

North American coal

The world's number two producer is buoyant, but so too is its smaller (in coal terms) neighbour, Canada, to the north. John Chadwick reviews developments

COAL is generating excitement in all producing areas; no more so than in the northeast of the Canadian province of British Columbia (BC), around the town of Chetwynd. Here, unlike virtually any other well-established coal producing area, there is the infrastructure capacity (rail and shiploading) to accommodate significant production expansion.

The activity in BC is unusual for coal being, largely, lead by junior mining companies. However, Japan's Mitsui Matsushima has been a key player in much of the development. Mitsui Matsushima is an experienced player, being very active in Australia's Hunter Valley in New South Wales, where it is involved with the Glendell and Lidell operations.

One of the new BC mines, that started production last September, is Pine Valley Mining's Willow Creek. Pine Valley acquired full 100% ownership in January, 2004 when the acquisition from Mitsui Matsushima Canada of its 33.3% interest closed.

The company realised revenues of C\$3.26 million for the three month period ended September 30, 2004, its second quarter, as a result of the completion of the first commercial coal shipments totalling approximately 46,000 t of pulverised coal injection (PCI) metallurgical coal product. Under its current permit, Pine Valley Mining has the right to produce up to 0.9 Mt/y of coal. It has filed a permit amendment application with the provincial government regulators requesting an increase to 2 Mt/y.

Hot on the heels of Pine Valley's shipment, Western Canadian Coal (WCCC) commenced production at the Dillon mine on its Burnt River property and the first 102-car train was loaded and left the Bullmoose Load-out near the town of Tumbler Ridge, southeast of Chetwynd, on December 6. Burnt River's PCI is a low sulphur, low ash and low volatile product. WCCC will exploit a mining reserve of 1.56 Mt at an annual rate of 240,000 t, which will be campaign mined at a rate of up to 60,000 t/month. WCCC plans to mine the adjacent Brule deposit, where production would be expected in 2006, and together with Dillon, the initial targeted production will be at a rate of 1.5 Mt/y of PCI coal.

WCCC currently has more than 250 Mt of coal under exploration and development planning in BC. The



company is focused on the development and production for the international markets of 5 Mt within five years of its initial operations, comprising 2 Mt/y of PCI coal and 3 Mt/y of hard coking coal.

Last December, WCCC announced the appointment of BNP Paribas as advisor in connection with the arrangement of project financing for the development of the Wolverine project, for which WCCC has received an Environmental Assessment from the BC Government. The EA Certificate covers production of 1.6 Mt/y of clean metallurgical coal on the Perry Creek and EB open-pit properties over a projected 11-year period.

WCCC plans to construct a coal preparation plant and rail load-out located adjacent to Perry Creek initially capable of handling 2.4 Mt/y of hard coking coal, expandable to 3 Mt. Construction of the coal preparation plant is a critical aspect of this project and it is anticipated that this process will take up to 18 months to complete.

Mitsui Matsushima holds 4.48% of WCCC and is a strategic partner in Cline Mining, holding 11% of its shares. Cline's development of the Lossan mine is very similar to the Pine Valley story, and it sits just to the south of Willow Creek, across the rail line. Cline expects to begin production in the first half of 2006 and is looking at a 1 Mt/y operation shipping PCI and then building a preparation plant to maximise the potential of coking coal products. Lossan's initial production profile is in excess of 12 years. It will be a contract mining operation, with a low waste to coal strip ratio.

Cline Mining is proceeding with exploration and development on its Lodgepole project located in the Crows Nest coalfield of southeastern BC. The programme provides for 51 diamond drill holes, 600 m of adits into coal, and 6.8 km of road construction on the property and will confirm information for the preparation of feasibility and environmental assessment studies.

The adits will obtain bulk samples from the two lower coal zones, which attain a total thickness of 21 m on the property. These samples will be processed in a pilot plant to affirm and assess coal qualities and the best methods of processing the Lodgepole PCI and hard coking coal products. Lodgepole is some 42 km by road from the CP Rail mainline at Morrissey in BC and 33 km by road from the rail load out of Elk Valley Coal's Coal Mountain mine. Past work by Shell and Fording identified nine coal zones with an aggregate thickness of 32.7 m of coal seams.

Cline is targeting 1-2 Mt/y production from the 80 Mt of resources amenable to open pit mining. The Lodgepole mining area is approximately 1.8 km by 1.4 km in size with the coal measures lying in a dip slope structure in which coal measures and the overburden both lie at an average of some 25° down slope; favourable for extended low strip ratio mining.

NEMI Northern Energy & Mining is also focused on northeast BC. It has held coal property there since 1996, now holds the Trend, Omega and Saxon properties, and intends to pursue mine development on the Trend property. Its plan "is to advance the Trend project through feasibility and regulatory approvals to achieve mine development in 2005".

With the infrastructure capacity available in northeast BC, Aurora Coal & Minerals believes thermal coal demand is also strong enough to support a small but productive mine. It has the Wapiti project 30 km north of Tumbler Ridge. Aurora has been assessing its resource since mid-July 2004. A baseline environmental study is planned for mid-2005, followed by regulatory applications in December 2006, with annual production of a 1 Mt/y of thermal coal for Asian markets.

Across the provincial border in Alberta, but shipping to export markets through BC, Grande Cache Coal has

over 15,000 ha of coal leases in the Grande Cache area with both underground and surface mining operations, each contributing about 50% of the saleable production over the next several years. The current production plan is for 24.7 Mt of saleable coal production over a 12-year period (2004-2016). Exploration is ongoing to add additional reserves that would see saleable coal production increase in the medium term.

Hillsborough Resources' principal asset a 100% interest in Quinsam Coal, a thermal coal producer located near Campbell River. However, the Bingay Creek property in Elk Valley is Hillsborough's first foray into the high-value metallurgical coal business. The property contains a number of coal seams in a synclinal formation, with the main target seams being the #11 and 12 seams. There is excellent quality, mid vol coking coal, as well as coal which could be used in PCI blends, which are also in demand in the steel industry. Permitting is underway, and it was hoped that a permit allowing an annual production of 250,000 t would be obtained by the end of March, with initial production to commence shortly thereafter.

Compliance Energy has purchased mining equipment and is optimising its 400,000-t/y processing plant in preparation for increased sales in 2005. A mining fleet of a Cat D8 Dozer, two Cat 988B front end loaders and three Cat 773 haulage trucks was purchased and delivered to the site for early January 2005. Some 1,000 m of the 30 m wide coal seam has been developed and was ready for the 2005 mining season. Mining at the open pit was scheduled to be at planned capacity by mid-January.

The Compliance Basin Coal Joint Venture is a joint venture between Compliance Energy and Sojitz Coal Development (Canada). The CBCJV controls the coal resources of the Tulameen Coal Basin for which the BC Government published an estimated global coal resource potential of 240 Mt of in-situ coal. The reports classify the resource as containing; 20 Mt measured, 60 Mt indicated and 160 Mt inferred. Compliance is getting ready to conduct a trenching programme on the Bear Metallurgical Coal Deposit on Vancouver Island.

CANADIAN MAJORS

Canada's largest low-sulphur thermal coal producer Luscar Energy Partnership (LEP) will supply Pacific Rim markets with an additional 2 Mt/y by 2006 as it embarks on an expansion to double capacity at its Coal Valley mine. The C\$75 million project involves doubling the coal wash plant capacity and adding \$50 million of additional mining equipment. The opencut mine, located 100 km south of Edson, Alberta, will produce 4 Mt/y by the second quarter of 2006.

LEP expects strong coal markets for some time. "High and volatile natural gas pricing in North America, the migration of thermal coal into metallurgical markets, strong Chinese requirements, and increased demand in remaining North Asian countries contribute to this expectation," LEP said. It operates ten thermal coal mines in Alberta and Saskatchewan which produce some 39 Mt/y of coal.

LEP plans to develop a two-unit 1,000 MW power plant and associated coal mine facility near Bow City, Alberta, to be developed in two phases. Construction in the first phase, expected to be completed in 2010, will include one clean coal-fired thermal electric generating unit of about 500 MW, a surface coal mine with one dragline, a coal preparation plant, and connection to a high voltage switchyard.

The second phase is expected to be completed in 2014 and will include a second clean coal-fired 500 MW thermal electric generating unit,

*Black Thunder
first coal mine
to ship more than
1,000 Mt*



an additional dragline, an expanded mine and a preparation plant. The proposed mine permit boundary encompasses approximately 13,500 ha and contains enough coal reserves to fuel the project for more than 40 years. The project is some 180 km southeast of the City of Calgary.

At the beginning of February, Fording Canadian Coal announced that Elk Valley Coal has completed almost all of its annual price and volume negotiations with its customers. Substantially all sales of metallurgical and other coal for the 2005 coal year beginning April 1, 2005 were priced at an average of \$122/t on an FOB west coast port equivalent basis.

"The unprecedented demand for high quality hard coking coal has contributed to the significantly higher contract prices we have been able to secure for 2005," said Jim Popowich, president. "Our decision to expand Elk Valley Coal's current metallurgical coal capacity by about 12% - from 25 to 28 Mt - by the third quarter of 2005 should allow further benefit from these market conditions."

Coal sales for 2005 are targeted to exceed 27 Mt, a 2 Mt increase over 2004 volumes. The company stated: "Achieving these targets will require Elk Valley Coal to continue running its operations at capacity and depends on the ability of rail and port service providers to handle the additional volumes, both of which are subject to many operating risks and other uncertainties."

It is capacity additions at Fording River and at Cardinal River's Cheviot Creek pit that will increase output to about 28 Mt/y. All licenses and approvals have been received for the development of the Cheviot Creek pit and initial production was expected in November. Additional spending has been approved for mine, plant and equipment that will enable production from Cheviot Creek to be increased from 1.4 to 2.8 Mt/y. Fording River will expand full productive capacity by about 1 Mt to 10.5 Mt/y, achieving this near the end of the second quarter of 2005.

NEW US RECORD

The National Mining Association forecast US production to total 1,032 Mt in 2005, exceeding the 1,008 Mt mined in 2004 and topping the previous record of 1,022 Mt set in 2001. Eastern coal mines are expected to produce some 440 Mt, driven largely by increased offshore demand for metallurgical coal and by increased domestic demand for electricity. Western production is expected to

reach the 580 Mt level this year, topping the previous record of 567 Mt in 2004.

In 2004, coal generated 51.8% of US electricity available on the national grid and is likely to generate 52.4% this year. The NMA said: "Persistent high natural gas prices and capacity limitations at nuclear plants will favour greater coal use." Electricity accounts for over 90% of all domestic-produced coal, said NMA. Consequently, coal demand in 2005 is expected to total 1,073 Mt and exceed production for the third consecutive year. Strong offshore demand and a relatively weak dollar will boost US coal exports for the second year in a row, said NMA.

Coal companies have one of the strongest coal markets on record backed by increased demand for electricity, low coal stockpiles, high prices and supply constraints for competing fuels. However, higher fuel, power and steel prices, as well as transport and labour shortages are biting hard.

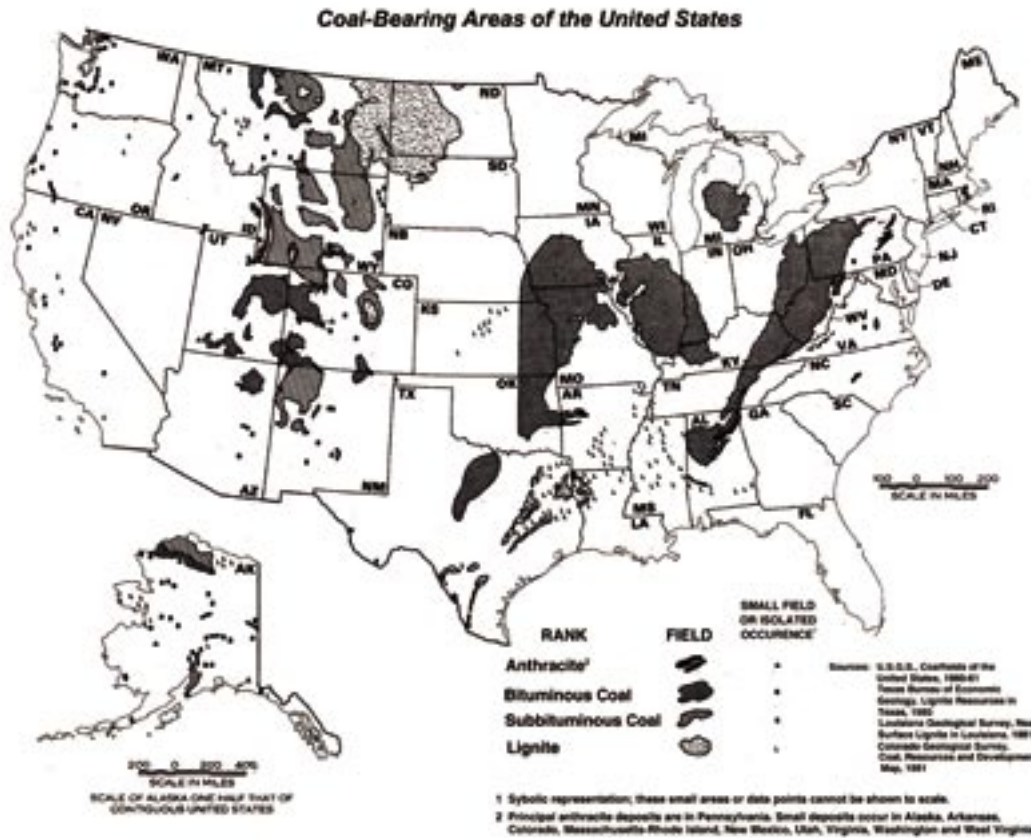
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Rochelle mines in the PRB. North Rochelle is the larger of two mines formerly operated by Triton. Steven F. Leer, Arch Coal's president and chief executive officer, said: "By integrating the North Rochelle mine and our existing Black Thunder operation, we are creating what we believe will be the premier mine in the nation's fastest growing coal supply region."

The integration of the two mines – which share a 9 km property line – creates opportunities for cost savings and synergies. Arch expects the combination to create operating synergies of between \$15 million and \$20 million beginning in 2005, with that number climbing in subsequent years as future mine development for the integrated properties is optimised.

North Rochelle's reserve base totalled an estimated 205 Mt at the end of 2003. That year it produced some 21.7 Mt of coal.

The largest producing state, Wyoming, produced a total of 359 Mt of coal last year, up 5% on 2003 figures. The US Bureau of Land Management (BLM) leased more than 1,540 Mt of coal in the Powder River Basin (PRB) last year. Coal lease sales were at record levels at \$1.3 billion. Once again Peabody Energy, Kennecott Energy Company (KEC) and Arch Coal were the biggest producers.

KEC expanded its Antelope mine reserves in Wyoming's PRB following a successful bid of \$0.828/t or \$146.3 million for the West Antelope tract. This tract contains 177 Mt of premium in-situ reserves. This increases Antelope's current recoverable reserves to about 365 Mt and will provide the mine with a new opportunity to optimise current facilities and mining strategies. The coal produced at Antelope is attractive to customers because of its energy content (8,800 Btu) and for its low sulphur content. Antelope currently produces over 27 Mt/y.

KEC's 2004 net earnings of \$119 million were \$31 million above the net earnings of 2003. Production was 9% higher than in 2003 as a result of higher demand for low sulphur coal. KEC also reports progress in implementing initiatives leading to cost reductions, productivity improvements, reduced capital requirements and marketing benefits. These benefits were partially offset by higher fuel prices.

Peabody Energy was the winning bidder for another tract, 294 Mt of high Btu, low sulfur coal reserves in the PRB. Peabody's winning bid for the reserves was \$1.02/t (mineable). The reserves are adjacent to Peabody's North Antelope Rochelle mine, located in Campbell County, which shipped more than 72 Mt in 2003.

Peabody's Powder River Coal mines last year shipped a record 96.6 Mt of coal. Peabody now controls 8,890 Mt of total reserves, 2,993 Mt of which is in the PRB.

Last year Arch Coal completed the acquisition of Triton Coal for \$364 million. The company immediately began the integration of the Black Thunder and North

North Rochelle is the newest mine in the PRB, having ramped up to full production over five years ago. As a result, North Rochelle's modern rail loadout facility and other infrastructure, as well as its large equipment fleet, greatly add to the value of the transaction. Following the consummation of the transaction, Arch completed a previously disclosed agreement to sell the smaller of Triton's two mines, Buckskin, to Kiewit Mining.

Peabody reported that 2004 net income rose to \$175.4 million, compared with \$31.3 million in the prior year. "Peabody's excellent fourth quarter results punctuated an outstanding year in which Peabody posted record revenues, EBITDA and earnings," said chairman and chief executive Irl Engelhardt. "The continued improvements in market conditions, newly acquired mines and new sales agreements allow Peabody to target significantly higher results for 2005."

Peabody completed 2004 with an 11% improvement in its safety accident rate, and received the Sentinels of Safety Award from the Department of Labor for the safest US surface coal mine. North Antelope Rochelle operated three million hours without a lost-time accident. Peabody also operated three of the four most productive mines in America. Its Rawhide mine was the nation's most productive, based on industry data for the first nine months of 2004.

Eastern US unit margins improved 26%, reflecting increased volumes and prices that offset costs related to rising metallurgical coal production, increased sales-related taxes, and higher energy and steel costs. Western US unit margins increased 3%, led by the addition of Twentymile mine in Colorado, and higher volumes and pricing in the PRB.

For the year, Peabody sold 197 Mt to US customers and 9 Mt to customers in 14 other countries around the world.

Peabody purchased the remaining 55% interest in the Dodge Hill joint venture. The 1.1 Mt/y mine has synergies

with Peabody reserves in Western Kentucky.

Peabody expects the PRB to remain the largest and fastest-growing region, as a large number of customers plan test burns and increased use for blending to reduce the supply/demand imbalance of Central Appalachian coals. Strong demand is also expected for coals from Colorado, the Midwest and Northern Appalachia.

Peabody is targeting 2005 production of up to 200 Mt, with total sales volume of 218 to 227 Mt.

"Despite continuing rail difficulties, Arch achieved solid results in the fourth quarter," said Mr Leer. Revenues increased 48% to \$553.1 million in the quarter, compared to \$374.9 million during the same period of 2003, due principally to higher prices and the acquisitions of North Rochelle and the remaining interest in Canyon Fuel, the company's Utah subsidiary. Sales volumes increased 37% to 33.6 Mt, compared to 24.5 Mt in 2003. For the full year coals sales jumped from 63 Mt in 2003 to 78.2 Mt.

Production at Black Thunder's, Arch's PRB mine, increased to 23.9 Mt for the quarter. In Central Appalachia, rail difficulties and a section of challenging geology at Mingo Logan contributed to compressed operating margins during the quarter.

Arch plans to develop a new longwall mine on the North Lease reserve at the idle Skyline complex in Utah. Demand for Western bituminous coal has strengthened markedly recently, as Eastern power generators have attempted to secure Utah and Colorado coal as a substitute for supply-constrained high-Btu, low-sulphur Eastern coal. North Lease is one of the best remaining undeveloped reserves in the region. Arch expects to invest approximately \$40 million over the next 18 months to develop the new mine, which will ramp up to its targeted 3 Mt/y as early as the third quarter of 2006 if market conditions warrant. Initial continuous miner production is expected at any time now.

Consol Energy is the largest producer of high-Btu bituminous coal in the US. It has 20 bituminous coal mining complexes in seven states. Revenue was up considerably in 2004, to \$2,776.7 million, resulting in net income of \$198.6 million, compared with a 2003 loss of \$7.8 million. Coal production increased significantly to 61.4 Mt, from 54.8 Mt in 2003.

PRB UNDERGROUND

Bridger Coal's open pit east of Rock Springs, Wyoming, serves the four, 530,000-kW generation units of the Jim Bridger power plant. Consuming some 9 Mt/y, it is one of the largest coal-fired power plants in the West, generating power for customers in six states. The mine – with coal reserves of more than 120 Mt – has served the plant since it opened 30 years last August. Bridger now plans to go underground to exploit deeper coal seams by longwall mining. The additional coal will be needed to fuel the plant for another 10 to 15 years. Since opening, the mine has trucked – and more recently, delivered via conveyor belt – more than 170 Mt of low-sulphur fuel.

The underground resource contains about 100 Mt (mineable) at 75-275 m depth. Development to establish underground entry from a highwall started last May. Continuous miners and Joy shuttle cars are currently developing gateroads. Development of the first panel should be completed in late 2006. The longwall will cut a maximum height of 3.7 m and a minimum of 2.3 m.

Bridger won the lease rights for the Ten Mile Rim coal tract offered at the BLM coal lease sale held January 19. It submitted a bid in the amount of \$0.2163 per recoverable ton of coal. The Ten Mile Rim Tract contains an estimated 32 Mt of recoverable coal and is located adjacent to the Jim Bridger mine.

In Colorado, Peabody is looking at a 50% increase in

output from the Twentymile mine over the next three years. It is also considering reopening the Empire mine near Craig. Twentymile is perennially one of the nation's largest and most productive longwall operations, and last year produced a record 7.8 Mt of coal. Its output could be around 11 Mt by 2008. This will require a new longwall system.

Massey Energy reported a profitable fourth quarter and full year 2004. It reported produced coal revenues of \$360.9 million in the fourth quarter increased 12% over the \$323.1 million recorded in the comparable period in 2003. The company recorded a net profit of \$1.4 million in the fourth quarter of 2004 compared to a net loss of \$16.7 million in 2003. For the full year 2004, produced coal revenues increased by 15% to \$1.46 billion from \$1.26 billion for 2003. Net income in 2004 totalled \$13.9 million, compared to a net loss for 2003 of \$40.2 million.

"Our broad base of high quality Central Appalachian reserves puts us in a particularly advantageous position to respond to the strong market conditions that continue to prevail," said Don Blankenship, Massey chairman and chief executive. "In 2004, we made further investments in the new mines, equipment and skilled workforce necessary to increase capacity and productivity for future years."

The company's sales are fully committed for 2005 and it projects total shipments of 42-43.5 Mt, including some 12.7 Mt of metallurgical coal. The coal price realised is expected to average between \$45.2/t and \$46.3/t.

Mr Blankenship noted: "While no one can accurately predict when the worldwide coal supply/demand imbalance will correct itself, circumstances in markets in which Massey primarily operates – the Eastern US utility and metallurgical markets and the export metallurgical coal market – do appear to have staying power for the foreseeable future."

In Central Appalachia, there has been limited supply response to increased demand. Current estimates from the EIA show that the region only produced 1% more coal in 2004 than in 2003. Mr Blankenship added that previously prevailing low coal prices, increased mining costs, permitting restrictions and other barriers to doing business in Central Appalachia have effectively eliminated excess capacity and dramatically reduced the number of small operators. Small mines in Central Appalachia have fallen from approximately 1,160 in 1989 to less than 370 today.

During 2004, Massey acquired selected assets associated with two Horizon Natural Resources' mines, Starfire and Cannelton, including an estimated 20 Mt of reserves. Cannelton, which has a barge loading facility and is contiguous to Massey's undeveloped Kanawha Energy reserves, was renamed Mammoth Coal Co and began limited operations in December of 2004, earlier than originally planned. The company projects shipping up to 800,000 t from Mammoth in 2005.

During 2004, Massey started four major new surface mines – the Edwight, Glory, Superior and Republic. It also invested significant expansion capital in new equipment to upgrade and add capacity to these and other mines, including the P&H electric shovel at Massey's largest surface mine, Twilight, that is anticipated to increase production by 1.25 Mt.

The company also purchased new trucks, dozers, coal loaders and excavators for other expansion projects. Altogether, these new mines and mine expansions are anticipated to add over 6 Mt of incremental capacity in 2005. This increase, along with improved shipments from some underground mines, should allow Massey to ship 42-43.5 Mt in 2005. However, uncertainty about erratic railroad service continues to cause concern. **CM**