

Dark and Dirty

Time to Dethrone King Coal in Alberta

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When I think of coal, what initially comes to mind is a distant beacon in human history; large-scale coal mining exploded in the eighteenth century and started the industrial revolution. Coal's energy has breathed life into the modern world, first via the steam engine and then through electricity. Unfortunately for our natural ecosystems and atmosphere (not to mention human health in rapidly industrializing countries), coal remains a major global player in electricity generation and steel production.

In Alberta, there are significant deposits of metallurgical (coking) coal along the eastern slopes of the Rocky Mountains, mined for export mainly to Asian countries to produce steel. There are also many sub-bituminous (thermal) coal fields under the plains that are mined and burned for electricity generation. Coal-fired power plants scattered across the central region of the province generate the majority of Alberta's electricity. Benjamin Thibault of the Pembina Institute wrote in June 2012 that just over 70 percent of Alberta's electricity generation came from coal. China, according to the World Coal Association, generated 79 percent of its electricity then from coal.

Given our province's current dependence on coal we shouldn't be surprised to learn that its exploration, mining, and combustion has significant negative impacts on land, air, and water quality. "King Coal" certainly is a dark lord when it comes to these costs. Surface mining destroys. It completely eradicates the existing vegetation, alters soil composition, and displaces fauna



The Grande Cache Coal operation, sprawling over roughly six square kilometres, is just several kilometres away from Caw Ridge and its exceptional mountain goat and caribou habitat

which results in permanently altered and/or scarred landscapes. Large sites cleared for open-pit mines and their associated gigantic infrastructure can change the entire topography of those areas. Burning coal is king again when it comes to being the number one point-source contributor to greenhouse gas emissions. This is true here in Alberta; it's true globally. Aquatic ecosystems pay a price as well. Wetlands are destroyed in site areas, significant amounts of freshwater are used for commercial cooling, and tailings ponds can leach out toxic and other pollutants into watersheds.

A devastating example of tailings pond failure occurred on October 31, 2013 when an on-site containment pond holding a slurry of coal cleaning plant waste from Sherritt International's Obed Moun-

tain Mine was breached. The breach released approximately 670 million litres of waste into tributaries of the Athabasca River – much more than all the residents of the City of Calgary use in a single day. The Obed Mountain Mine, located approximately 30 kilometres northeast of Hinton, was inactive at the time of the spill. The coal slurry began its dirty and dangerous journey in Apetowun Creek, travelled approximately 19 kilometres to meet Plante Creek and then flowed another six kilometres and discharged into the Athabasca River. The plume of wastewater contained mostly coal particles, clay, mud, shale, and suspended solids but this brew also contained toxic pollutants including flocculants, selenium, arsenic, lead, mercury, and polycyclic aromatic hydrocarbons.

This represents one of the largest coal slurry spills in North American history. The cause of the breach is still under investigation and so has not been released to the public. Alberta's Environment and Sustainable Resource Development (ESRD) reassured the public, after initial water samples were taken, that there were no health risks. However 10 communities were warned not to draw water from the Athabasca River and farmers were told not to let livestock drink from the river. Sherritt spokespeople said the materials in the containment pond were inert and not toxic to humans or fish. Yet First Nations, ENGOS, and biologists remain concerned about what the spill's sedimentation and release of toxic heavy metals will mean for native fish populations and other wildlife. The waste water eroded the banks of Apetowun Creek and the surge of the water alone seriously damaged important aquatic habitat. As the plume slowly dissipated along the course of the Athabasca River, muddy sediment loaded with heavy metals coated the riverbed. This could prevent invertebrates from re-colonizing and have detrimental impacts on the early life stages of whitefish and bull trout. Due to the timing of the spill, remediation and assessments were limited by winter conditions and the effects of the spill on aquatic ecosystems may not be evident until spring thaw and will only be fully determined through long term monitoring and mitigation.

An emergency protection order was issued by ESRD 19 days after the spill occurred. The emergency protection order required Sherritt International and Coal Valley Resources to produce plans for remediation, wildlife mitigation, recovering solids, and managing waste and wastewater. Heavily criticized for the delay in delivering the order, the provincial government will hopefully offer more transparency moving forward.

Fraser Thomson and Melissa Gorrie from Ecojustice wrote a letter to the ministers of Health, Energy, and ESRD as well as the CEO of the Alberta Energy Regulator (AER) on behalf of AWA and the Keepers

of the Athabasca. They requested answers to many questions regarding the spill's contents, causation, impacts, and regulatory actions taken by AER. Several weeks later, Ecojustice received the response that investigations and impact assessments were ongoing and the results of water sampling done by both ESRD and Sherritt were publicly available.

Based on ESRD results from water samples taken immediately following the spill, many of the total recoverable metals (including silver, aluminum, lead, and arsenic) were well above the Canadian Drinking Water Guidelines. Benzo(a)pyrene levels, a suspected cancer-causing polycyclic aromatic hydrocarbon (PAH), exceeded Canadian Council of Ministers of the Environment's (CCME's) "Protection of Aquatic Life" guidelines. The amounts of these heavy metals peaked at the mouth of Plante Creek and as the processed water became diluted and suspended sediment settled on the river bottom, the contaminant concentrations in the surface water were reduced. Results for dissolved metals in the surface water showed both arsenic and selenium levels were much higher than normal pre-plume conditions. Selenium is of special concern because the testing results in the days immediately following the spill displayed levels exceeding the "Protection of Aquatic Life" guidelines. Bad news for the fish.

ESRD also stated in their response that AER inspects coal mines once a year but if concerns are identified in the audit, inspections occur more frequently. Since 2011, AER has inspected the Obed mine five times. This suggests the possibility they had concerns about the mine prior to the spill. Ecojustice has not yet received a response to a letter requesting the AER inspection reports done on the Obed coal mine for the last two years.

A spill of this magnitude may not occur frequently but it does call into question other coal mining project applications in Alberta. Coalspur Mines' Vista Coal Project, a proposed project located just east of Hinton, could become one of the largest open-pit coal mines in North America.

Robb Trend Coal Mine Expansion Project is a massive proposed expansion to Coal Valley Resources' existing coal mine area located near the hamlet of Robb, approximately 30 kilometres southeast of Hinton. The proposed mining area is 37km in length and encompasses three rivers – Erith, Pembina and Embarras – that all drain into the Athabasca River. As the project is currently undergoing federal and provincial environmental assessments, both governments should recognize the far-reaching and resonating impacts of coal production on already strained ecosystems.

A renewed interest in coal development within the Crowsnest Pass area is also very concerning. Altitude Resources and Riversdale Resources are two companies currently pursuing coal mining opportunities in that region. Australia's Riversdale Resources purchased the coal leases for the Grassy Mountain Project, north of Blairmore, early in 2013. The company plans to mine metallurgical coal for export to Asian countries. Last summer, Altitude Resources signed an exploration and option agreement with Elan Coal Ltd. The agreement gives Altitude the option to acquire up to 51 percent of Elan's 27 Alberta coal lease applications, 22,951 hectares of which are located in the Crowsnest Pass region, adjacent to the Grassy Mountain project. An initial exploration and drill program is already underway. The extent of progress into coal development by both companies is alarming considering that land use planning is currently going on in this region and has not been finalized yet.

Coal exploration and development is briefly mentioned in the draft South Saskatchewan Regional Plan as an economic opportunity in the mountains, foothills, and plains. The draft land-use plan does not, however, acknowledge the additional conflict open pit coal mines would cause in an area already riddled with competing land-use overlaps. When considering cumulative effects, the regional plan's original intent, it is irresponsible to add huge land disturbances, increased linear footprints, and place at risk important watersheds that



Spills such as the Obed coal slurry spill on October 31, 2013 represent another threat to the Athabasca River and watershed. PHOTO: © J. HILDEBRAND

would be vulnerable to spills or leaks. It would be a huge regression, a gigantic step back, from securing headwaters and recovering species at risk where linear density thresholds have already been surpassed.

Alberta Coal Policy

For the past 38 years, coal mining along the eastern slopes has been regulated by Alberta's coal development policy (*A Coal Development Policy for Alberta*, 1976) which includes land categorization that determines restrictions on coal exploration and extraction. Previous to its establishment, intensive exploration resulted in unprecedented habitat fragmentation and caused a public outcry. As a result, scientists and engineers from within the government institutions were called on to assess Alberta's coal reserves and coal development potential in western Canada. Their goal was to develop a guiding policy that would calm public concerns and allow controlled coal development in choice resource areas, while protecting areas of paramount wildlife habitat and aesthetic values. In recent years, the Coal Association of Canada has been pushing for a policy update, claiming the existing policy is outdated, hampering new projects and creating investment uncertainty. After hearing several rumours through the grapevine, AWA has received confirmation from Alberta Energy that it is in the process of updating and changing the coal policy.

The environmental concerns of Alberta's coal policy must not only be maintained but enhanced in certain environmentally significant areas. These areas include, but are not limited to, the Bow and Oldman watersheds and Caw Ridge near Grande Cache. Any changes to the policy should not further exacerbate land and water disturbances along the eastern slopes. Those lands in Alberta that were assigned the least stringent restrictions coal development, the coal bearing lands that the coal policy refers to as *Category 4*, were carefully chosen for their reserve amounts, mineability, and proximity to existing rail lines. Coal companies in Alberta are now most interested in lands referred to as *Category 2*, lands:

in which limited exploration is desirable and may be permitted under strict control but in which commercial development by surface mining will not normally be considered at the present time. This category contains lands in the Rocky Mountains and Foothills for which the preferred land or resource use remains to be determined, or areas where infrastructure facilities are generally absent or considered inadequate to support major mining operations. In addition this category contains local areas of high environmental sensitivity in which neither exploration nor development activities will be permitted. Underground mining or in-situ operations may be permitted in areas within this category where the surface effects of

the operations are deemed to be environmentally acceptable. (my emphasis)

Allowing a new wave of coal exploration in *Category 2* lands with new roads, drilling sites, and land disturbance should lead to the same conclusion as was reached in the 1970s – very few mines are viable.

Alberta must also consider its place as a world coal supplier. There may be a short-term increase in demand from primary Asian markets for thermal and coking coal, but there are many other sources closer and cheaper (such as Australia) that Alberta would be competing against. Even within western Canada, the British Columbia coalfields offer better and more numerous coal mine development opportunities than coal deposits along Alberta's eastern slopes. In addition, increased awareness and acceptance of climate change combined with harsh criticism for excessive pollution is encouraging countries to enforce strict regulations on coal-fired power plants and to move to natural gas generated electricity.

With an already strained and scarred landscape in one hand and uncertain global demand for coal in the other, Alberta should give pride of place to the harmful impacts of coal mining. Maintaining healthy watersheds, intact wildlife habitat, biodiversity, and places of stunning, natural beauty for tourism and recreation are undoubtedly of greater value to society than more coal production. 🌱