;
- electrical;
- mechanical assembly;
- laser & plasma cutting;
- blast & wet coating systems;
- custom metal fabrication; and
- hydraulic equipment and hydraulic system design.

Murray Energy installs new E-Crane at fly ash facility

Murray Energy, the largest underground coal mining company in the United States, has recently installed a new E-Crane for handling fly ash at its facility near Moundsville, WV. Murray Energy produces about 65 million tonnes of coal annually, providing reliable electric power to many customers. The new E-Crane is barge mounted, and unloads barges of fly ash, a coal combustion byproduct. The fly ash is loaded into a specialized hopper, also mounted on the barge alongside the E-Crane. The material is then conveyed to a truck loading station.

Murray Energy chose the E-Crane solution for its versatility and ability to handle this difficult material. The material properties vary greatly, but the adjustable push down force of the E-Crane along with custom scrapers built into the grab handle the job no matter if the material is hard and crusty or wet and sticky. Additionally, the balanced design of the E-Crane makes it ideal for barge mounting. Since the E-Crane is always in a balanced state, there is very minimal listing and movement of the barge during E-Crane operations.

Murray Energy is happy with the successful E-Crane installation. According to Mr. Tom Crawshaw, Project Manager, "The site equipment startup was quite good. It would be great if all of our equipment was working as well as the E-Crane!"

The E-Crane operator, Bryan Brown, also had high praise for the equipment and E-Crane company: "I have been around cranes and excavators for over 30 years and watched many different companies install and put machines into service. I can say that I have never seen a more dedicated, professional, and caring group of technicians. The E-Crane is a new concept to me and I had a lot of questions. Every E-Crane guy I asked stopped what he was doing and carefully explained and answered my questions. Right out of the box, the E-Crane and I are getting along great! The machine is massive, but controllable, smooth and fast. I'm planning to stick with this rig until retirement!"

Murray Energy: "I have never seen a more dedicated, professional, and caring group of technicians."

Technical specifications

Type:	2000/Model 18264 PD-E
Location:	Near Moundsville WV, USA
Application:	Barge unloading
Material:	Combustion byproduct
Mount:	Barge (166ft x 50ft x 12ft)
Lift capacity:	27.0 metric tonnes/30.0 US tons
Reach:	26.4m/86.5ft
Attachment:	10.7m³/14.0yd³ hydraulic clamshell grab
Power source:	450kW/600hp electric motor

BEUMER cement plant systems

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BEUMER: SOLUTIONS THAT USERS CAN BUILD ON

As a system supplier, BEUMER Group develops solutions perfectly adapted to meet cement plant requirements. This includes conveying, loading and filling systems that are offered in different versions for various tasks, which are continuously optimized by the company's engineers in Beckum, Germany. BEUMER's goal is to make its customers' operations more efficient. Users have to face for example less maintenance, an increase in bucket elevator capacity and achieve more precise filling results. BEUMER provides innovative solutions to international cement companies which are looking for sustainable and cost-efficient ways to modernize their plants.

The conveying system has to meet high requirements to ensure safe and economic clinker transport in cement plants. The cement clinker leaves the clinker cooler of the kiln line at temperatures of up to 200°C, or up to 600°C if the coating collapses, and is temporarily stored in the clinker silo. To ensure trouble-free transport of the clinker, the conveying system must withstand these high temperatures. This is where BEUMER apron conveyors are used. They are extremely robust and can navigate through complicated routings and considerable conveying heights. "We generally use the heavy-duty BEUMER double sprocket chains as traction elements," explains Michael Brachthäuser, Director Business Unit Cement at BEUMER Group. This makes it possible to handle inclinations of up to 60° at a speed of 0.3 metres per second. "In order to increase performance we developed a version with the cells mounted to a belt instead of a chain," explains Brachthäuser.

Michael Brachthäuser, Director Business Unit Cement at BEUMER Group.

MORE COMPACT AND MORE POWERFUL

The basis for this variant is the proven BEUMER belt technology, which is also used in bucket elevators. The belt is reinforced with steel wires and can be designed in different widths. In the material feed area, special deflector plates protect the belt against hot coating that collapses when the kiln is not in continuous use. "With up to 1,300m³ of clinker per hour, belt apron conveyors achieve a higher conveying capacity than conventional apron conveyors," explains

Brachthäuser. This can be attributed to a higher running speed of up to 0.6m/s (metres per second). Angles of inclination of up to 60° are also possible. Wear and tear that occurs frequently on a chain can be practically eliminated when using a belt and lubricating the system is not necessary. The lighter and more compact design of this solution reduces the costs for the steel structure and the entire project. The entire belt lies with its surface on the drive and return pulley, thus, the unwanted polygon effect caused by the central chain is avoided. This ensures quiet running and low noise emission, and prevents additional exposure of the plant and adjacent buildings to load vibrations and noise.

The BEUMER belt apron conveyor is an optimal choice for system modernizations. Thanks to faster conveying speeds, higher quantities of material can be transported while keeping the existing conveyor frames and steel bridges. "A concrete example: an apron conveyor with a chain of 1,600mm width and 131m centre distance weighs 128 tonnes," explains Brachthäuser. The steel structure weighs about 80 tonnes. An 800 x 131 metre belt apron conveyor capable of conveying the same capacity weighs only 90 tonnes — that is 38 tonnes less than the chain version. For the belt version, the net costs for the equipment are 25% lower, as the steel structure is approximately 30 tonnes lighter and weighs only 50 tonnes. A smaller drive unit can be used due to the reduced size, which further lowers the operational costs compared with conventional apron conveyors.

How to increase the capacity of belt bucket elevators

Modernizations are an important aspect to consider for bucket elevators. Cost-efficient production requires bucket elevators with low investment costs, a long service life and easy maintenance. The buckets are mounted either to a belt or a central chain. Belt bucket elevators are best suited for fine-grained bulk material, because coarse material could fall between the bucket and the belt and damage the belt. Central chain bucket elevators, however, are designed to transport all types of coarse, hot or abrasive bulk material. The fine dust of the material causes faster wear and tear on the chains as opposed to a belt. The user has to maintain the bucket elevators and replace the chains frequently. During repair, operation has to stop. Additionally, replacement chains are very expensive. "That's why we have developed the innovative high-capacity belt bucket elevators type HD," says Brachthäuser.

They are designed to eliminate the space between the individual buckets and the belt. This prevents coarse material from getting stuck during the scooping and filling process, which is often the case. This increases the service life of the belt considerably. The buckets are mounted firmly to the back of the belt with segments and bolts especially developed by BEUMER Group. As with all belt bucket elevators by BEUMER Group, BEUMER belts with wire-free zones are also used on the high-capacity belt bucket elevators. Holes for the bucket mountings can be placed here without damaging or cutting the steel wires. The traction forces of the belt are maintained to the fullest extent. The current belt has a tensile load of 2,500N/mm; the new BEUMER belt with wire-free zones has a tensile load of 3,300N/mm. The special BEUMER bucket shape also allows for smoother running and therefore less noise generation. Depending on the material to be conveyed, BEUMER Group offers special buckets or mounts a dynamic bottom into the bucket elevator boot. This prevents wet and sticky material in the bucket elevator boot. Belt bucket elevators with this equipment have a much longer service life when handling highly abrasive material than central chain bucket elevators.

The rotating filling machine BEUMER fillpac R with sophisticated weighing electronics.

These bucket elevators are already successfully used by many international cement manufacturers including Dyckerhoff, Yamama Cement, HeidelbergCement, LafargeHolcim. BEUMER Group converted its existing bucket elevators into high-capacity belt bucket elevators type HD in a simple and cost-efficient way. This became necessary because the kiln systems had been modified, increasing their capacity. This meant that the bucket elevators to the raw mills had to increase their capacity as well.

"One of our German customers had the problem that coarse-grained material was falling between the bucket and the belt, damaging the belt," explains Brachthäuser. Along with the modernization of the plant, throughput as well as the running time of the bucket elevator per day increased, adding to this challenge. The belt started to get porous already after two years of use. Initially, it was planned to replace the old belt bucket elevator with a chain bucket elevator. But then the operator of the plant opted for the BEUMER Group HD technology. The requirement was that the existing bucket elevator housing including the drive unit should remain for the retrofit.

This special BEUMER bucket elevator technology is used for example for circulating bucket elevators in raw mills and cement mills for material with grain sizes of up to 120mm and a humidity level of up to 6%. Conveying capacities of more than 1,500tph (tonnes per hour) can be reached.

Not too much, not too little — the optimal filling

For filling cement into bags, BEUMER Group offers the BEUMER fillpac. It uses rotating filling spouts to fill any type of cement into different bag types. It can be individually integrated into already existing packaging lines and adapted to specific parameters. Specific weighing electronics are utilized to ensure weight accuracy of the bags. There are practically no rejects

caused by too high or too low filling weights. The weighing unit communicates permanently with the filler neck via specific software. The automatic bag weight control determines the exact filling weight while filling. This way the machine always achieves accurate degrees of filling. The entire packaging line works more efficiently now as it is no longer necessary to remove bags with an incorrect weight from the material flow. In addition, the quantity indicated on the bag always corresponds to the real volume.

BEUMER Group offers this construction series both as air and turbine filling machines. The turbine process is the perfect solution for fine-grained materials such as cement. The result is filled bags which are compact and dimensionally stable so that the user is no longer required to vent them. Depending on the task, BEUMER Group offers BEUMER fillpac R with six, eight, ten, 12, 16 or 20 spouts. The smallest version fills up to 1,800 50kg bags or 2,250 25kg bags per hour, the biggest version fills up to 6,000 50kg bags or 7,500 25kg bags, and all of the machines can be used for diverse bag types. In order to fill HDPE bags reliably BEUMER Group offers the BEUMER bag placer as an exclusive feature. The filling impeller is characterized by its speed and maximum material throughput. BEUMER Group also offers the turbine filling machines with inline design. The filling modules are placed next to each other for ready access, which makes them extremely easy to maintain. The inline filling machines are best suited for production environments with low throughput rates.

Onto the truck bed

With the BEUMER autopac, BEUMER Group offers a system that loads cement bags directly from the filling machine onto the truck bed without manual intervention. Bags can be palletized automatically in stacked rows or patterns — without using pallets. Depending on the performance class, the system stacks between 2,400 and 3,000 50kg bags per hour. The loading height, including the height of the truck bed, can be up to 3.5m. The user can freely select the formation of the layers depending on bag size and bag material.

The machine can load bags in double patterns of five or ten bags. In order to attain a high degree of stability for the whole load on the truck, and in order to optimally utilize the truck bed, two mirror-inverted layers are always stacked next to one another. The bags are flattened by the loading process using two stacked belt conveyors, which releases the air from the bags. After being positioned, the bags are also pressed by the loading head, which makes the stack more compact and more stable. The bag feeding lines can be adjusted to the installation conditions. Corresponding technical solutions are available for variable conveyor lines. Unlike on the systems where bags are suctioned and lifted, the bags are not deformed by the BEUMER autopac. In contrast with loading and palletizing systems from other manufacturers, the BEUMER autopac is equipped exclusively with electrical drive units in its standard design. This means significantly less maintenance costs for the user. On vacuum drive units and hydraulic drive units, leaks that pollute the load and the system are inevitable. Additionally, the energy-intensive vacuum pumps and hydraulic drive units require additional cooling units, a fact that clearly increases the purchase and operating costs, as well as the energy consumption. The BEUMER autopac uses just 0.15 kilowatts per hour at full capacity. The drive units and machine parts are clearly arranged and easily accessible. This greatly facilitates maintenance. DC

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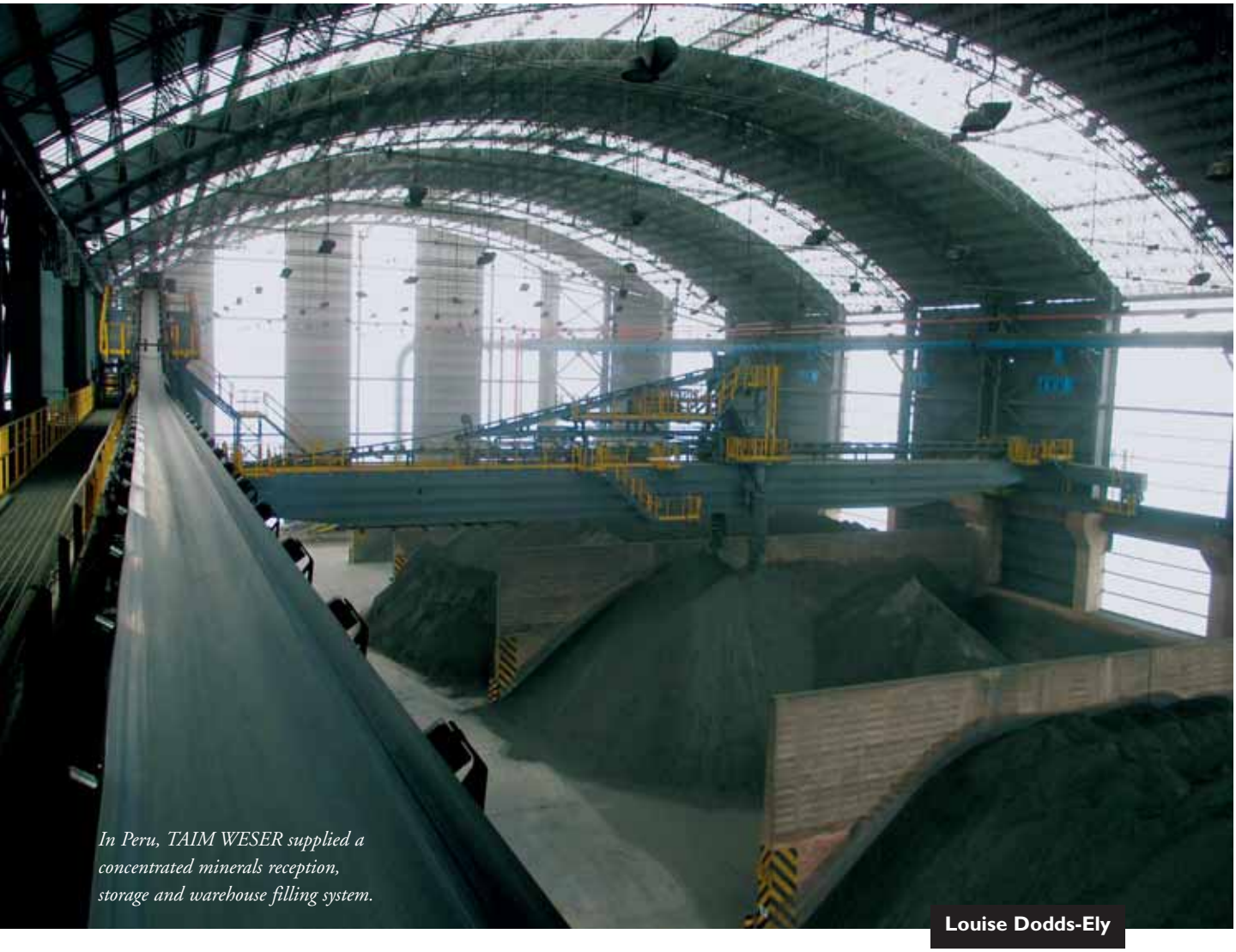


In Peru, TAIM WESER supplied a concentrated minerals reception, storage and warehouse filling system.

Louise Dodds-Ely

TAIM WESER has been supplying materials handling solutions for over 100 years, including a range of undercover storage solutions. Today, it is able to provide optimal solutions to client's needs within all the industrial sectors including power, ports, iron and steel, fertilizers, oil and gas, mining and cement industries and covering a wide range of bulk materials including, grain, fertilizers as well as coal and minerals.

By emphasizing innovation and technology, TAIM WESER has its own in-house R&D and design teams that envisage new products and develop projects using proprietary procedures and technology. It supplies either individual specialized equipment or complete facilities, integrating key and auxiliary equipment to give its clients tailor-made solutions.

TAIM WESER works with the latest high-level technology and its product range covers all the necessary equipment for unloading, conveying, storing, reclaiming and loading of bulk materials, having supplied equipment and turnkey plants in more than 60 countries worldwide.

TAIM WESER supplies from individual specialized equipment to complete facilities, integrating all of the main elements and auxiliary equipment, and providing its clients with specific solutions for each case. Its materials handling systems are present in the five continents, at power plants, industrial areas, stockyards, refineries, mines, ports and even the desert, with lengths from a few metres up to tens of kilometres, fitted with state-of-the-art controls, braking and regeneration systems, and with capacities of up to tens of thousands of tonnes per hour.

TAIM WESER STORAGE SOLUTIONS

TAIM WESER displays an extensive experience in the supply of reliable and efficient enclosed storage systems for a wide variety of materials, as coal, sulphur, copper, zinc, lead, iron ore, always attending to customer's needs and requirements.

In Peru, TAIM WESER supplied a concentrated minerals

reception, storage and warehouse filling system made up of a transverse travelling bridge and a discharge tripper. The project also included the conveying system with 2,400tph (tonnes per hour) of capacity for minerals sending to the open access point of a port terminal, trippers, feeders as well as the required transfer towers, conveyor feeders, metals detectors and electrical equipment.

The project was designed to fulfill the most stringent standards in safety and protection in regards to the working area and the environment, since facilities are totally covered, protected and automated. This guarantee a safe and reliable service, environment friendly, and, at the same time, keeping the requested performance in the storage process.

Petcoke handling facility in Russia.

In Russia, the company supplied a petcoke handling facility that includes a semi-gantry bucket crane, a crusher package and the coke shipping area handling system for conveying, storage in enclosed area, reclaiming and loading the final product coming out of the refinery into train wagons. In addition, the equipment included a dust suppression system to ensure that all the production processes are environment friendly.

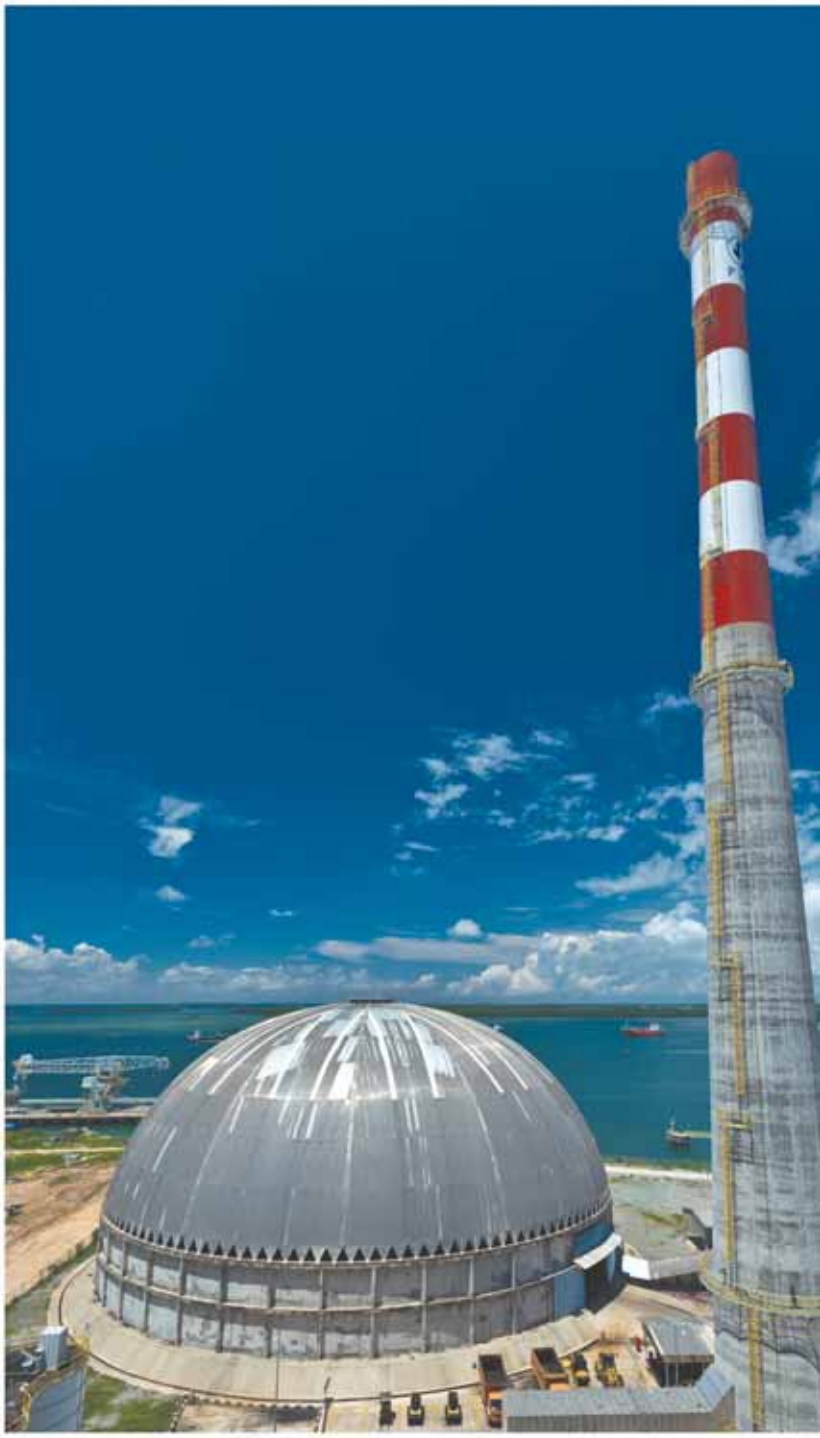
Clay circular storage and handling system.

In this project, TAIM WESER has supplied a specially tailored and integrated coke handling facility that fully meets customer's technical requirements and provides a complete solution, avoiding interfaces with equipment sourced from other suppliers and ensuring the productivity, continuous work operation and high availability required by a coker plant.

Currently, TAIM WESER is developing a project for a refinery in the Middle East consisting of the design, manufacture and supply of a belt conveying system and storage system in two circular stockpiles. The conveying system also includes the related firefighting system, dedusting system and auxiliary equipment, and the circular storage system includes two big aluminium circular storage domes, equipped each with a slewing/luffing boom stacker and a scraper reclaimer machine, cantilever type, and supported on a central column, around which they rotate. The equipment is contained inside a circular covered building.

TAIM WESER's broad and impressive track record on large international projects has helped strengthen and consolidate its presence in the materials handling sector at worldwide level, with several projects developed in the last few years in Europe, South America, Middle East and North Africa, and others currently under execution.

MSW treatment in an enclosed hall.



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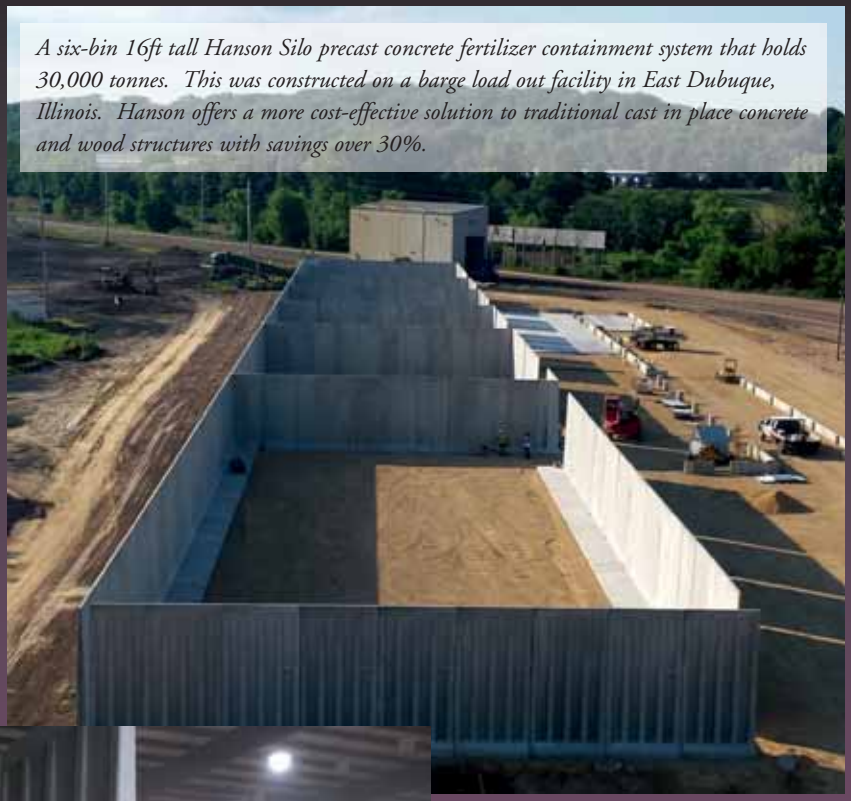
Storage expertise from Hanson Silo Company

Hanson Silo LP is a 101-year old company, in its fourth generation of family ownership and operation. Hanson Silo Company operates five independent business units that provide diverse solutions for end-users and suppliers of grain, feed ingredients, and food ingredients around the globe.

Based on a 40-acre facility in West Central Minnesota, USA, its 80+ employees are engaged in the business of buying, selling, engineering, and manufacturing concrete and steel products as well as contract manufacturing and powder coating worldwide.

From the first silo built in 1916 that held 25 tonnes of feed to its 3.5 million bushel grain storage bunkers of today, the company has remained resilient over the years.



A six-bin 16ft tall Hanson Silo precast concrete fertilizer containment system that holds 30,000 tonnes. This was constructed on a barge load out facility in East Dubuque, Illinois. Hanson offers a more cost-effective solution to traditional cast in place concrete and wood structures with savings over 30%.

One million bushel organic corn bunker that Hanson Silo installed in a port in Baltimore, MD The customer imports organic corn from Turkey to feed the non-GMO organic livestock growers on the East Coast. Hanson installed 12ft concrete walls on this project.

Quality accessories were not always available, so Hanson Silo began to manufacture all of its own accessories. With high-calibre products, and its agricultural heritage, Hanson Silo has developed an enviable reputation — for service, for dependability, for strength, for workmanship, and for personal pride in a valuable product.

A RICH COMPANY HISTORY

For over 101 years, the Hanson family has been involved with agriculture — and has grown to symbolize quality, economy, and dependability. Hanson Silo was founded in Lake Lillian, Minnesota in 1916 by Emil Hanson — a local farmer who wanted a better product for himself and for his neighbours. His goal was to manufacture an improved product at the best price with the lowest upkeep.

The farming tradition has remained at Hanson Silo, as well as the commitment to producing the best quality product for the dollar. The development of new Hanson products is the culmination of this commitment. Fine quality materials, pride in personal workmanship, and simplicity in engineering, has been the trademark at Hanson Silo.

Nine-bin two building set up for commercial granular fertilizers. Hanson Silo's precast concrete containment walls are shown from 5ft up to 16ft high. The easily configurable system can adapt to fit ever changing needs. Most of Hanson's projects are under roof to keep products dry and prevent cross contamination.

Cimbria supplies Turnkey plant for storing and cleaning coriander

The long story that links Cimbria to the Italian company SUBA Seeds has its origins in the development of a number of short lines, whereas today it encompasses an enormous number of products offered by SUBA. SUBA uses single FIBCs (flexible intermediate bulk containers) when working with many different products, whilst the different lines enable different products to be worked on simultaneously. This way of working allows huge flexibility in production, but requires low flow rates. The increasing demand for coriander seed in recent years was beginning to put a strain on production, and SUBA thus began thinking about a new approach to meet market demand.

The request that came from SUBA involved two main features:

- a mass storage plant to improve reception capabilities; and
- a seed cleaning line which could support the kind of volumes that would improve SUBA's sales capabilities.

The initial proposal that SUBA presented to Cimbria was for a 'typical' storage solution, with the project being shared with other potential suppliers. Initially, SUBA only approached Cimbria with regard to the seed cleaning line, whilst considering other potential suppliers for storage and pre-cleaning. Having examined the project presented, Cimbria raised the following objections:

- mass storage based on steel silos risks damaging the seed in loading and unloading operations;
- steel silos can generate temperature issues that can cause condensation in the interior;
- standard conveying equipment risks damaging the handled seed and causing cross-contamination; and
- steel silos can be very useful during the season, but during the rest of the year they remain empty and cannot be used for other applications

On this basis, Cimbria presented an alternative project for a fully automated flat storage warehouse along with mechanized equipment consisting of RS7 chain conveyors, low-speed, high-capacity bucket elevators (ED12LS) and cleaning performed by means of a Delta 146 pre-cleaner.

The new general layout has a more compact appearance and features the following important characteristics:

- receiving and processing lines close to each other, thus reducing the number of operators needed to run different tasks;

- storage facility able to receive and manage both FIBCs and raw product delivered by truck;
- flexible building for different uses: not only for product storage during the season, but can also be used as a warehouse during the rest of the year;
- valuable building to increase the market value of the company
- the proposal received a favourable response from the enterprise in terms of both technology and layout. The possibility of using the new building all year round provides tremendous logistical benefits, whilst gentle handling performed on relatively high capacities improves the yield on the final product.

For these reasons, SUBA decided to award Cimbria the whole project as an electro-mechanical turnkey supply. Civil works commenced at the beginning of March on a greenfield site, with the entire plant beginning operations at the end of June, ready for the first trucks with coriander seed.

After one-year of operation and

accumulation of experience with the new plant, SUBA presented requests for further developments. These requests were based on the high performance of the conveying equipment in terms of flow-rate and gentle handling, along with the high level of impurities in the raw product. These two factors have led to a request for a much larger pre-cleaner to provide better performance in terms of total receiving capacity, as a result of which a high-capacity Delta 168 has been chosen to carry out pre-cleaning. Moreover, the excellent flexibility of the cleaning line has resulted in a proposal to create another receiving pit mainly dedicated to legumes (which represents a new business area for SUBA, a company that has traditionally focused on vegetable seeds). The new line envisages using the 'old' Delta 146 to pre-clean the product for loading into FIBCs or for conveying the product directly to the seed cleaning buffer bins.

SUBA is still developing the new facility to further improve its business. The different approach to the initial project provided a number of major advantages, the most relevant of which have been:

- being able to cover and lead the way in areas of the market which could not be covered without a significant improvement in total capacity;
- a significant improvement of the value of the company through the construction of a new warehouse; and
- the opportunity to enter new product markets through the flexibility of Cimbria seed cleaning lines.

Cimbria was established in 1947 and is today an international organization with 900 employees in 30 companies throughout the world. Since 2016, Cimbria has been a part of GSI group, a worldwide brand of AGCO corp. Cimbria offers equipment and processing plants for the grain and seed industry and transport and conveying equipment for bulk handling.

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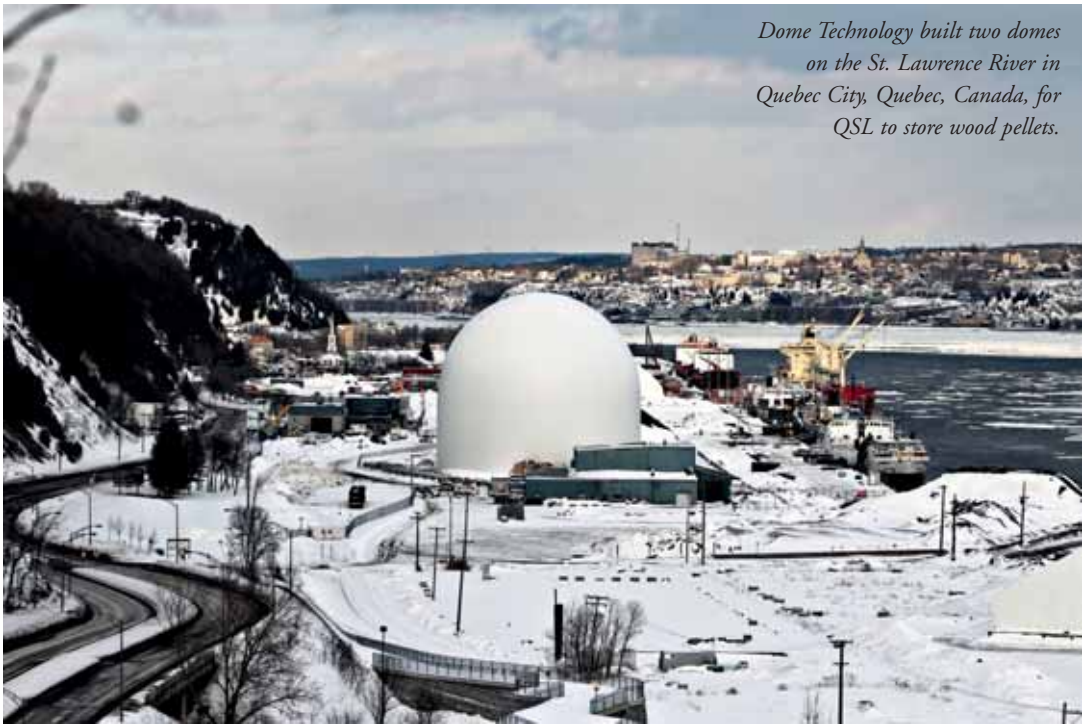
Small footprint, big storage: DomeSilo™ stores more product on less property



Dome Technology built two domes on the St. Lawrence River in Quebec City, Quebec, Canada, for QSL to store wood pellets.

For bulk storage to be a lucrative business, companies have to find ways to get the biggest bang for their buck, *writes Rebecca Long Pyper for Dome Technology*. And when it comes to property, that means using every square foot of real estate efficiently.

This is especially true for waterfront property. Often, companies that buy land on a port have limited land availability, requiring them to make decisions on how to get the storage they need on a smaller parcel of land.

"If a port does not have height restrictions, which some do, the most efficient thing is to go vertical instead of horizontal, so domes or silos fit that," Dome Technology sales manager Lane Roberts said, adding that these types of storage can store up to three times the product as a warehouse with the same footprint.

Because of its strength and height, a DomeSilo™ allows companies to stack product deeper, taking up less property at the site. In this taller version of a dome, the vertical DomeSilo wall lends itself to the ability to build up, rather than out, and the dome's double curvature and construction materials provide strength at all points of the structure, even at the apex (the top of the dome). The entire interior of a dome, then, can be used to contain product.

The double curvature and structural engineering of the DomeSilo render it stronger than traditional structures, even traditional silos. Dome customers also have multiple foundation options; the most common are listed here:

- For sites with preferable or acceptable soil conditions, a ringbeam provides a shallow foundation alternative. Where applicable, the frost depth will determine the ringbeam's depth, but usually the ringbeam is placed two to four feet in the ground.
- For sites where the top six to eight feet of ground is of less-than-ideal material, crews excavate the material, replacing it with controlled structural fill. This model allows for some settlement, but the amount will be within tolerable parameters for a dome.
- When the top 15 to 50 feet of soil is questionable, stone columns are a workable option. First, crews use an auger to remove earth in about a 30-inch-diameter hole until a more stable, soil-bearing layer is reached. Rock then fills the hole and is compacted, even laterally so the soil around it is supportive.

For areas where deeper foundations are required, other systems are available:

- In a piled-raft system, steel or precast concrete piles are driven into the ground. A layer of crushed rock three feet thick is layered on top, along with a fabric geogrid, which stiffens the rock mat and adequately strengthens the soil for the structure to be built on top.
- Piles are driven and are topped with a heavily reinforced concrete pile cap; in this model, the system is designed to bear on those piles, so the structure is essentially supported by stilts although built at ground level.
- Soil mixing is an option when soil is questionable for as much as 30 feet of depth. An auger is used to mix the soil with cement and lime; the mixture is then compacted. For similar soil conditions, stone columns often cost less and can be installed faster.
- In sites with high water tables, a six-inch-wide piece of plastic called a wick drain provides a way for water to escape in areas of low permeability. A wick drain is driven vertically into the ground to the desired depth, and water flows to this strip, which acts as a channel that helps remove excess water. Consolidation of this soil can be expected within about three months with a surcharge loading.
- Dynamic compaction requires the use of a crane; a heavy weight is lifted and dropped repeatedly to densify soil.

Each of these methods requires different installation times and associated costs. Based on soil conditions, Dome Technology's engineering team can identify the solutions most likely to work for a project. For a dome that doesn't require deep foundations, customers can expect substantial savings.

Various types of enclosed reclaim systems work well with domes, protecting product from arrival to storage to shipment. Dome Technology's team designs domes with reclaim requests in mind. With mechanical stacker reclaimer, mechanical rotary plough, gravity, airslide, mechanical horizontal screw reclaimer, mechanical vertical screw reclaimer, mechanical stacker reclaimer, and front-end loader in our litany of options integrated into the domes' construction, customers are able to access their products quickly with specific needs in mind.

Safe and secure storage with Monolithic Domes

Dry and enclosed storage for commodities is an issue professionals in the cargo industry have grappled with. Silos and other buildings have long been the go-to structures for bulk storage. A newer, more efficient structure is coming on the scene that can help the industry as a whole. These structures are monolithic domes, concrete structures that boast energy efficiency and storm resistance as among their qualities.

Monolithic domes are used for bulk storage all around the world. Many different products and commodities are stored in these structures, including cement, fertilizer, coal, grains, fruits, vegetables, pesticides, and more. These structures provide a safe and maintainable space for these commodities to be stored, the biggest issue for bulk storage professionals. In addition, these structures are strong and durable. They have been proven to withstand natural disasters such as earthquakes, tornadoes, and fires. By creating a concrete space around the commodity, they are protected from the outside world.

One specific commodity that a monolithic dome stores well is coal. It can be difficult to store because of the self-combustion quality of coal. However, Gary Clark, vice president of sales for Monolithic Constructors, Inc., stated coal can be safely stored in a monolithic dome. He said that coal is stored in a dome with the 'first-in, first-out' method, one of many used. Clark described the special handling equipment that can be housed within the dome to safely distribute the coal.

"There is a centre pivot machine," he stated. "All the coal comes in on conveyors and is stacked. Another part drags the coal to a centre dispersion pipe." These are handled by the same machine. This can be a large machine, but that is not a problem for a monolithic dome. "One of the reasons a dome works so well is we can build a dome large enough to house that machine," Clark stated. There are also safety precautions, with sprinklers inside the dome in case of a fire.

A recently built monolithic storage dome in Whitewright (pictured), Texas, USA demonstrates the benefits of such structures. As a 58-foot diameter dome, it can hold up to 1,000

tonnes of ammonium nitrate. This is on the smaller end of such domes and larger ones can be built with even greater storage capacity. The dome creates a safe and efficient structure to store the potentially dangerous substance. Ammonium nitrate is a source of nitrogen fertilizer and by itself is not explosive. However, it is an oxidant and when it comes in contact with a burning substance; it can add fuel to a fire. Storing products such as ammonium nitrate in domes offers a greater measure of safety from fire and possible explosion.

Monolithic domes, among other things, are fire resistant. If a fire is burning on the outside, the product will remain safely inside the concrete dome. Domes also help neutralize blasts from the inside, protecting the surrounding community and making them an ideal storage facility for potentially dangerous materials. In addition to fire protections, the climate of these structures can be easily controlled. Due to their energy efficiency, the temperature inside the domes is easily maintained. Less energy is required to cool the air in fertilizer domes, for example, and decreasing the humidity. This can be cost-saving for companies and their operations.

Monolithic Constructors, Inc. was the first company to build these structures. The first storage dome was built in 1976 to hold potatoes, and now the company has much experience building storage domes. Since then, more than 500 storage domes have been built. They are in nearly every state in the United States and more than 20 countries around the world. Other companies have branched off to also build these structures. They include South Industries, Dome Technology, and Dometec International. Between these different organizations, domes are being built all across the globe.

David B. South, co-inventor of the monolithic dome, started

his interest in dome building more than 40 years ago. By 1976, he and his brothers Randy and Barry built their first dome. That project resulted in a patent for the process and launched an innovative construction system for monolithic domes. Several domes have been built around the world, and the uses include homes, schools, churches, and sports facilities.

Today, Monolithic is a family of companies sharing a mutual goal: to improve the lives of people worldwide through the introduction and construction of monolithic domes. It promotes domes for personal and public use, and their properties of strength, energy efficiency, and cost effectiveness.

The Monolithic Dome Institute was founded to promote the dome building industry as a whole. Its purpose is to educate and promote Monolithic Domes around the world. Headquartered in Italy, Texas, USA, it also holds special events such as workshops on how to build domes. Information about Monolithic Domes and the industry are updated on its website. The organization offers concept evaluations and feasibility studies for those interested in building a monolithic dome.

Optimizing CCR waste management through a Eurosilo application

By Richard Munson, Director of Sales – Capital Systems, BEUMER Kansas City.

As utilities consider ways to store and transport Coal Combustion Residue (CCR) materials, a new approach to consider is the Two-Eurosilo concept, which can significantly reduce operating costs and simplify the movement of CCR to a landfill. The new EPA CCR rule focuses more on the integrity of impoundments, but how this material is moved and stored is important too. More operators are confronting the question of how to store and move their CCR waste because the volumes are enormous, and over time, small efficiencies add up to big savings.

The challenges of moving and storing CCR

No creative thinking has been applied to new CCR transport designs because moving this material is complicated. Handling three or four different types of CCR material requires complex storage and handling equipment designed to hold, and then transport, large amounts of each CCR constituent material. This drives the construction of more conservative and costly designs, while creating high capital costs to build and high operating costs to operate and maintain these systems. Also, CCR is not an ideal material to handle so engineers concentrate on traditional methods to do so. New concepts are considered speculative. The traditional way to store these materials includes, for example a concrete silo for fly ash, covered storage for FGD gypsum, and a steel silo or concrete pad for bottom ash.

Innovative concepts for efficient CCR handling

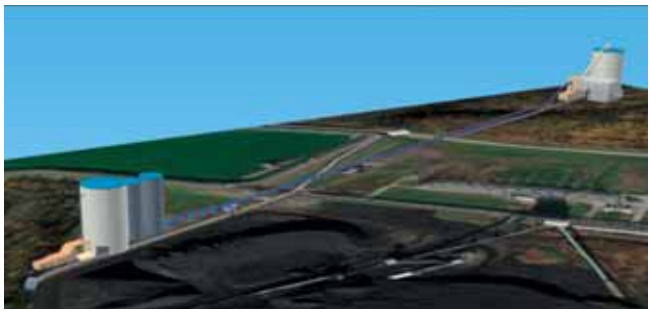
When considering the large volumes of waste, the cost per tonne to move this waste should be scrutinized. An innovative approach is to minimize the footprint and complexity at the power plant end and create surge storage at the landfill end, which provides flexibility in the plant operation. This is a departure from traditional methods because the CCR material does not lend itself to storage in a traditional mass flow silo. This concept offers flexibility for handling the CCR material which is critical. Being able to 'push' the material quickly out to the landfill to a receiving vessel reduces pressure on the plant storage vessels. Having an efficient truck loading capability contributes to overall efficiency. This concept uses a pipe conveyor to connect the power plant storage to the landfill storage.

The two Eurosilo approach

A Eurosilo, specifically designed to store highly cohesive material, is used at the plant to store the gypsum as well as the gypsum dewatering equipment. This creates a very small footprint.

A similar Eurosilo is also used at the landfill to store the comingled CCR waste. Trucks are loaded under this landfill silo with high loading efficiency. The pipe conveyor will carry the comingled CCR at a high tonnage rate from the plant to the landfill silo. This can be achieved at the maximum conveyor capacity. A pipe conveyor is a great solution for transporting CCR to a dry landfill. The pipe conveyor can negotiate vertical and horizontal curves and it encloses the material in the direction of transport. On the return strand, the belt is closed with the dirty side facing in so no spillage occurs. This ensures compliance with EPA regulations.

Having a Eurosilo at the landfill allows the plant to quickly expel the daily CCR production to the landfill at a high rate per hour in a matter of a few hours. This relieves pressure on the



plant operations and creates flexibility by allowing the plant operation to disengage from the landfill operation.

The plant portion of this concept envisions a feeder hopper to receive the bottom ash adjacent to the gypsum Eurosilo and then two fly ash silos to store the dry fly ash. The fly ash is conditioned under each fly ash silo while depositing it onto the pipe conveyor. All three pieces of equipment simultaneously reclaim their respective material directly onto the pipe conveyor.

Being able to reclaim in close proximity to the pipe conveyor and at a high rate allows the conveyor to operate at peak capacity saving significant power cost per tonne because the large motors are operating at peak efficiency. The pipe conveyor can negotiate sharp curves and hills on the way to the landfill which eliminates transfers and additional conveyors.

Benefits of two-silo concept

The two silo concept impacts all aspects of the operation. Taking all subtle improvements into consideration helps illustrate how the landfill Eurosilo drives efficiencies.

Each constituent of the CCR waste stream has vastly different handling characteristics. The fly ash is dry and dusty and needs to be conditioned before transporting. Conditioning the fly ash is critical and has to be carefully done. The gypsum needs to be dewatered to between 10% and 15% moisture so that it is dry enough to transport but it can become sticky and can set up to some extent under pressure while being stored. Mixing these two constituents creates a better blended material for transport than either one on its own. The benefits of this approach include capital cost savings; operating cost savings; easier operating methods; and environmental responsibility.

Capital cost savings can be achieved in the following ways:

- consolidating the gypsum handling equipment footprint at the plant can result in an estimated savings of $8,000,000 to $10,000,000 depending on storage sizes needed;
- much faster schedule to construct, the slip forming of all silos can be done one after another; and

- a version of the concept uses no CCR silo at the landfill and in this case the capital savings are even higher (e.g., more like $15,000,000) but with this case the operating costs will be higher.

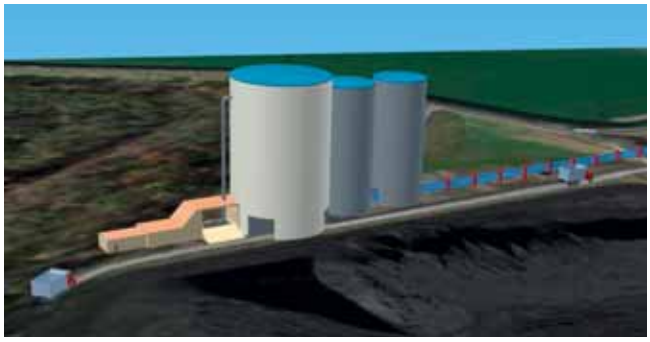
Operating cost savings can be achieved in the following ways:

- If the gypsum Eurosilo has the ability to consolidate the gypsum dewatering equipment on top of the Eurosilo at the plant, a substantial amount of equipment will be eliminated – such as the gypsum storage and dewatering buildings, transfer towers, additional conveyors, portal reclaimer, and even truck-loading bays;
- the gypsum dewatering and silo operation can be automated;
- being able to move all CCR to the landfill at the maximum capacity of the pipe conveyor allows the conveyor to operate fewer hours per day and to operate at peak power efficiency while in operation. This saves the hours of operating the belt and allows the motors to run at the highest efficiency on their efficiency curves. This also pushes the belt replacement years further into the future and reduces idler replacements.
- the truck loading operation under the landfill silo is more efficient than traditional loading designs because two trucks can be loaded simultaneously with efficient queuing. The truck loading operation at the landfill can be done by the truck operators themselves if that is desired.

The two-silo approach allows for easier operating methods. Examples include:

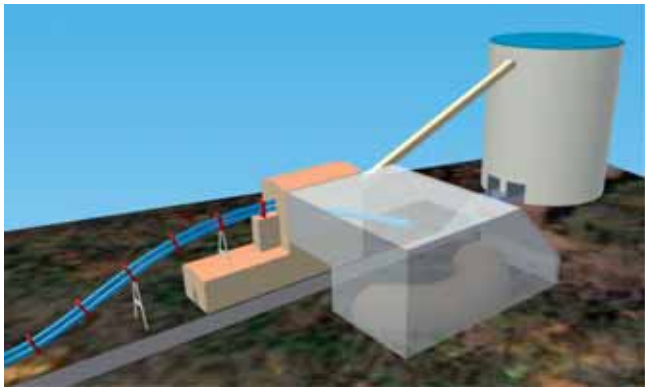
- with this concept the bottom ash, gypsum and fly ash can be reclaimed simultaneously onto the pipe conveyor for transport to the landfill. As a result, there will be much less power required and fewer transfers required to get the material onto the pipe conveyor;
- once at the landfill there would be a single conveyor discharge into the silo. Alternatively, the CCR can be conveyed to an emergency pile;
- once the truck loading operation starts at the landfill the material will be loaded into trucks by a series of double augers that eliminates the need for any conventional conveyor transfers thus reducing the need for bin vibrators and air cannons that can be disturbing to local landowners;
- the material is transferred to the landfill silo in a matter of hours at close to the capacity of the pipe conveyor. This is more efficient because fewer people have to be involved or stand by waiting for the daily CCR production to transfer; and
- It is easier to design redundancy into a silo than to other types of storage. For example, in the plant gypsum silo design from Eurosilo there is an emergency bypass of the silo in case the silo internals are being maintained and there is an optional truck loading spot under the silo in case the pipe conveyor is down for maintenance.

The following examples illustrate how the two-silo approach is



more sustainable and environmentally friendly than alternatives:

- the gypsum is directly put onto the pipe conveyor using far fewer conveyors and motors;



- fewer foundations are needed to construct the facilities at the plant;
- construction time is significantly reduced;
- less power is required per tonne of gypsum moved;
- the pipe conveyor motors are run at closer to peak efficiency reducing wasted power;
- the loading operation at the landfill can be done underground or partially underground where the operation is sheltered from the elements and where it is quieter;
- comingling the CCR materials provides a better handling and more consistent sand like material that is more consistently packed into place in the landfill; and
- the fly ash does not need to be conditioned as much and the gypsum does not need to be dewatered as much since they will be comingled in the CCR silo at the landfill. While more testing may be needed to verify the limits of this, initial tests show that the blended material is like sand and behaves predictably with less sticking.

Conclusion

For plants that need to move bottom ash, fly ash and gypsum to a landfill this concept offers the flexibility to split the storage of the material to the plant and landfill and then move it rapidly to the landfill with no restriction on rate. This will save a significant amount of operating time just to transfer the material to the landfill. Once stored in the landfill silo the truck loading operation is faster.

For large volumes of CCR to be moved over a 20- or 30-year period, this truck loading efficiency gain adds up to sizable dollar savings. The two-silo concept offers clear capital and operating cost benefits at the plant end that should be carefully considered. When the operating costs are modelled and projected over a long-term project life the savings are significant for plants generating significant volumes of CCR waste. The environmental benefits are also obvious. DCi

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NCSP has taken delivery of new generation LH 150 Gantry Port handlers and an LH 150 Port handler with mobile undercarriage to replace the existing rope cranes

Coal handling equipment industry specialists speak out

Liebherr material handlers speed up wagon unloading at Novorossiysk Sea Port

With the new material handlers from Liebherr, Novorossiysk Commercial Sea Port (NCSP) has been able to increase material handling performance three-fold.

The port of Novorossiysk lies in Russia, on the Black Sea, and is run by the NCSP Group. In 2015, 139.7mt (million tonnes) of goods — including coal — were handled there. This makes Novorossiysk the biggest port in Russia and the third biggest in Europe. Since 2001, NCSP has relied upon tried-and-tested port handling technology from Liebherr. In addition to the new material handlers, NCSP has more than 50 Liebherr machines in use, amongst which are crawler loaders, wheel loaders, mobile harbour cranes as well as harbour cranes with rail gantry undercarriages.

Three electric-powered Liebherr LH 120 Gantry Port material handlers are recent additions to NCSP's fleet. To configure the LH 120 for the port of Novorossiysk, the upper carriage is mounted on a gantry undercarriage, which runs on rails. This portal-type arrangement has a width of 10.5m. Two side-by-side railway wagons can pass through an LH 120 and be unloaded in parallel.

In the Port of Novorossiysk, the main task of the Liebherr material handlers is to unload bulk goods from trains onto material stockpiles. Additionally the machines are used for loading ships or shifting material onto different piles. The new LH 120 handlers have a reach of 28 m and can thereby cover a significant working area. With its enormous lift capacity of almost 10 tonnes at full reach, the LH 120 can handle a huge amount of material.

The Liebherr material handlers are powered by a 400kW electric motor with frequency converter. A spiral cable reel on the undercarriage allows up to 50m of travel in both directions from the supply point. Larger travel distances can be realized without problems. Equipped with the standard Liebherr Energy Recovery Cylinder (ERC), the machines have a total system output of 614kW. With this additional gas cylinder mounted on the boom, fast and consistent working cycles are possible.

With the Liebherr material handlers deployed in the port of Novorossiysk, NCSP manages up to 125 working cycles per hour. This equates to a handling capacity of 750 tonnes of material per hour when unloading wagons and ships.

The three LH 120 Gantry Port machines with the aforementioned configuration were just the start. In addition, NCSP has taken delivery of two of the new generation LH 150 Gantry Port handlers and an LH 150 Port handler with mobile undercarriage to replace the existing rope cranes. Thanks to the high mobility, the extreme manoeuvrability and the low machine height, the LH 150 M can be used flexibly and position can be switched quickly and easily within the company. With these additional port machines, which are specifically designed for handling bulk goods, NCSP will be able to increase handling performance three-fold when unloading wagons.

The new LH 150 Port Litronic material handling machine

The new LH 150 Port material handling machine was designed especially for bulk material and general cargo in port handling

A three-fold increase in material handling by NCSP has been made possible thanks to new Liebherr material handlers.

operations and is distinguished by extremely high lift capacities while, at the same time, having a very long reach. Thanks to the new weight-optimized equipment, powerful operations and thereby maximum performance are guaranteed at minimum costs per tonne of handled material. The LH 150 Litronic material handling machine is the successor of the LH 120 Litronic. The modular structure of the basic machine and equipment offers optimum solutions for all deployment situations. Combined with the high technological equipment, individual adaptation of the machine to the respective requirements assures maximum material handling performance with, at the same time, outstanding economy. In addition to special machinery for either scrap recycling or cargo and bulk material handling, Liebherr also offers various types of undercarriages. Both the flexible mobile undercarriage and the crawler undercarriage can be supplied with or without turret elevation. A practical crawler gantry version is also available. In order to be able to make the best possible use of the existing infrastructure at ports and docks Liebherr provides a rail-mounted gantry undercarriage.

The material handling machine is available in both a diesel and electric version. Together with the award-winning Liebherr Energy Recovery Cylinder (ERC), the powerful engines, which are manufactured in-house, supply a total system power of 614kW, thus guaranteeing maximum material handling capacity. The Liebherr diesel engine meets the exhaust emissions guidelines of Stage IV/Tier 4f and is also available for certain countries in Stage IIIA. The electric model enables operation at voltages from 380–20,000 V and frequencies between 50 and 60Hz. Liebherr relies on state-of-the-art engine technology with intelligent machine control. The interaction of drive components is significantly improved in terms of efficiency. Liebherr Power Efficiency (LPE) enables machine operation in the area of the lowest specific use of fuel for less consumption and greater efficiency with maximum performance. In addition, energy consumption has been further reduced with the ERC system to the extent that total energy savings of up to 30% are possible with a simultaneous increase in the material handling capacity. The newly designed equipment for port application facilitates an extremely high lift capacity. The net weight of the equipment is optimized with a new design concept; the ERC, as well as the hoist and stick cylinders, have been adapted to the operating conditions. As a result, lift capacities of around 8 tonnes are achieved at a reach of 30m. The newly developed Liebherr operator's cab sets standards when it comes to comfort and size. The expansive glazing including a floor vision panel and the different versions of cab elevations guarantee an optimal view of the working area and the entire surrounding area. In combination with the standard rear-view and side cameras, the LH 150 also impresses in terms of occupational safety. The spacious cab with up to 2m of headroom and noise emissions in the cab of 70dB give the machine operator the necessary space and comfort for productive and focused work in a quiet atmosphere. Equipped with an air-suspended comfort seat, additional trainer's seat, high-resolution touch screen colour display, heated windscreen and a range of additional features for simple control and monitoring of the machine, safe handling of the machine is guaranteed at all times.

The diverse offer is rounded off with the large portfolio of tool attachments for every application, which are developed and manufactured in-house. Based on many years of experience, they are customized exactly to the needs of the customers. Boasting a weight-optimized yet robust design, Liebherr tool attachments guarantee maximum material handling throughput quantities with their enormous filling volumes.

All other key components such as diesel engines and electric motors, electronic components, slew rings, swivelling drives, hydraulic cylinders, etc., are also developed and produced in-house by Liebherr. The high level of vertical integration guarantees top quality and enables the precise matching of components.

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LIEBHERR

Lowering the risk of spontaneous combustion of stacked coal

The storage, handling and transhipment of dry bulk raw materials — including coal — is a craft in its own right that should not be underestimated. Many tonnes of material have to be moved as efficiently as possible and with a minimum of transport movements. Special precautions have to be made to prevent cross contamination of raw materials, the liberation of dust and to minimize the amount of noise and other nuisances.

Havenservice Rozenburg (HSR) and Instral B.V. have joined forces to innovatively and cost-effectively handle and stack coal and ores. HSR has more than 30 years of experience in transportation, loading, unloading and processing of all types of bulk products. HSR has a fleet consisting of amongst others wheel loaders, tippers, dumpers, cranes and mobile crushing/sieving plants. In recent years, HSR also has specialized in dust control.

Instral B.V. is developer, producer and supplier of a wide range of additives to suppress the liberation of dust. These unique and innovative dust suppressing additives can be applied easily with nozzle installations, spray cannons and even fog cannons. With the products it is possible to treat the surface of bulk piles, roads and open stockyards, raw materials on conveyor belts and open train wagons.

The tendency of coal to spontaneously combust is a characteristic property that needs special attention. This spontaneous ignition of coal stockpiles is a serious economic and safety problem, but careful handling and stacking of the coal can minimalize the risk of this phenomenon.

There are a number of factors that contribute to the process of spontaneous combustion of coal. The most important parameters involved in the process of spontaneous combustion of coal are shown in the table (top, right).

PARAMETERS THAT INFLUENCE THE CHANCE OF SPONTANEOUS COMBUSTION

Factors inherent to coal	Extrinsic conditions
Size of the coal particles and surface area	Degree of compaction
Moisture content	Oxygen concentration
Coal composition, quality and rank of coal	Dimensions and shape of stockpile
Heat conductivity of the particles	Moisture content
	Temperature

NOVEL COATINGS IN COMPARISON WITH CURRENTLY USED PRODUCTS

	C-Force® Industry	Water	Latex	Paper pulp
Dust reduction	✓✓✓	✓	✓	✓
Long term effect	✓✓✓		✓	✓
Environmentally friendly	✓✓	✓	✓	✓
Easily to apply with conventional sprayers	✓✓	✓✓	✓	
Efficiency after rainfall	✓✓✓			
Applicable with fog cannon	✓✓✓			
Multi-purpose deployable	✓✓✓			

Applying Instral coatings — the coal pile will now remain weather-proof for at least 90 days.

HSR works with various special wide vibratory plate compactors (2 to 3m²) that can compact a bulk pile of coal more as twice as fast as standard vibratory plate compactors (0.8 × 0.8m). Moreover, the plate compactors are equipped with special tilting components that allows the stacker to take curves and to straighten bumps and pot-holes. Proper compacting restricts the air circulating within the stockpile and prevents subsidence of the bulk pile. This way the first three factors of the extrinsic conditions can be positively influenced.

The innovative dust depressing coatings of Instral B.V. are weather-proof and will last for at least 90 days. The coal piles will therefore have to be treated only once. The coatings also produce a water repellent layer that minimizes the penetration of rain into the bulk pile. Both features of the products will result in a lower moisture content of the coal pile, which is the fourth extrinsic condition that can be positively influenced.

The coatings do not negatively affect the physical properties of the coal and are also very well suited for use on other moisture sensitive bulk materials as iron ore and iron ore pellets.

If the right measures are not taken, coal can spontaneously combust.

Jenike & Johanson solves challenging handling problems in the coal industry

Handling coal reliably is critical in the success of any coal operation, writes *Carrie E. Hartford, P.E., Senior Project Engineer, San Luis Obispo, California*. Unfortunately, easy-handling lump coal is becoming increasingly challenging to source, causing plants to handle finer, stickier coal in the same equipment initially designed for free-flowing coal. This often results in bulk solids handling problems such as buildup in transfer chutes that can lead to plugging and material buildup (stagnant material) in bunkers that can cause ratholing/arching.

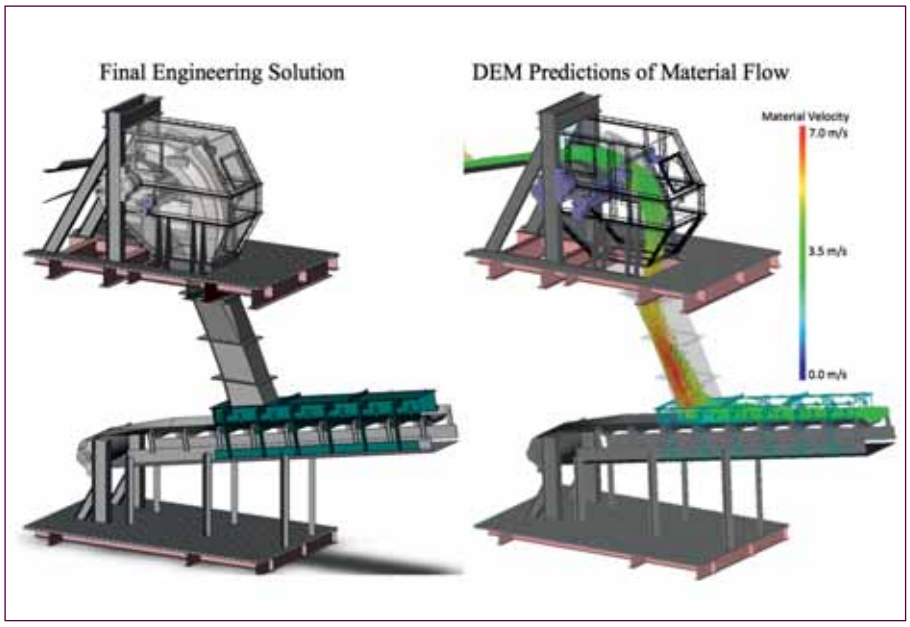
Example of a poor design.

Flow problems are costly due to downtime and loss in production — but how costly? It depends on the cost of lost opportunity. The cost of production loss in simple terms is the difference between average production hours and a perfect day of production multiplied by revenue per unit time. This lost opportunity often quickly justifies projects to improve material flow. Understanding what causes downtime points to the direction for corrective action.

For example, if a chute that plugs enough times that an operator is staffed to continually monitor and unplug the chute, it might be time to fix the chute. Maybe a hopper has been so deformed from being banged on by a sledgehammer because material doesn't flow, replacing it might be the only solution.

To develop solutions to bulk solids handling problems, the following steps are recommended:

- Define the problem. Jenike & Johanson can assist in performing a root cause analysis.
- Calculate the cost of the problem. This justifies making corrective actions.
- Have a Jenike & Johanson engineer perform a site assessment. Getting an expert involved early on focuses the project and quickly moves you forward down the right path. The Jenike & Johanson engineer will lay out the plan required to develop a solution.
- Evaluate flow properties of your material. To avoid the costly 'trial-and-error' approach, changes need to be based on the flow properties of the material. Jenike & Johanson has laboratories all over the world (USA, Canada, Chile, Brazil, and Australia), ready to measure the flow properties of all types of materials at various conditions. The flow properties of bulk solids change, often dramatically, depending on the particle size and distribution, moisture content and distribution, process history (time and manner), mineral composition, and ambient conditions, just to name a few! Therefore it is critical that the samples represent actual conditions and often multiple moisture contents and particle sizes need to be tested to capture the range of flowability. Jenike & Johanson has the abilities in its labs to adjust particle size and moisture content and match operating temperatures. The range of flow properties provides the design envelope.
- Correctly apply the test results in the design phase. In the case of transfer chutes, Jenike & Johanson uses bench scale testing and on-site assessments to calibrate its in-house, proprietary discrete element modelling (DEM)



programme. DEM is a numerical technique used to simulate the interaction and flow of particles. It uses laws of motion to calculate the total force experienced by individual particles in a bulk material to determine their accelerations, velocities and positions over a period of time. 3D chute geometry is input in the programme and a simulation is run matching the required throughput. If the troublesome chute exists, the same problems witnessed in the field will occur in the calibrated DEM simulation. With a properly calibrated model in hand, Jenike & Johanson can begin the design stage.

Jenike & Johanson has designed hundreds of transfer chutes to maintain control of the flow of material through the transfer chute to minimize dust, wear, attrition, but still maintain flow through the chute to avoid the nasty plugs that often plague plants.

- Implement the design. Once the design is agreed upon, we can provide detailed design of the chute and, if appropriate, supply the physical transfer chute. Jenike & Johanson remains right by its customers' sides during installation and start up to ensure that the design works as expected.

All other bulk solids handling pieces of equipment, such as a bunker, hopper, stockpile, and feeder, need to go through the same process of identifying the problem that exists or that is to be avoided, performing material flow properties test, and then designing reliable handling equipment. This is what Jenike & Johanson does best — solve or prevent bulk solids handling problems based on science (not trial-and-error) so that the solution works the first time.

Controlling dust with specialized systems from Wuvio

Wuvio believes dust suppression should be easy and can be done with a smaller ecological footprint. It is widely believed that fighting dust in an industrial environment is expensive, difficult and typically has an impact on operations — Wuvio's daily mission is to prove this is not true.

Wuvio is a centre of expertise for all industrial dust issues. As a company, it truly understands that large industry is constantly under the microscope, either from the direct neighbours or legislators.

From its offices in the Netherlands, China and Thailand, Wuvio works with its clients worldwide to enable a dust-free environment — whether in the workplace, place of business or residence. It uses innovative proprietary additives, developed in-house, to combat dust and constantly improve its solutions. Wuvio maintains full control on all aspects of product lifecycles, production, logistics and enable ease of use by constant field testing and customer trials.

Products and solutions

Wuvio solutions do not require customers to shut down their operations during installation; there is no need to build large walls or enclosures and, on top of this, Wuvio solutions enable customers to reduce water usage up to 90%. Research shows that dry bulk terminals typically use 5–10 litres of water for every metric tonne handled.

Application of EcoCrust with Wuvio Spraycannon.

Wuvio Freko-Crust and EcoCrust are additives that use biodegradable agents that form a thin crust on dust emitting goods in storage such as coal, petcokes, iron ore, sand, waste, phosphate ore or woodchips. The crust lasts anywhere from one to 90 days, and is unaffected by harsh weather conditions.

Wuvio Freko-Foam is sprayed on the materials (for example on the conveyer belt, screens and/or transfer points belt), and the foam makes the dust particles moist and sticky so they can coagulate with bigger particle sizes within the material flow. This prevents

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- Monospiral and Level-Wind configurations
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Cable Chain
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Conductix-Wampfler has one critical mission: To keep your bulk material handling operations running 24 / 7 / 365. You need proven, worry-free energy solutions - and Conductix-Wampfler has them. Our systems provide reliable electric power and water to stacker/reclaimers, barge and ship loaders/unloaders, bulk conveyors, tripper systems, and gantry cranes. Conductix-Wampfler systems are rugged, low maintenance, and time-tested in tough, dusty environments. All products are backed by the largest sales and service network worldwide!

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the dust from spreading and can be used on various materials including coal, biomass, wood and waste.

Freko-Humidifier is used in order to reduce the speed of the dust particles — so that they can no longer float around; to do so, it is necessary to make them heavier. Wuvio achieves this by adding Freko-Humidifier to the water that is sprayed, atomized or sprinkled. Adding a tension-active substance (specifically in the form of a 'dust' humidifier) is really the only solution to make dust absorb moisture.

Inline foam application, installation includes a dosing unit and full PLC control.

Equipment

Wuvio's focus is to provide a fully integrated solution which is built rugged enough to withstand the harsh environments. Key is to have the equipment work for you, so typically Wuvio's spraying solutions are integrated with system automation to work in conjunction with the production line.

Wuvio offers a variety of spraying equipment:

- PTO-driven spraying cannon which can be used for spraying stockpiles — various tank sizes;
- a range of automated mixing solutions to enable accurate dosing from 0.01 to 10%; and
- a range of spray bars for various applications.

Next to this Wuvio has close co-operations with local equipment manufacturers and integrators in all regions to enable worldwide coverage and service levels. Together with these partners, Wuvio offers turnkey solutions including local technical support and spare parts.

Services

Wuvio's core belief is every dust issue is unique and therefore its offering includes complete tailored solutions varying from just supplying additives to providing a full service solution including all equipment and labour — and everything in between.

Clients

Wuvio has a wide client base, including many who prefer to remain anonymous for obvious reasons — nobody wants to admit problems with dust emissions! One of the company's customers is Oxbow, which has various locations worldwide, including Spain, Brazil and the Netherlands.

Spraybars used for applying RDS Road Dust solution.

Competing technologies for dust control solutions

The main competitor to Wuvio's dust-control technologies is, quite simply, water. Most of Wuvio's customers used to spray water — and lots of it. By using Wuvio's solutions, these customers are now able to save up to 90% in water usage. Also, since they only need 10% of water compared to previously, they now only need to clean 10% of the original volume.

Another competing technology is paper cellulose. However it doesn't cope with heavy rainfall well and after a week or so of dry weather the wind can easily pick up the crust causing another dust issue as it pulverizes. It is applied with about five to six litres of water per square metre, while Wuvio uses only ~800ml per square metre. Using less water is better if the product being coated is used for fuel as it burns more effectively and with less residue. Cellulose also requires significant investments in equipment while EcoCrust and FrekoCrust can be applied with readily available equipment.

Structural solutions (domes, fences and netting) are another competitor, although they seal or enclose the stockpile they typically are expensive and have a major impact on a site's operation. Wuvio's additives are a straightforward and less impacting solution, they can be implemented within days and not months.

Staying competitive

To stay competitive in the market, Wuvio listens and innovates. A large part of its R&D roadmap is based on customer feedback. Last year, it introduced its Wuvio EcoCrust line of crust forming products based on recycled EOL fibres (a true waste product). This enabled a reduction of 40% chemical components and also allows for a colour to be added for a visual effect.

Wuvio's roadmap specifically focuses on finding alternative circular sources to replace existing chemical ingredients to further shrinks the environmental impact of its products.

Recent developments:

Time is money and therefore logistics in heavy industry moves fast and generates a lot of dust. Wuvio has recently launched its RDS road dust suppressant product line. Wuvio's RDS100 and 500 use biodegradable agents and binds dust to almost any kind of soil including paved roads. This stabilizes the surface and naturally absorbs new dust particles.

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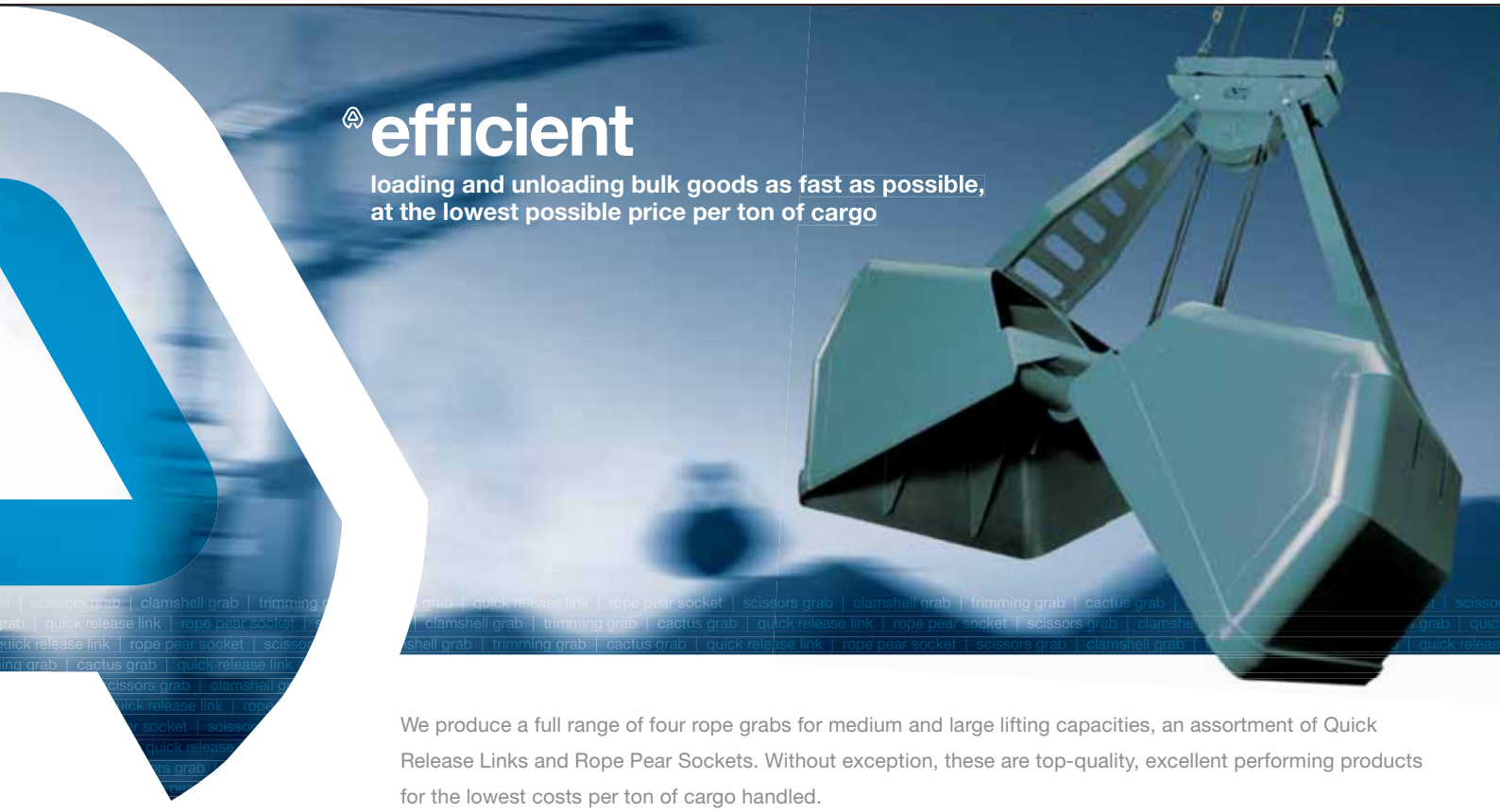

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Efficient reclaim: 100% live-reclaim full-hopper floor

To deliver on speed and necessary throughput, selecting the right reclaim system is essential, and one model that isn't new but has recently been constructed on a very large scale is the 100% live-reclaim full-hopper system.

Similar to a series of funnels situated side by side through which product flows under its own weight, this reclaim workhorse is faster and requires less maintenance than reclaim via loader or other mechanical equipment. The full-hopper floor system is controlled with gates on the hoppers so site managers can meter flow to the belts.

Dome Technology recently completed six domes for China Coal that feature full-hopper floors, and this type of floor system allows these 60,000-metric-tonne domes to be emptied every three days.

"China Coal was looking for high throughput without any mechanical cleanup, and that hopper floor system allowed them to do that," said Dome Technology CEO Bradley Bateman.

This type of floor isn't new to smaller storage structures but hasn't been done on this scale before "mainly because storage hasn't been done to that scale," said engineer for Dome Technology Adam Aagard, noting that companies might have the same aggregate storage but not in one single bin. As companies bulk up on their storage facilities' capacity, the full-hopper floor will likely become more common in the United States and abroad.

The full-hopper system provides first-in, first-out reclaim desirable with products prone to spontaneous combustion. Since self-combustion is mainly dependent upon time, the longer a product sits, the more likely it will combust. According to Aagard, storage structures with just one central tunnel will reclaim a portion of the centre of the product pile, but everything off to the side comprises a static pile. Until that portion of the pile is drawn down and moved via loader, ageing in pile is a real concern. A full-hopper floor eliminates that concern by uniformly reclaiming product in the order it was stacked.

Some companies will not often completely empty the dome, opting instead to continue loading product while reclaim is happening. For products like coal and sugar where first-in, first-out is a must, the full-hopper floor system is the go-to option. This allows companies to continue filling a dome while reclaim is happening, so completely emptying the storage facility isn't required since product is reclaimed in the order it was stored, said Dome Technology sales manager Lane Roberts.

A reclaim system providing full cleanout without mechanical parts is an ideal option. "There are other systems that companies can achieve 100% reclaim with, but they cost money to run; they break down. Gravity doesn't break down; gravity doesn't cost money to run," Aagard said.

A worker from China helps with construction of a full-hopper floor system comprised of multiple hoppers situated side by side.

Engineers can design a dome and full-hopper floor system that will deliver the necessary throughput for a facility, and the site requirements are few. When it comes to foundations, "you're less tolerant to movement because you've got multiple tunnels and multiple conveyors, so you can't handle movement as much, but it's similar to requirements for other mechanical-reclaim options," Aagard said.

Aagard said he suspects that when companies start looking at their hazard assessments, they'll realize the advantages of the full-hopper floor: the elimination of mechanical equipment reduces the electrical hazard; first-in, first-out reclaim reduces the likelihood of ageing in pile; and a decreased need for worker entrance reduces hazards to employees.

The upfront cost for a full-hopper floor can be as much as double the price of alternative reclaim systems, but the long-term savings might justify the cost. "The biggest savings is energy, then insurance costs by mitigating safety concerns. There's the human factor too — something you can't put a price to, but you've made a safer environment for your employees," Aagard said.

Enclosed grabs are most popular for coal handling, says Verstegen

Verstegen is manufacturer of high performance and high quality bulk handling grabs. When handling coal, high production rates are very important. Verstegen coal grabs offer high capacities and low dead weights. Nowadays high enclosed models for environmentally friendly unloading are the most popular grabs for coal.

Verstegen delivers coal grabs all over the world to companies which handle coal in large volumes, like mining and stevedoring companies. Customers also include companies that use large quantities of coal, like power plants and the steel industry.

Quality is key

Verstegen often wins orders from customers who have previously purchased grabs from one of its low-price competitors. Customers realize swiftly that poor-quality grabs involve them in high maintenance costs and extra downtime, as well as reduced grabs lifetimes. Looking at the total cost of the complete handling operation, the investment of the grab is only a very small portion, this makes it very uneconomical to save on the investment of the grabs. This effect is increased further by the lower production rates of these low price grabs.

Staying competitive in the market

The way Verstegen has stayed competitive is by never compromising on quality. Verstegen has always stood out by building grabs with an exceptional performance in productive capacity and durability. A grab should have the highest possible volume without unnecessary dead weight. This is only possible with a good and well proven design and the use of the best possible materials. For the highest strength and minimum wear, each Verstegen grab is provided with shells completely made of high tensile wear-resistant steel. The friction in the articulation points is absolute minimal because of an excellent bearing system.

Finding the optimal design for each contract

No bulk handling operation is the same. The combination of the bulk material, the crane and the loading- or unloading situation determines the specification of the most optimal grab. Verstegen always designs the grab with the optimal performance. Every year it delivers many grabs for coal handling around the world.

Recent technological developments.

To optimize the capacity of the operation the uptime of the grab is very important. To increase the uptime, reduction of maintenance is the key. Verstegen has developed a central greasing system to reduce maintenance time. Other advantages of the system are:

- improved safety of maintenance personnel, it is not necessary to climb the grab for greasing;
- improving the quality of the greasing, no greasing points will be missed;
- greasing with the right frequency is easier to accomplish. The latest development is a fully automatic greasing system

that greases the grab during operation. This system keeps the grab constantly in good condition without downtime for maintenance.

About Verstegen

Verstegen Grabs is based in the centre of the Netherlands at one of the main river crossings. In the last 15 years the company has developed to become a leading manufacturer of rope-operated mechanical grabs. The company was founded in 1951 and since then over 10,000 grabs in more than 100 countries worldwide have been supplied.

The quality of Verstegen's products is based on 65 years of designing and building a wide range of grabs for all conceivable applications. Regular feedback from many loyal customers ensures a continuous development of product quality. Modern production methods combined with highly qualified staff makes Verstegen a first class manufacturer of mechanical rope-operated grabs.

Verstegen grab designs are based on the knowledge of cranes, bulk materials and the large experience with all conceivable applications in the bulk industry. Stevedoring companies, port authorities as well as steel works and power plants are using the company's grabs for handling all kinds of bulk materials.

Verstegen philosophy

For fast and efficient unloading, a grab is the most important tool. In order to get high unloading rates, the grab must be extremely reliable with a high productive capacity. Furthermore each grab should be custom built for the material it has to handle and the unloading situation in which it has to operate. Verstegen focuses completely on optimal capacity and durability for long-lasting profitability rather than on low initial acquisition prices. This makes a Verstegen grab, not only operational, but also economical, the very best choice.

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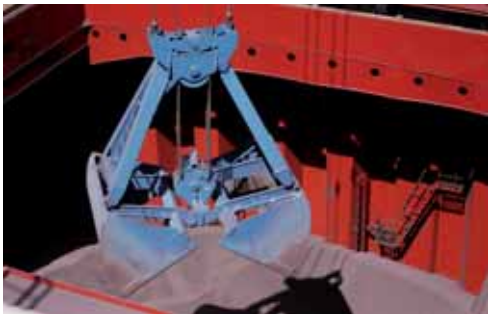

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Turnkey coal handling systems from TAIM WESER

TAIM WESER specializes in the development of high-quality turnkey solutions for the bulk materials handling industry, providing the best response to its customers' requirements within the framework of the industrial sectors that require this type of equipment. These include the energy, port, mining, oil & gas, steel and cement sectors, and cover a wide variety of materials such as all types of ore: coal, petroleum coke, iron, phosphates, grain, fertilizers, cement and others minerals.

TAIM WESER provides fully integrated solutions, from the engineering, manufacture, supply, erection and commissioning to the after-sales service and spares.

Today, in the preliminary stages of the projects, TAIM WESER's customers appreciate its collaboration and its expertise as technological solutions provider. TAIM WESER assesses and suggests the best solution to the customers to satisfy their requirements in the most efficient way and, through its engineering equipment, it supports them with its extensive expertise that has been enriched during decades of operation. In this way, TAIM WESER can share with its customers a satisfactory, advantageous and state-of-the-art design at the earliest project stage.

In terms of coal handling systems, TAIM WESER provides tailored solutions according to the conditions and requirements of its customers. Its equipment can be installed in new coal handling facilities as well as integrated into existing installations, with the goal of facilitating, improving and optimizing the logistic process required by its customers.

TAIM WESER supplies integrated coal handling equipment for unloading, conveying systems, handling (stackers, reclaimers, combined stacker/reclaimers, hoppers) and loading into ships, wagons or trucks.

Its equipment ensures a safe and efficient way to handle coal, optimizing the conveying and handling processes and minimizing loading and unloading times, always with the maximum efficiency and environmental awareness.

TAIM WESER has a long track record in the supply of coal handling systems, having carried out installations worldwide.

In Germany, TAIM WESER supplied the complete coal handling facility for a coal-fired power plant with conveying capacities up to 2,000tph (tonnes per hour). The project was developed on a turnkey basis, comprising the train unloading system, including defrosting equipment, belt conveyors and coal handling equipment, dedusting and firefighting system, whole control automation system and ancillary equipment.

In Spain, TAIM WESER developed a new coal handling port terminal, where the scope of supply included an extensive mechanized stockyard, consisting of a coal transport circuit with 3,000tph of capacity. This circuit runs from the pier to the stockyard and the shiploading area by means of 12 conveyor belts, one stacker, two trippers, one shiploader as well as one coal ship-unloader, with an unloading capacity of 2,500tph.

Also in Spain, TAIM WESER supplied equipment for several coal-fired power plants, which included the conveying and handling equipment to perform the stockyard, as well as the transport inside and outside of the coal plants.

In Portugal, the company supplied as well a complete coal port terminal with a total length of 1,200m and a capacity of 4,000tph to perform the activities of coal reception, conveying,

stacking, reclaiming, train loading and transshipment, including a shiploader machine.

In Morocco, the company supplied a complete coal handling and storage systems as well as sending to the boilers feeder bunkers, which included a storage yard conveying and handling facility of 4,700 metres in length and capacity of 2,400tph, including two portal scraper reclaimers and one slewing stacker.

All these projects, together with many others supplied in countries like Dominican Republic, Chile, Philippines, Romania, China and Tunisia among others, make TAIM WESER internationally renowned, and put the company in the best position to keep offering its customers extremely advanced — and at the same time, highly competitive — coal handling solutions.

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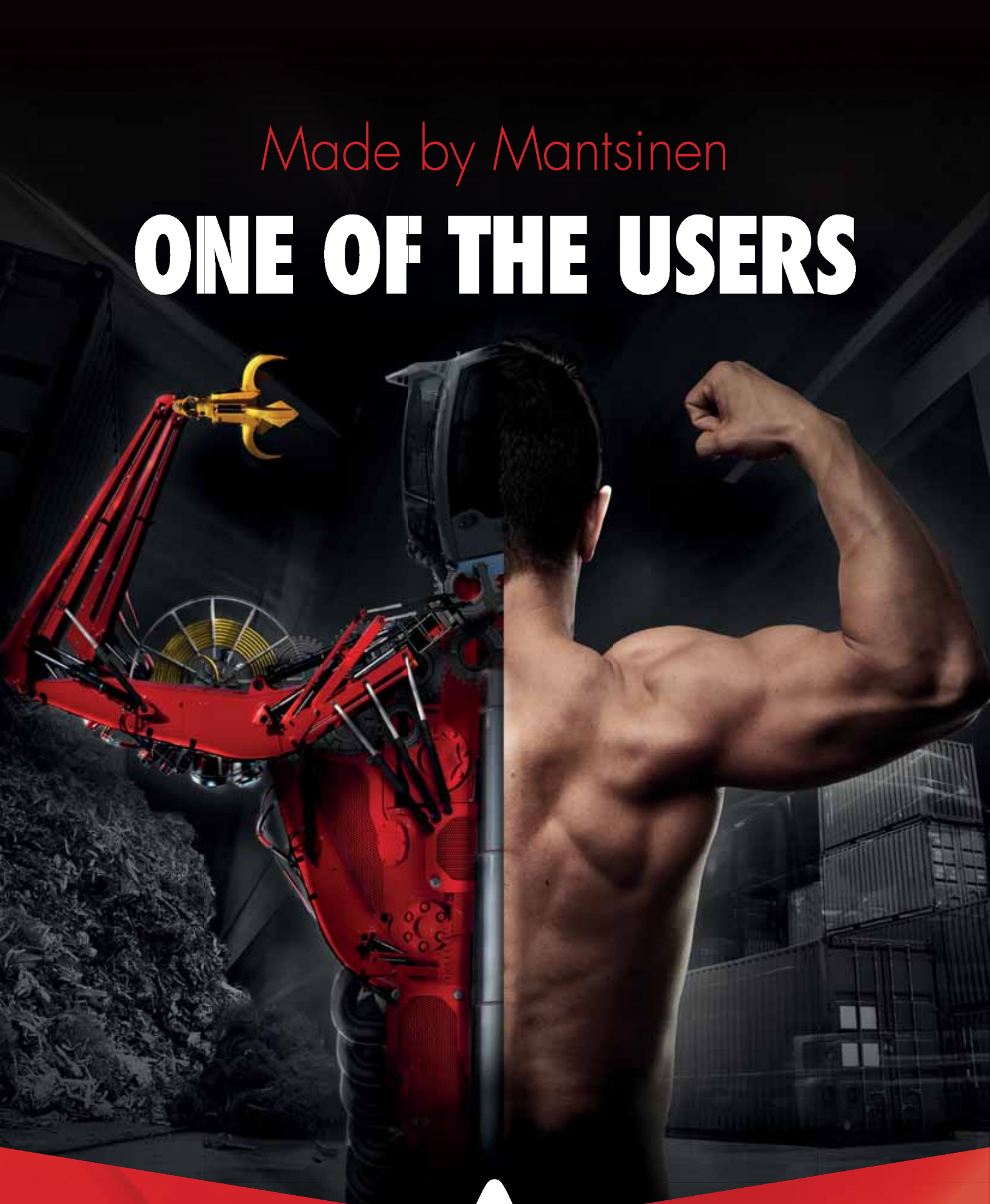

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Siwertell unloaders support Chinese power plant expansion

Siwertell, part of Cargotec, has secured an order from Beijing-based Shenhua Logistics Group Corporation Ltd for two rail-mounted ST 790-D screw-type unloaders. The unloaders are destined for use by Suizhong Power Generation Co Ltd and will support the company's power plant expansion plans in Qiansuo, Suizhong County, China. The order has been booked into Cargotec's 2016 third quarter order intake and the delivery is scheduled for March 2018.

"The customer chose Siwertell's totally-enclosed screw-type technology because it needed to provide a clean, efficient operation with minimal environmental impact," said Ola Jeppsson, Siwertell Sales Manager.

The Suizhong power plant currently receives most of its coal by rail, sourced from Shenhua's own coal mines. The expansion plans include building a new jetty to increase coal deliveries arriving by sea. The unloaders will discharge coal from vessels of up to 50,000dwt at a rated capacity of 1,500tph (tonnes per hour) for each unloader.

"Having identified the technology it wanted, Suizhong turned to Siwertell because we are the leading supplier of this type of unloader. We have an excellent reputation throughout the dry-bulk handling industry for reliability, high efficiency, impressive through-ship capacity and very clean, safe operations.

"The light weight of our machines minimizes the loads on the jetty; in consequence our customer will benefit from significant savings in jetty construction costs," added Jeppsson.

The unloaders will be fully assembled at Siwertell's sub-contractor's premises in Nantong, China. The units will then be shipped by specialist vessel to the Suizhong power plant, where they will be unloaded onto rail tracks installed on the new jetty.

The unloaders will be handed over to their owners following performance tests and final commissioning.

Siwertell ship unloaders and loaders are based on unique screw conveyor technology, in combination with belt conveyors and aeroslides, and can handle virtually any dry bulk cargo, such as alumina, biomass, cement, coal, fertilizers, grain and sulphur.

Siwertell's product portfolio includes ship-unloaders, mobile ship unloaders, ship loaders, conveying systems and complete bulk terminal solutions, all of which are designed to ensure environmentally-friendly and efficient cargo operations.


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When transporting coal, competitiveness counts

With the slow market and transportation overcapacity, cargo owners are looking for the cheapest possible way to transport their coal, while ship owners are looking at the capital costs of their ships. For the sailing fleet the emphasis is on finding the right ship in the right place at the right time. There is no room for waste in this industry and also old ships are still kept in trade.

Against this background, it is vital that the cargo handling equipment — being the actual money maker on board a coal carrier or a transloader — carries out its job reliably and without costly downtime.

The maritime industry is insisting on making more with less time. For this reason, it is even more important to plan service works and component replacements well in advance and in a more efficient way. "Every service agreement stands for two ultimate facts. Firstly, you need to have a competitive spare part offering, and secondly, you have to have a competent service network," says Ville Hallisto Manager, Service Agreements, MacGregor Global Lifecycle Support. MacGregor is recognized for having both and has been trusted with several service agreements in November-December 2016. MacGregor launched a whole new service agreement concept a couple of weeks ago.

Another factor that helps a carrier to stand out is the versatility of its equipment, allowing for operational flexibility. MacGregor delivers equipment for both bulk carriers and self-unloaders and floating transloading terminals.

MacGregor hatch covers and cranes and their arrangement on board is always optimized to the bulk carrier's intended operation, preferred hatch opening size and drive system. Recently, the electrically operated MacRack has gained popularity, with a base of 41 ships, 22 of which are already sailing, and a total number of 718 units. The operator can move freely around the coaming with the portable operation unit which adds to safety and easier control of the cargo operations.

Also cranes are going electric, offering low noise levels, elimination of hydraulic oil, low starting current and power consumption, advanced control system and of course environmental benefits without compromising high capacity and fast loading cycles. Features, such as active pendulation control, anti-collision system, automatic greasing of slewing bearings, cameras on jib top and sea state selectors are available as extras.

The electric operation removes the need for hydraulic piping, which speeds up the installation process both for cranes and hatch covers and removes the risk of hydraulic leaks.

A transfer terminal can receive coal from one or more shuttle vessels; these could be self-unloading or conventional bulkers, as the terminals can be equipped with screw unloaders or MacGregor grab cranes, which feed hoppers on deck or the cargo holds directly. Very high capacities can be reached by continuous unloading systems throughout the whole transshipment operation, which is also the most environmentally-friendly method.

The advantages of transloading are many, such as, reduced pollution in ports; dredging and port investments can be avoided since the large carriers will not enter ports; and at offshore transfer the travelling gantries reduce the risk of warping ships to adjust their relative positions.

The unloading systems include a full flow gate for optimal material flow and a fully-enclosed boom ensuring minimum environmental impact. A vessel, terminal or barge equipped with a MacGregor self-unloading or deck conveyor system combined with heavy-duty grab cranes offers efficient, reliable and dust-free

transloading at high capacity rates. To date over 40 self-unloading gravity installations, with capacities up to 6,000tph (tonnes per hour) have been supplied to ships ranging in size from 3,500dwt to 135,000dwt. The equipment is designed to meet the specific needs of the newbuildings and also for converted vessels.

Equipment available includes a gravity system for coal discharge with a luffable and slewable boom conveyor with a manual or automatic control system. For elevating the material, there are three systems: the C-conveyor, inclined conveyor or vertical systems.

The patented MacGregor watertight bulkhead door fulfils the IMO regulations to minimize water leakage through the conveyor tunnels between cargo holds in the event of an emergency.

The near future is much around making the most of the existing fleet. However, e.g. environmental considerations set the path for the future. Already now, the electrically operated MacRack hatch cover operating systems and electric cranes are gaining popularity. In late 2016, MacGregor received an order for gravity self-unloading systems for two 29,800dwt bulk carriers for Canadian Great Lakes operator Algoma. "For each of the new vessels, MacGregor will deliver a highly automated self-unloading system designed for a maximum continuous unloading rate of 4,360tph for coal. The system contains the design and delivery of the complete system, including a discharge boom, full flow cargo gates, conveyor belts, cross conveyors, and a C-loop system, explains Mikael Hägglund, Sales Manager, MacGregor Selfunloaders. "The customer's technical requirements were carefully discussed during the pre-contract phase and we were able to offer the most efficient solution that best suited the operator's needs and is in compliance with the extremely strict environmental protection legislation."

MacGregor offers world-leading engineering solutions and services for handling marine cargoes and offshore loads, with a strong portfolio of MacGregor, Hatlapa, Porsgrunn, Pusnes and Triplex brands. MacGregor is committed to optimizing the lifetime profitability, efficiency, safety, reliability and environmental sustainability of their customers' operations. At best, this is done in close co-operation with the customers and other key stakeholders.

MacGregor self-unloading systems for Algoma's Great Lakes fleet modernization

In the middle of last year, MacGregor received an order for gravity self-unloading systems for two 29,800dwt bulk carriers (lakers) from the Yangzijiang shipyard, in China. The vessels will be delivered late 2017/early 2018 to Canadian Great Lakes operator, Algoma. For more details, please see p25 of the May 2016 issue of *Dry Cargo International*.

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Using high technology to solve old problems

Point Cloud Scan Setup.

In the modern world of coal handling, the one constant is that coal needs to be loaded and unloaded onto conveyor belts through many different transfer points. Issues such as airborne dusting, chute blockage, material spillage, belt mistracking and conveyor chutes leaking coal are just a few of the problems that challenge the design and engineering of transfer chutes. The use of some modern technologies that are available can make the process of redesigning and retrofitting an existing transfer chute into more of an exact science instead of guesswork.

Completed overlay of transfer.

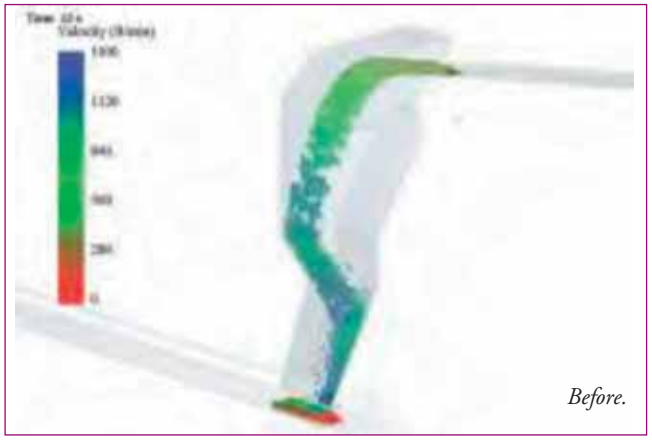
Model of new transfer chute.

First, we need to develop a very accurate model of the existing transfer chute and supporting structure. Here is where some modern technology comes in by use of the 'Point Cloud Laser Scanning System'. This equipment safely scans the transfer point areas by use of a rotating plane laser scanner. Specialized software then produces a three-dimensional model much more accurately than through hand measurement.

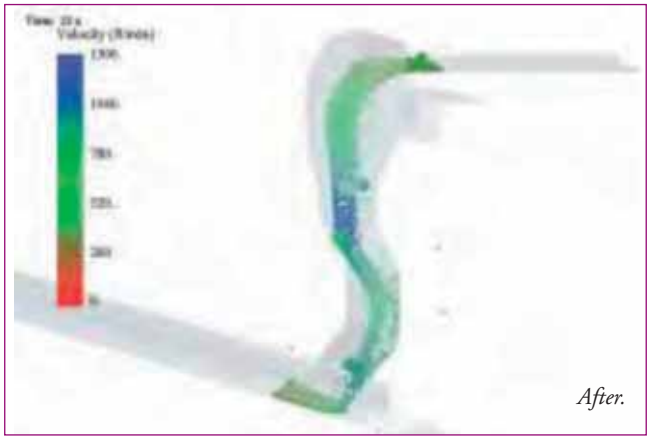
The benefits and features of the Point Cloud Laser System include:

- distance accuracy up to ±2mm;
- range from 0.6m up to 130m;
- safe and fast as-built data capturing with superior colour detail;
- reliable life-like visualization, even under extreme lighting conditions;
- reduced complexity by integrated scanning and imaging workflow for all kinds of measurements even in challenging environments; and
- allows models to be overlaid onto cloud point scan to double check accuracy

The next step in designing a transfer chute is to have a 3DEM, (three dimensional discreet element methods) analysis performed on each and every transfer point. 3-DEM is a revolutionary way to handle granular and particulate material handling problems through computer simulation and 3-D CAD for complete transfer point design and fabrication. A company with extensive conveyor and material handling knowledge, engineering capabilities and 3-DEM chute design software will be able to make transfer point problems a thing of the past.



Before.



After.

Discharge hood and loading spoon before installation.

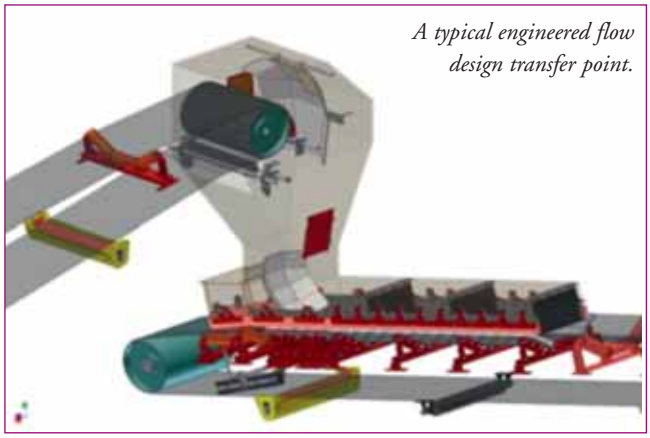
The redesigned chute will incorporate a material deflector hood to change the direction of the coal stream from its trajectory off of the head pulley into the direction of the receiving belt without causing additional dusting or excessive wear. The design and configuration of this deflector hood is determined during the 3DEM analysis. The shape and size of the hood will vary based on the speed, volume and type of material being conveyed.

ASGCO Pro Zone System installed on a coal conveyor.

The hood assembly should be designed so that the angle and height can be adjusted after installation in order to fine tune the coal stream so that it transfers to the loading spoon deflector further on down the chute. The purpose of the loading spoon is to once again, change the direction of the material flow so that the materials loads onto the center the receiving belt and in the same direction. This will help to prevent off center loading and belt miss-tracking as well as accelerated belt cover wear.

When the coal contacts the receiving belt, it needs to be contained within a skirted area for a distance in order for the load to settle down and for any dusting entrained or induced into the flow to slow down and fall out onto the belt and not escape as fugitive dust. Also the load must not spill off of the belt in the load.

ASGCO Mfg. has developed the first advanced containment for dust control solutions in the coal industry. The Pro-Zone System is a patent pending modular conveyor belt load zone system that optimizes the seal for air/coal dust tightness on the receiving conveyor belt. Inside the Pro-Zone are dust curtains that are anti-static and flame retardant. Multiple curtains throughout the system allows dust to settle by slowing the air velocity down and allowing the airborne dust and particles to fall to the belt.



A typical engineered flow design transfer point.

Every transfer point needs to have the above mentioned designs and products in order to function properly, contain dusting and promote flow-ability without excessive wear on the chute of the receiving belt.

By first performing a Point Cloud Laser Scan coupled with a 3DEM analysis, a complete transfer chute design can be perfected. Then the transfer point will provide the following benefits:

- increase production capabilities by helping to eliminate spillage, chute plugging, belt wear, dust control and noise;
- optimize life on conveyor belt and components by minimizing impact and top cover wear by using a soft or curved chute loading design;
- minimize material spillage in the design by centre loading the material, load the material at a uniform rate and optimize the material flow in direction of travel after the belt is fully troughed;
- reduce the need for dust control and suppression by minimizing the dust through loading the material at a uniform rate through a curved of soft loading design, maintain effective skirting, internal wear liners and dust curtains staggered throughout the loading area.

Patented conveyor belt cleaner designed to reduce total ownership cost

A significant investment in tooling and product engineering by Martin Engineering — a major supplier of bulk material handling technology — has produced a patented conveyor belt cleaner that is projected to reduce the cost of ownership by cleaning better and lasting longer. This cleaner works with a wide range of commodities being transported by conveyor, including coal.

A lower purchase price was also one of the primary goals in designing the Martin® QB1 Cleaner HD, achieved by adopting state-of-the-art roll forming equipment as part of Martin Engineering's manufacturing capabilities. The move is part of an overall plan to deliver high-performance components at industry-best prices.

"Rather than fabricating the main frame from individual steel profiles welded together, the frame for the new design is roll formed out of a single piece of steel, which produces an extremely strong and durable component," explained Paul Harrison, Director of the Conveyor Products Business Group. "The process eliminates the time-consuming steps of having to weld any portion of the frame, which also contributes to the reduced purchase price."

Described as one of the most comprehensive patents the company has ever been awarded, protection covers the main frame design, manufacturing process and attachment method. The new cleaner features Martin Engineering's unique 'CARP' (Constant Angle Radial Pressure) technology to maintain the most efficient cleaning angle throughout service life, with a no-tool replacement process that can be performed safely by one person in less than five minutes. It delivers outstanding performance and durability, while reducing the total cost of ownership.

"We've simplified the manufacturing process and also re-engineered the blade itself," Harrison continued. "The new profile is less complex to produce, and because it can be roll formed or manufactured on a press brake, it will be easier to source throughout the world from any Martin Engineering manufacturing site."

The new design also features a special alignment system to facilitate extremely precise installation. "One of the most common problems we see in the field is primary cleaners installed in the wrong position," said Senior Product Specialist Dave Mueller. "This cleaner was engineered for easy, accurate installation."

The product announcement comes on the heels of Martin Engineering's introduction of the company's 'Forever Guarantee', which ensures lifetime no-cost replacement of tensioners and main frames for any belt cleaner assemblies that are exclusively fitted with the company's replacement blades.

The Martin® QB1™ Cleaner HD is engineered to represent the next generation of belt cleaning technology, delivering the cleanest belt and longest blade life — at the lowest cost. It can be retrofitted onto any existing Martin Engineering tensioners, as well as most competitive systems.

In addition to its cost advantages, the QB1 HD design features a square mainframe positioned to shed dust and spillage. The urethane blade formulation can accommodate belt speeds of up to 900 fpm (4.6 m/sec) and service temperatures of –40°F to 160°F (–40°C to 70°C).

The QB1 HD is available in lengths of 18 to 96 inches (457 to 2,438mm) and can also be ordered in 10ft (3.05m) sections, allowing distributors or customers to cut to length for increased versatility. The new design is one of the many belt cleaners covered by the company's new Mr. Blade program, under which Martin Engineering's mobile technicians provide fresh, factory-direct replacement blades, delivered and custom-fitted on-site — installed free of charge.

Founded in 1944, Martin Engineering is a major manufacturer of equipment making bulk materials handling cleaner, safer and more productive. The company supplies flow aids and conveyor products around the world for a wide variety of bulk material applications, including coal, cement/clinker, rock/aggregate, biomass, grain, pharmaceuticals, food and other materials. The firm is headquartered in Neponset, IL, offering manufacturing, sales and service from factory-owned business units in Brazil, China, France, Germany, Indonesia, Mexico, Peru, Russia, South Africa, Turkey, India and the UK, and under exclusive licence with ESS Australia. DC↓

Bridging the cargo gulf?

US Gulf regional report

Handling project cargo at the Port of New Orleans.

Port of New Orleans: staying ahead of the curve

The Port of New Orleans is a deep-draught multipurpose port at the centre of the world's busiest port system — Louisiana's Lower Mississippi River. Connected to major inland markets and Canada via 14,500 miles of waterways, six class-1 railroads and the interstate highway system, the port is the ideal gateway for steel, project cargo, containers, coffee, natural rubber, chemicals, forest products, manufactured goods and cruising. An extensive network of ocean carrier services, along with added-value services like transloading of bulk into containers, make the Port of New Orleans the superior logistics solution for many types of cargo. To stay ahead of market demand, the port has invested more than $100 million in capital-improvement projects since 2012 and has a Master Plan to expand the Napoleon Avenue Container Terminal to an annual capacity of 1.5 million TEUs.

While the Port of New Orleans is renowned for its container handling capabilities, it is also heavily involved in moving bulk, breakbulk, heavy lift/project cargo, as well as perishable cargoes requiring cold storage.

Bulk in containers

The Port of New Orleans receives bulk cargoes by barge or railcar, and its operators then transfer it to containers for export. Automated vacuum equipment allows for the efficient and safe transfer of cargo from barge to containers. Shipping bulk in containers reduces inventory and improves cash flow for bulk shippers. Shipping in containers minimizes contamination of identity-preserved grains and other bulk commodities.

Breakbulk

- 13,511 feet (4,118 metres) of berthing space are available at six facilities, tailored to breakbulk cargo;
- 1.6 million ft^2 (151,000m^2) of transit shed area for the temporary storage of breakbulk cargo;
- New Orleans is certified by the London Metals Exchange to handle and store non-ferrous metals and steel billets traded on the exchange;
- Discharge directly to or from barge or rail;

- Certified by the London Metals Exchange to handle and store nonferrous metals traded on the exchange; and
- Breakbulk terminal operators include: Ports America, Coastal Cargo, Empire Stevedoring, and Seaonus.

Heavy lift/project cargo

- Superior rail and waterway connections make New Orleans an ideal port for moving oversized and overweight cargo;
- Several heavy lift shipping lines offer regular service into New Orleans;
- Railroad spurs at docks allow cargo to be loaded and discharged direct to rail; and
- Direct load or discharge to barge provides convenient access to inland locations for the largest and heaviest loads.

Hinterland connections

Due to its geographical location, the Port of New Orleans has excellent connections to the hinterland.

- **Barges:** New Orleans is connected to 14,500 miles of inland waterways through the Mississippi River and its tributaries. Additionally, the Gulf Intracoastal Waterway provides direct access along the Gulf Coast.
- **Rail:** New Orleans is the only seaport in the United States to be served by all six Class-One railroads, which allows customers direct access to a 133,000 mile rail network. These railroads are connected to the Port of New Orleans via the New Orleans Public Belt Railroad, which maintains 26 miles of track along the New Orleans riverfront and inner harbour. The Huey P. Long Bridge provides a route for railcars to cross the Mississippi River. The Napoleon Avenue Intermodal Railyard allows for a quick and easy way to transport cargo to and from the Napoleon Container Terminal by rail.
- **Trucks:** On a typical day about 2,130 truck drivers haul cargo in and out of the port. Local and national carriers provide truck service via the Interstate Highway System. The Clarence Henry Truckway gives truckers speedy and dedicated access to the port's Mississippi River terminals.

Port of New Orleans grant from EPA provides financial incentives

In October last year, the Port of New Orleans launched its Clean Truck Replacement Incentive Program (Clean TRIP), providing financial incentives for local short-haul truck owners to voluntarily replace approximately 20 Class 8 drayage trucks from model years 1993–2006 with trucks from model year 2012 and newer. The cost-share programme provides 50% of the vehicle sale cost (up to $35,000) and a maximum of two trucks per owner or fleet. It is open to those who service cargo terminals and warehouses along the Mississippi River and the Industrial Canal.

"This programme is a win-win," said Port President and CEO Gary LaGrange. "Local trucking companies can replace inefficient vehicles cost-effectively with commensurate emissions reductions and we have the opportunity to start a conversation about air quality."

The Clean TRIP programme is part of a $727,000 Clean Diesel competitive grant from the US Environmental Protection Agency to the Board of Commissioners of the Port of New Orleans. The grant supports the local port trucking community; helps reduce local air emissions and increases reliability and efficiency of on-road goods movement. The programme also provides an opportunity for community discussion and outreach about air quality.

The total Clean TRIP project cost is $1.537 million, with $700,000 coming from mandatory cost share with eligible truck owners and $110,636 coming from the port for administrative costs.

Key local partners in the two-year programme include the Regional Planning Commission, Louisiana Department of Environmental Quality, Deep South Center for Environmental Justice, University of New Orleans and the Environmental Defense Fund.

Port of New Orleans signs MOU with Cuba pledging joint efforts to expand trade and commerce

On 4 October last year, Port of New Orleans Chief Operating Officer Brandy Christian joined Louisiana Gov. John Bel Edwards in signing a memorandum of understanding (MOU) with Cuba, pledging to expand trade and commerce opportunities between Louisiana and the Caribbean nation. The agreement also calls for joint marketing and information sharing efforts to meet those objectives.

"The proximity and historical relationship between Cuba and the Port of New Orleans has us well-positioned should the trade embargo be lifted, and we are prepared to play an important role in trade when the time comes," said Christian, who signed the MOU with Gov. Edwards and Director General Manuel Fernandez Perez Guerra of the National Port Administration of Cuba. "We look forward to working closely with Cuban ports and trade authorities to grow opportunities and nurture long-standing relationships that will be mutually beneficial. In the meantime, we will continue to efficiently handle those products that can be legally shipped to Cuba, often by Louisiana-based companies."

Port of New Orleans officials travelled to Havana from 3–7 October, as part of a 50-member delegation that included Gov. Edwards, Louisiana Agriculture and Forestry Commissioner Mike Strain, Louisiana Economic Development Secretary Don Pierson, Louisiana Department of Transportation and Development Secretary Shawn Wilson and other state, regional, local, educational and private business leaders. The trip set the stage for greater economic and cultural exchanges between Cuba and Louisiana, and included meetings with Cuban government ministers of trade, agriculture and foreign affairs.

"There remains much work to be done before our nation's embargo on broader trade with Cuba is lifted. However, there are new opportunities that can benefit Louisiana, and I am optimistic that we will be able to build on our existing trade partnership with Cuba following this bipartisan visit," said Gov. Edwards. "We want Louisiana to be first in line to any new opportunities with Cuba, particularly the import, export and foreign direct investment possibilities that could range into the billions of dollars in the coming years. For those reasons, we are eager to embark on this trade mission and to place Louisiana in a unique position of leadership with respect to Cuba."

With the decision by then-President Barack Obama to normalize relations with Cuba in December 2014, the Port of New Orleans is positioned at the forefront of opportunity. Prior to the 1962 trade embargo enacted by President John F. Kennedy, the Port of New Orleans was a top trading partner with Cuba exporting agricultural and manufactured goods to the island nation.

Through the years of the embargo, the Port of New Orleans has participated in numerous trade missions and diplomacy visits to Cuba. Since 2010, more than 100,000 pounds of poultry have been exported via the Port to Cuba through a special allowance by the US government. For the past decade, Louisiana has ranked as the No. 1 U.S. state exporting to Cuba, with more than $1.4 billion in cumulative exports.

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Cooper Consolidated LLC: serving the Lower Mississippi River

Cooper Consolidated, LLC is a balanced, asset-based provider of stevedoring, barge, marine, and logistics services. Its specialties are innovative transfer technologies and seamless cargo movements. Its marine operations span the entire reach of the Lower Mississippi River between mile point 55 ahp and mile point 228 ahp.

These operations include both its mid-stream stevedoring operations as well as barge fleets and fleeting and switching operations that service almost every type of marine industry in the bulk and liquid markets. These services are provided and directed by Cooper Consolidated's own assets and employees, providing its customers with a highly reliable and flexible service.

Cooper Consolidated assets to meet its customers' demands:

- twelve deep draught ship berths between mile points 71 and 180 on the Mississippi River with Capesize vessel loading berth at mile 71;
- twelve high speed, high capacity floating cranes for cargo transfers including new, next generation, American-manufactured, electric floating cranes. These next-generation cranes drive higher performance and enable greater efficiency for Cooper Consolidated's customers, as well as increase safety, productivity and facilitate training for employees. Reduced noise and emissions are beneficial to workers, residents and the environment;

- floating mid-stream catamaran style grain elevator *AMERICA* with FGIS-certified scales, samplers and bells and whistles needed to handle customers' agricultural/grain products.
- the only floating coal/petcoke transfer station on the Lower Mississippi River, the *Louisiana Mid-Stream One – LMO* with unique quality control features that no other mid-stream operator can provide. These value-added features include: ability to homogeneously blend products loaded to vessel, grizzly on receiving hopper to catch oversize or foreign materials, water separation to prevent free-standing water from being loaded to vessel, magnet to catch tramp metal, two stage mechanical sampler to provide ASTM Mechanical Sample of product being loaded, conveyor belt scale and spout trimming of vessel holds;
- eight full service barge fleets between mile points 71 and 207 on the Mississippi River with ability to perform barge switching, barge fleeting, barge cleaning and barge repairing. Cooper Consolidated has also performed barge stacking for export of barges and vessels to other countries. Its Marine Operations span the entire reach of the Lower Mississippi River between Southwest Pass and Baton Rouge. The Lower River is a vast network of ship berths, barge fleets, and terminals whose efficiencies revolve around the distribution of barges to and from upriver ports and terminals. These operations service both its mid-stream stevedoring operations as well as almost every type of marine industry in both bulk and liquid markets. Depending on business volumes and river levels, we operate 15-25 towboats daily.

Additionally, Cooper Consolidated's freight and logistics group provides management and co-ordination of barge, rail, and truck cargo movements to inland destinations and is the sales arm for a pool of 900 inland covered hopper barges.

With over a combined 150 years of vessel stevedoring and inland logistics experience, Cooper Consolidated is capable and ready to handle its customers' cargoes. Specializing in a variety of transportation and handling services, Cooper Consolidated provides clients around the globe with diverse logistics solutions for one seamless journey, with a focus on the inland waterways and Lower Mississippi River Regions. Services include: stevedoring, barging, trucking, inland terminals, vessel chartering, rail, project cargo and marine logistics.

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Port of Pascagoula: full-service, deep-water port

The Port of Pascagoula, located on the southeastern coast of Mississippi is a full-service deep water port with modern facilities for handling cargo from around the world. The port's two harbours include a combination of public and private terminals handling in excess of 35mt (million tonnes) of cargo through the channel annually. The port is the largest seaport in Mississippi, and ranks nationally in the top 20 ports in foreign cargo volume.

The port's location is naturally advantageous to importers, exporters and carriers shipping via the Gulf of Mexico. The port is equipped with the facilities, technology and manpower to efficiently handle a wide variety of cargoes.

Attractive features include

- 42ft and 38ft-deep channels;
- short distance to shipping lanes — two hours' pilotage;
- weather-protected rail operations; and
- extremely competitive rates and flexible labour force

The Bayou Casotte Harbor.

About the Port of Pascagoula

The Jackson County Port Authority was established in 1956 and is an agency of Jackson County Mississippi. The Port Authority is the legal entity responsible for the management and operations of the Port of Pascagoula public cargo facilities.

The mission of the Jackson County Port Authority is to acquire, develop and manage assets as necessary to build and sustain a world-class, multi use industrial port; and to encourage and support industrial and private development in Jackson County.

The Jackson County Port Authority Board of Commissioners governs the Port Authority and the Port of Pascagoula. Nine commissioners serve on the Board. Five commissioners are appointed by the Jackson County Board of Supervisors and four are appointed by the Governor of the State of Mississippi. All nine serve four-year terms concurrent with the appointer.

The Port of Pascagoula is the largest seaport in the state of Mississippi. Over 35mt of cargo move through the port annually. Pascagoula is comprised of public and private terminals and is a major US port consistently ranking as a top 20 port in the nation for foreign cargo volume.

Cargoes through the port

- **Inbound:** forest products, phosphate rock, chemicals, aggregate and crude oil.
- **Outbound:** forest products, paper products, petroleum products, fertilizer, chemicals, project cargo and frozen poultry.

The Pascagoula River Harbor

West Harbor – Pascagoula River – Terminals A, B, C, D and South Terminal. The West Harbor Terminals offer 436,000ft² of covered storage, cold storage facilities and extensive open storage adjacent to the wharves.

Public Terminals

- A: 500ft wharf – transit warehouse;
- B: 544ft wharf – 145,000ft² covered storage;
- C: 718ft × 187ft open wharf – cold storage/freezer;
- D: 732ft wharf – 158,550ft² covered storage;
- South Terminal: 825ft wharf – 50+ acres; and
- Cold storage facilities.

Private Terminals

- Ingalls Shipbuilding
- Signal International, LLC (West yard)

The Bayou Casotte Harbor

East Harbor – Bayou Casotte – Terminals E, F, G, H. The Bayou Casotte docks are supported by a 175,000 transit shed at Terminals G and H. Storage in the Bayou Casotte Harbor includes over 250,000ft² of paved open storage and over ten acres of unpaved open storage.

Public Terminals

- E: 517ft wharf;
- F: 737ft wharf – marginal rail track;
- G: 516ft wharf – 175,000ft² transit warehouse (shared with Terminal G);
- H: 556ft wharf – transit warehouse; and
- G Extension: barge berth.

Private Terminals

- Chevron Pascagoula Refinery (Chevron Shipping Co.)
- Mississippi Phosphates Corporation
- Signal International, LLC (East yard),
- VT Halter Marine
- Gulf LNG Energy, LLC
- First Chemical Corporation

Inland transportation

The Port of Pascagoula's transportation infrastructure provides for efficient inland movement of cargo.

- **rail transport:** Pascagoula rail service begins at the terminals of the Pascagoula River and Bayou Casotte Harbors affording efficient port-rail connections. Pascagoula rail service links are the CSXT direct and access to the Canadian National Railroad via the shortline carrier Mississippi Export Railroad.
- **highway:** The Port of Pascagoula is centrally located and benefits from an extensive highway transit system. Shippers enjoy, uncongested, easy access to Interstate 10 and U.S. Highway systems.

Port Corpus Christi: the Energy Port of America

Port Corpus Christi is the fifth-largest port in the United States in total tonnage. The port provides a straight, 45ft deep channel (approved and authorized for 52ft) and quick access to the Gulf of Mexico and the entire United States inland waterway system. The port delivers outstanding access to overland transportation, with on-site and direct connections to three Class I railroads, BNSF, KCS, and UP, and direct, vessel-to-rail discharge capabilities. The Nueces River Rail Yard, when complete in Q1 2017, will provide eight tracks for storage of unit trains up to 8,500 feet long.

La Quinta Trade Gateway

The La Quinta Trade Gateway is an 1,100-acre site on the six nautical mile-long La Quinta Channel, with a depth of 45 feet, located only 12.5 nautical miles from open water. Development of the La Quinta Trade Gateway is under way with tenants Gulf Compress and voestalpine Texas LLC. The Hot Briquetted Iron (HBI) manufacturing facility plant owned by voestalpine commenced operation in 2016 and has a production capacity of two million metric tonnes of high quality iron per year. A 1,000ft-long bulk cargo dock was constructed as part of voestalpine's project. The Port of Corpus Christi Authority continues with plans for development of other potential projects at La Quinta with preliminary design and planning work completed for a 1,000ft-long multi-purpose dock, 30-acre cargo lay down and transfer yard, improvements to road and rail access. The La Quinta Trade Gateway project includes development of a green-space buffer area along adjacent residential neighbourhoods and a beneficial use area to create wildlife habitat.

Northside Terminal

Project cargo, ro-ro, breakbulk and general cargo;

- Dockside rail or truck transfer capability;
- 122,000ft² of shipside covered storage; and
- ro-ro ramp handles bow or stern ramp vessels.

Rail and highway access

The Northside docks have uncongested, direct access to Interstate Highway 37 and US Highway 181. Rail service is provided by BNSF, KCS, and UP.

Transfer capabilities

Cargo can be loaded, unloaded and transferred directly between trucks, rail and vessels at Dock 9. Shipside tracks on Dock 9 allow direct transfers between vessels and railcars and a 48ft-wide canopy over double rail tracks allows loading of weather-sensitive cargoes.

Storage

More than 30 acres of open storage area are available for marshalling, storage and fabrication. Paved yards are located adjacent to Dock 9 and ro-ro ramp.

Southside Terminal

Heavy lift, ro-ro, breakbulk, containerized and general/project cargo

- Dock 8, the strongest open wharf on the Gulf of Mexico, capable of 1,500 lbs/ft² with 25 acres of directly adjacent open storage;
- Docks 14 and 15, multi-purpose facilities with 173,000ft² of covered dockside storage.

Rail and highway access

The Southside docks have uncongested, direct access to Interstate Highway 37 and US Highway 181. Rail service is provided by BNSF, KCS, and UP.

Transfer capabilities

The General Cargo Terminal can transfer containers, ro-ro, heavy lift, breakbulk and project cargo between vessels, railcars, chassis and trucks. On-dock tracks allow direct transfer between vessels and railcars. Docks 8, 14 and 15 are served by double rail tracks.

Storage

Additional warehouse space is located on Docks 14 and 15, adjacent to the wharf at Dock 8.

Dry bulk

Bulk Terminal

The Bulk Terminal, docks #1 and #2 are used to discharge and/or load petroleum coke, coal, bayrite and other dry bulk commodities directly to/from vessels (including Panamax class ships), railcars and trucks. The loading belt speed at the shiploader is 1,500tph (tonnes per hour) and the unloading gantry crane can handle 600tph. The Bulk Terminal is serviced by the BNSF, KCS, and UP Class I railroads. Within 15 minutes and via the Joe Fulton International Trade Corridor trucks can access Interstate 37. The port maintains approximately 15 acres of open pads with 40 acres of developable land for future expansion. This facility features a loop track with rail capacity of 200 cars. Abilities include on-site trans-loads from rail to truck and dockside direct discharge from ship to rail.

Grain Elevator
A Port Corpus Christi facility managed by ADM/Growmark River Systems Inc, located on the Inner Harbor. The facility is used for shipments of grain, food, and farm products, and features a high storage capacity and excellent rail and highway connections.

Project ro-ro cargo

Quality solutions
Port Corpus Christi offers quality solutions and superior logistics for all shipping needs. The Joe Fulton Corridor provides direct connections to Interstate 37 and Highway 181 for ease of cargo movement. Direct connections to three Class I railroads, BNSF, KCS, and UP plus dockside rail and truck service equip the port's clients with options. Minimal escort requirements and short channel transit save time and costs.

Outstanding facilities
The port offers multiple uncongested docks and Foreign Trade Zone #122 with greater flexibility and expedited access to FTZ benefits. More than 500 acres for project development and large manufacturing sites are available. The facilities sit adjacent to a 45ft deepwater channel and provide access to the Intracoastal Waterway system, allowing for offshore projects.

Strategic logistics

Port Corpus Christi is the location for improved cost effectiveness and productivity, including the strongest dock available within the US. Gulf Ports (1,500 pounds per square foot). Port Corpus Christi has also been a designated, strategic military deployment port since December 1997.

- 45ft deep water port;
- convenient highway access;
- rail service and on-dock railroad capabilities;
- three Class i railroads;
- rail yard with eight 8,500ft tracks;
- covered storage;
- staging capabilities;
- transloading facilities;
- ro-ro;
- state-of-the-art security department; and
- union and non-union stevedores.

Nueces River Rail Yard

Along with deep water shipping channels and easy highway access, an efficient rail system is an integral component for multi-modal strategic logistics at Port Corpus Christi.

Phase I of the Nueces River Rail Yard came online in early 2015 and includes a 8,000ft-long unit train siding. The opening of Phase II is scheduled to open by first quarter 2017. The completed rail yard will feature eight 8,500ft tracks.

Nueces River Rail Yard is made possible by the unique cooperation of three Class I rail lines including BNSF, UP, and KCS as well as the short line rail operator Genesse Wyoming, and Port Corpus Christi.

The Nueces River Rail Yard is located along the Joe Fulton International Trade Corridor and the Corpus Christi Ship Channel.

Foreign Trade Zone #122

Established in 1985, Foreign Trade Zone #122 was the first continental zone with refinery subzones. In 2013, Port Corpus Christi reorganized and expanded FTZ #122 under the Alternative Site Framework (ASF).

This new programme provides greater flexibility and expedites access to the benefits of the FTZ programme by using simpler and less time-consuming procedures to bring FTZ designation to locations where a company has decided to pursue an FTZ.

Under the ASF, FTZ #122 now includes seven counties within its service area – Aransas, Bee, Jim Wells, Kleberg, Nueces, Refugio, and San Patricio.

Port Corpus Christi becomes first Texan port to join Green Marine

Port Corpus Christi, ranked the fifth largest port in the United States in total tonnage, is the newest participant in Green Marine, the largest voluntary environmental programme for the maritime industry in North America.

"We're absolutely delighted to welcome Corpus Christi as the first port from Texas to join the Green Marine programme, with its newly adopted environmental policy, its desire to enhance environmental awareness, and its participation in our certification programme, Port Corpus Christi is showing true commitment to sustainability.," says David Bolduc, Green Marine's executive director.

The Port of Corpus Christi Authority implemented an ISO 14001 certified Environmental Management System in 2007 to improve teamwork and interdepartmental collaboration and just recently revised its Environmental Policy.

"The EMS has created a proactive attitude among employees to help improve operational efficiency and pollution prevention," says John P. LaRue, PCCA's executive director." Our port wants to demonstrate its continued commitment to environmental protection and we believe Green Marine's detailed framework can help us achieve that goal." The Port of Corpus Christi Authority efforts under the Environmental Management System have been recognized locally and nationally. "Green Marine certification aligns well with our strategic initiatives with regards to the environment and sustaining the clean air, water and soil that we have in our Port." says Sarah Garza, PCCA's Director of Environmental Planning & Compliance.

Green Marine's environmental programme offers a template for port authorities, terminal operators and shipping lines to voluntarily reduce their environmental footprint. The comprehensive programme addresses key environmental issues using 12 performance indicators that include reducing air emissions, minimizing community impacts, and demonstrating environmental leadership.

The Green Marine certification process is rigorous and transparent: results are independently verified every two years and each company's individual results are published.

Green Marine overview

Established in 2007, Green Marine is a North American environmental certification programme for the maritime transportation industry. The programme stems from the maritime industry's voluntary initiative to surpass regulatory requirements. There are currently more than 100 companies — ship owners, port authorities, terminal operators and shipyards — from coast to coast in Canada and the United States participating in the programme. The Green Marine program's unique character derives from the support being earned from more than 50 environmental organizations and government agencies. These supporters contribute to shaping and revising the programme.

Then-President Obama gives green light to Brownsville Ship Channel deepening project

On 16 December last year, former President Barack Obama signed into law the Water Resources and Development Act (WRDA) of 2016, authorizing the Brownsville Ship Channel deepening project, making it eligible for federal funding.

The Brazos Island Harbor Channel Improvement Project was one of 28 water infrastructure projects nationwide included in the WRDA and submitted by the US Army Corps of Engineers (USACE) to Congress for approval. The project calls for the Port of Brownsville channel to be deepened to 52 feet from its current design depth of 42 feet. When complete, the Port of Brownsville will become one of the deepest ports in the Gulf of Mexico.

"This is the announcement that we were anxiously waiting for and would not have been made possible without the support from our legislative delegation in Washington, DC, Senator John Cornyn, Senator Ted Cruz and Congressman Filemon Vela. Their efforts were instrumental in moving this project forward. We owe them a huge debt of gratitude for their leadership and guidance," said John Wood, Brownsville Navigation District Chairman. "The deepening of the channel strengthens the port's infrastructure and increases our global competitiveness. It is a catalyst for greater economic opportunities for our entire Rio Grande Valley."

In 2006, the Brownsville Navigation District began a feasibility study with the USACE to assess the deepening and widening of the channel. The proposal was approved in November 2014 by the USACE, which stated that the project would result in significant economic advantages for commercial navigation in South Texas. The only step pending in the process was congressional authorization, which was accomplished on 16 December 2016.

Completion of the channel deepening is important in allowing existing companies at the port, like Keppel AmFELS, to further expand its services. With a depth of 52 feet, Keppel AmFELS will be able to increase its support in the construction and servicing of offshore and inland oil and gas rigs.

In addition, the port will be able to accommodate deeper draught cargo vessels carrying heavier loads, which translates to a greater economic impact per vessel for the region. It also aligns with the recent expansion of the Panama Canal, allowing newer and bigger ships crossing that stretch to call on the port for business.

Port of South Louisiana: largest tonnage port district in Western Hemisphere

Governed by a board of nine Commissioners, the Port of South Louisiana, which stretches 54 miles along the Mississippi River, is the largest tonnage port district in the western hemisphere. The facilities within St. Charles, St. John the Baptist, and St. James parishes (counties) handled over 292mt (million short tons) of cargo in 2015, brought to its terminals via vessels and barges.

Over 4,000 oceangoing vessels and 55,000 barges call at the Port of South Louisiana each year, making it the top ranked in the country for export tonnage and total tonnage.

With exports of over 69mt in 2015 — more than any other port in North America — Port of South Louisiana cargo throughput accounts for 15% and 57% of total US and Louisiana exports, respectively. The Port of South Louisiana has five first-rate port-owned facilities, ranging from grain elevators to general cargo facilities. It serves as landlord of these, which are leased to operating companies such as Occidental Chemical and Archer Daniels Midland. The exception is the Globalplex Intermodal Terminal, purchased by the port in 1992 that is being redeveloped into a world-class complex to accommodate a variety of dry bulk and breakbulk cargo.

The port's goals are:

- to serve the maritime transportation needs of its resident industry;
- to assist resident industry in the development of maritime and/or industrial facilities;
- to encourage foreign and domestic investment within the River Parishes Region and Louisiana; and
- to attract foreign and domestic cargo to the Globalplex Intermodal Terminal.

The Port of South Louisiana at a glance

The 54-mile jurisdiction of the Port of South Louisiana extends along the Mississippi River through three southeastern Louisiana parishes: St. Charles, St. John the Baptist, and St. James. The Port area begins at river mile 114.9 AHP, near the New Orleans International Airport, and continues north to river mile 168.5 AHP, just north of the Sunshine Bridge.

Facilities

Seven grain elevators, multiple mid-stream operations, more than 40 liquid and dry bulk terminals, and Globalplex Intermodal Terminal comprise the public and private marine facilities within the sprawling Port of South Louisiana district.

Foreign Trade Zone 124

The Port of South Louisiana operates the most active Foreign Trade Zones in America. In 2014, its 12 subzones received over $75 billion in merchandise and facilitated the employment of 10,500.

Barges and vessels

On average, there are more than 55,000 barge movements annually and 4,000 deep-draught vessel calls within the port's jurisdiction annually.

Rail

The port is serviced by three trunk-line railroads, including Canadian National and Kansas City Southern on the east bank of the Mississippi River, and the Union Pacific rail system on the west bank of the river.

Highways

The port is situated centrally within Louisiana's vast state and interstate systems. Major arteries include Interstates 10, 310, and 55, US Highways 61 and 90, and Louisiana Highways 51, 44, 18, 3127, and 3125.

Trade

As of 2015, the Port of South Louisiana is the largest port in the United States in total throughput tonnage. The port also ranked first in total domestic trade. It ranked second in both exports and imports.

Foreign cargo

The private and public terminals within the port handled more than 145mt of foreign cargo in 2015. Of this cargo, imports accounted for more than 75mt, while more than 69mt of cargo were exported.

Grain

As the largest grain port in the United States, grain elevators within the port handle over 50% of all US grain exports annually. These exports included 17.6mt of maize, 22.7mt of soybeans, 3.9mt of animal feed, almost 1.6mt of wheat, and over 1.7mt of other grain such as barley, milo (sorghum) and rice.

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JANUARY

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FEBRUARY

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MARCH

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Breakbulk Europe 2017
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APRIL

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MAY

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JUNE

AMERICAS COAL TRADES
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The Netherlands
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JULY

BAUXITE & ALUMINA TRADES
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Inland Rail & Barge Transportation
Forest Products
Rail & Barge Handling Technology
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Bulker Classification
2017 Grain Handling Directory
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AUGUST

IRON ORE TRADES
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OCTOBER

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Stockyard Equipment
Self-Unloader Update Report
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2017 Coal Handling Directory
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NOVEMBER

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- Inland Transportation

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DCi

2017 Editorial Programme

Trading partners

The Port of South Louisiana ships and receives cargo from more than 80 nations throughout the world. Jamaica, Russia, and Brazil are in the top five import countries, along with Peru and Trinidad and Tobago. For exports, Japan, China, Colombia, Netherlands, and Egypt, are the top five commodity destinations.

International partners

With a wealth of economic development resources within the jurisdiction, unparalleled intermodal transportation, and access to both the US and Latin American markets, the Port of South Louisiana has established relationships with ports in Mexico, Central and South America for the development of mutual trade and investment in the future.

As American transportation and maritime companies form joint-venture partnerships with Latin America for the privatization of transportation systems, ports will become increasingly more important to the trade equation. The Port of South Louisiana is committed to fostering reciprocal trade and investment between its foreign partners.

Bulk facility

Globalplex Bulk DockGlobalplex Intermodal Terminal's deep-draught bulk terminal is dedicated to handling materials including, but not limited to, cement, mineral ores, and woodchips. The bulk dock is 44ft × x 570*ft* and is equipped with upstream and downstream mooring buoys, allowing dockage of Panamax-class vessels.

Bulk handling equipment includes a 1,200 tons-per-hour ship loader, a Manitowoc 4,600 swing crane with hopper, an upgraded bulk commodities conveyor system capable of running up to 2,500 tons-per-hour, and an 800tph (tonnes per hour) Carlsen screw-type unloader for special handling of cement.

The cement facility, which includes dome storage, is one of the largest in the United States. Cargo is quickly moved to and from landside storage via an extensive covered conveyor system.

General cargo facility

Globalplex Intermodal Terminal's 204ft × 660ft deep-draught general cargo dock was developed to handle breakbulk and general cargo. The dock's circular capacity allows trucks enough area to turn around, which is conducive to maximum transfer efficiency. Adjacent and downriver from the general cargo dock is a 65ft × 700ft finger pier, which allows the berth of two Panamax-size vessels and direct-to barge transloading.

Two Manitowoc 2250 rail-mounted gantry cranes (with spreaders), which travel the full length of both docks, are in place to handle a wide variety of cargoes, including heavy lifts and containers.

Also available is a 177,000ft² (16,444m²) storage pad, providing ample space for the staging of cargo prior to shipment. There is sufficient turning radius for interstate trucks and stevedoring equipment to manoeuvre while handling cargo. The area is outfitted with lighting and a rainwater runoff and drainage collection system.

Building #3

In July of 2005, the Port of South Louisiana dedicated a 72,000ft² (6,689m²) warehouse/transit shed and rail spur designed to accommodate multiple truck and rail loading dock activities. This shed is able to receive a variety of breakbulk and palletized shipments, from lumber to paper-liner rolls. This building has a covered rail loading dock served by the Canadian National railroad on the west side of the building designed to load cargo from six roll up doors.

Building #4

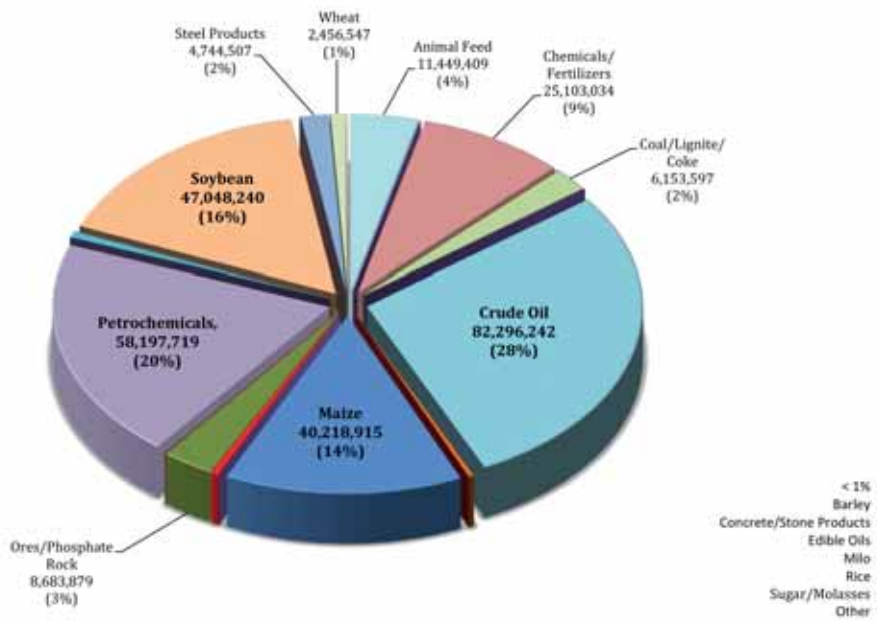
In May of 2010, the Port of South Louisiana marked the official opening of Transit Shed #4, a 40,000ft² (3,716m²) bulk transit shed that assists Globalplex users with handling and storage of dry bulk commodities being shipped in and out of the district. The 200ft × 200ft (61m × 61m) warehouse strategically placed at the foot of the general cargo dock access bridge. Allowance has been made in the design of the structure for the future installation of conveyors that will connect it to the dock and the nearby rail spurs.

From Panamax vessels to inland barges, the dock is capable of moving cargo to open or covered storage warehouses, from ship to barge, truck, or intermodal rail transfer. Globalplex's general cargo terminal, operated by Associated Terminals, is served by Canadian National (CN) and Kansas City Southern (KCS) railroads and all major trucking and freight companies. Interstate highway connections are made easily without undue delays.

Under development

The Port of South Louisiana is in the process of developing a public port/industrial park on the west bank of the Mississippi River in addition to a general cargo dock installation, both in St. Charles Parish.

Total throughput — 12-month period October 2015 to September 2016 (short tons)



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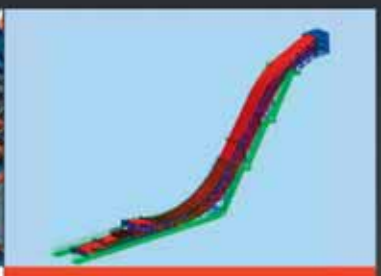

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