

## Executive Summary

Benga Mining Limited (Benga) submitted an environmental impact assessment (EIA) for the Grassy Mountain Coal Project to the Alberta Energy Regulator (AER) and the Canadian Environmental Assessment Agency (the Agency) on November 10, 2015, and submitted an updated EIA on August 15, 2016. Benga submitted an integrated application to the AER on October 25, 2017.

The applications are for approval to construct, operate, and reclaim a new open-pit metallurgical coal mine in the Crowsnest Pass area, approximately seven kilometres north of the community of Blairmore in southwest Alberta. The project footprint covers 1521 hectares.

The production capacity of the Grassy Mountain Coal Project (the project) would be a maximum of 4.5 million tonnes of metallurgical coal per year over a mine life of approximately 23 years. The project's mining activities would be completed by blasting and truck-and-shovel mining. The project would include surface mine pits and waste rock disposal areas, a coal-handling and processing plant with associated infrastructure, water management structures, an overland conveyor system, a rail loadout facility, and other facilities.

The project required multiple regulatory filings:

- An environmental assessment under Alberta's *Environmental Protection and Enhancement Act (EPEA)*
- An environmental assessment under the *Canadian Environmental Assessment Act, 2012 (CEAA 2012)*
- Applications to the AER under the *Coal Conservation Act*, the *EPEA*, the *Water Act*, and the *Public Lands Act (PLA)* for provincial approvals

On August 16, 2018, the Minister of Environment and Climate Change and the Chief Executive Officer of the AER announced the *Agreement to Establish a Joint Review Panel for the Grassy Mountain Coal Project*. Pursuant to the agreement, the joint review panel was established, appointing Mr. A. Bolton as the panel chair, and Mr. D. O'Gorman and Mr. H. Matthews as panel members. Under the agreement, the panel was tasked with conducting its review in a manner that discharges the responsibilities of the AER under the *Responsible Energy Development Act (REDA)*, the *Coal Conservation Act*, the *EPEA*, the *Water Act*, and the *PLA*, and discharges the requirements of *CEAA 2012*, as well as the panel's terms of reference.

The final 15 months of this review were conducted during an unprecedented global pandemic brought on by COVID-19. We appreciate that Benga and hearing participants adjusted to the challenges to help us complete our assessment.

A public hearing began on October 27, 2020, using electronic means (Zoom videoconferencing and streamed through YouTube). The oral portion of the hearing continued for 29 sitting days and concluded on December 2, 2020. Alberta's Aboriginal Consultation Office (ACO) provided its hearing reports on December 3, 2020, and final arguments were provided in writing thereafter. We closed the hearing record on January 15, 2021.

In the EIA, Benga concluded that the project was not likely to result in any significant adverse effects following implementation of mitigation measures. Benga's conclusions were premised on the assumed

effectiveness of these measures. However, we find that in some cases the claimed effectiveness of the proposed measures was overly optimistic and not supported by the evidence provided. As a result, we are not confident about the technical and economic feasibility of some proposed mitigation measures. We find that this was particularly true for effects on surface water quality, westslope cutthroat trout (and fish and fish habitat more generally), and vegetation.

While Benga acknowledged the importance of taking a conservative approach to the identification and assessment of project effects, we find that in practice it did not always do so. Overly optimistic assumptions resulted in a likely underestimate of predicted project effects in some areas, such as for surface water quality and human health, and this reduces our confidence in Benga's assessment.

Several participants expressed concern about the conceptual nature of some of Benga's proposed project plans and mitigation measures. They also had concerns about Benga's reliance on the use of adaptive management to address uncertainty. We accept that not all relevant information may be available at this stage of the regulatory review process and that the environmental assessment process is not intended to eliminate all uncertainty. We also recognize that follow-up monitoring and adaptive management programs are common and accepted means of dealing with uncertainty. However, a commitment to adaptive management does not eliminate the need to provide sufficient information on the environmental effects of a project. Nor does it eliminate the need to describe the appropriate mitigation measures required to eliminate, reduce, or control those effects, or to describe the extent of the significance of those effects.

We cannot defer important matters or decisions to a later stage of the regulatory process. Our terms of reference require us to assess the environmental effects of the project, including the significance of effects, and, in our capacity as the AER, determine whether the project is in the public interest. We find that Benga's reliance on future adaptive management meant that in some cases it did not provide important details regarding proposed mitigation measures. We also find that Benga's proposed adaptive management approach and plans were not sufficiently developed or detailed to make us confident that anticipated or unanticipated project effects would be effectively mitigated through adaptive management.

Several participants attributed the prolonged length of the regulatory process to the lack of detail and clarity in Benga's application and EIA materials, which necessitated many rounds of information requests. A number of factors affected the timeline for our review. But we agree that the conceptual nature of some of the information initially provided and the need for multiple information requests on the same topic due to incomplete or less than comprehensive responses prolonged the regulatory process.

Based on our assessment, we conclude that the project is likely to result in significant adverse environmental effects on surface water quality, westslope cutthroat trout and their habitat, whitebark pine, rough fescue grasslands, and vegetation species and community biodiversity. Although we identify other adverse residual effects, we determined that they were not likely to be significant. We also find that the project is likely to contribute to existing significant adverse cumulative environmental effects on westslope cutthroat trout, little brown bats, grizzly bears, and whitebark pine. Due to the limitations of Benga's approach to assessing cumulative effects, we are unable to assess the magnitude of some cumulative effects.

We find that the project would result in low to moderate positive economic impacts on the regional economy, but that Benga did not consider some risks that could reduce the magnitude of these positive impacts.

We find that the project would result in the loss of lands used for traditional activities, and this would affect Indigenous groups and their members who use the project area. We also find that the project is likely to result in significant adverse effects to physical and cultural heritage for three Treaty 7 First Nations. The mitigation measures proposed are not sufficient to fully mitigate these effects. However, all of the Treaty 7 First Nations and the Métis Region 3 signed agreements with Benga and provided letters stating they had no objection to the project.

A summary of our key findings follows.

## Environmental effects

### Surface water quality

The project is likely to cause significant adverse effects on surface water quality.

The project is located in a sensitive mountain environment and has the potential to adversely affect the water quality of Gold Creek and Blairmore Creek, which are within the headwaters of the Crowsnest River, Oldman River, and South Saskatchewan River. These creeks contain populations of threatened westslope cutthroat trout. The Oldman watershed contributes to the water supply for residential, tourism, and business users, including agricultural and livestock operations. The project is in an area governed by the *South Saskatchewan Regional Plan (SSRP)* under Alberta's *Land-Use Framework*, which includes a focus on protection of water quality. These waters have a connection to Indigenous people and their traditional territory. Experience in the nearby Elk Valley in British Columbia illustrates the challenges and potential costs of dealing with the water quality issues that this project may face.

The project will release a number of contaminants, particularly selenium, into receiving surface waters. Benga made several optimistic and non-conservative assumptions in assessing project effects on surface water quality, and these assumptions undermined our confidence in the results Benga presented. Benga assumed that it could capture 95 or 98 per cent of the selenium-rich contact water coming from the waste rock dumps, which modelling showed was necessary to achieve target selenium concentrations in the effluent and receiving streams. The project as proposed is unlikely to achieve this capture efficiency. Applying a lower capture efficiency to Benga's assessment, as part of a conservative approach, would result in significantly higher concentrations of selenium in the effluent and in both Blairmore and Gold Creeks, in the absence of further mitigation.

Benga proposed to use saturated backfill zones as its primary approach to managing selenium, and estimated that these measures would remove 99 per cent of influent selenium from contact water, or produce effluent with selenium concentrations below 15 micrograms per litre. Benga did not provide sufficient evidence to demonstrate that the saturated backfill zones can achieve the high degree of effectiveness necessary at the scale of this project. Even a modest reduction in effectiveness from Benga's goals would result in a relatively large increase in selenium in saturated backfill zone effluent. Benga did not demonstrate or satisfy us that it can design and operate the saturated backfill zones in a manner that

achieves its targeted outcomes, or that its proposed pilot study would resolve the operational challenges with these measures.

Benga did not adequately describe or assess the alternative, additional selenium-mitigation measures it would pursue if the saturated backfill zones were not as effective as needed. Benga provided limited information on alternative treatment measures, and stated that it only intends to implement them “if needed” based on monitoring results. This introduces the possibility of an unacceptable time lag between discovery of a contamination problem and construction of an alternative treatment approach.

In addition to the contact water from waste rock piles, other sources of selenium could affect the surrounding environment. This could include pit-wall runoff captured in sedimentation ponds, unassessed sources such as rock from the Fernie Formation, or contaminated groundwater plumes. We are not confident that Benga had adequately considered, or had plans to manage, this additional selenium.

Benga predicted slight but chronic exceedances for a number of non-selenium contaminants, despite not taking a conservative approach to modelling water quality or capturing all potential sources of metal leaching in its model. In particular, Benga’s water quality modelling predictions assumed a metals treatment plant would be built, but Benga did not commit to building such a plant and instead planned to monitor and manage this issue through adaptive management.

Benga proposed a sulphate-adjusted, site-specific water quality objective for selenium in receiving waters downstream of the project. We are not persuaded that this objective would protect surface water quality. Benga did not adequately consider the potential for non-selenate forms of selenium to be present in water released to Blairmore Creek. Benga proposed to implement an advanced oxidation process, if necessary, to convert selenium in waters exiting the saturated backfill zone to selenate. But it provided no details to evaluate whether this process would be effective. No evidence was presented to demonstrate that any jurisdiction in the world has approved a sulphate-adjusted guideline for selenium.

Benga was not able to determine the length of time that active management of water quality at the site would be required. But the evidence suggests that selenium and sulphate could be released from the site for decades following mine closure. Monitoring and treatment would therefore likely be necessary for decades following mine closure. It is likely that Benga underestimated the costs of the long-term monitoring and treatment necessary to protect future water quality at and downstream of the site. Benga appeared to rely heavily on its participation in the province’s Mine Financial Security Program to respond to concerns about long-term treatment. We are concerned that liability for long-term water quality management could be assumed by the taxpayers of Alberta.

#### Fish and aquatic habitat

The project is likely to cause significant adverse environmental effects on westslope cutthroat trout and their aquatic habitat. Westslope cutthroat trout are listed as threatened under both the provincial *Wildlife Act* and the federal *Species at Risk Act (SARA)*. The project poses a risk to one of Alberta’s few remaining populations of this fish with a reasonable chance of long-term survival. The project would affect federally protected critical habitat in Gold Creek, as well as habitat in Blairmore Creek, which the federal 2019 Recovery Strategy-Action Plan for this species identifies as important. Recent population estimates for this species in these streams are cause for concern, and highlighted the need to employ a high degree of

precaution and the need for confidence in Benga's analysis and proposed measures to avoid negative impacts on these fish and their habitat.

Despite provisions described in the 2019 Recovery Strategy-Action Plan, Benga did not adequately assess the amount of critical habitat that the project would affect, which was important to fully assess the potential impacts of the project. In addition, Benga's hydrology model did not provide sufficiently detailed estimates of impacts of the project on flows in Blairmore and Gold Creeks, particularly during periods of low flow, and did not predict estimated changes to instantaneous flows. These limitations increased the level of uncertainty in the project's estimated impacts on the habitat of westslope cutthroat trout in these streams.

The release of selenium into neighbouring streams would affect westslope cutthroat trout. Although Benga made a number of optimistic assumptions about its ability to manage selenium, we find that its assessment of the effects of selenium on westslope cutthroat trout was inadequate and its proposed site-specific water quality objective for selenium was not protective.

Calcite is likely to form and cause damage to westslope cutthroat trout habitat in Blairmore Creek. The concretion of substrates is likely to cause a reduction in benthic invertebrate productivity and reduce habitat suitability and availability for spawning. Once calcite precipitates onto substrates in a creek, it would remain in place, as there are no proven treatments to remove instream calcite.

Benga's limited assessment of changes in stream temperatures, food supply, and sediment transport increased uncertainty about project impacts on habitat suitability in Gold and Blairmore Creeks. Benga's draft habitat offsetting plan was its main mitigation measure to address residual effects on westslope cutthroat trout habitat. Benga did not adequately demonstrate that the proposed habitat offsets would mitigate project impacts. We are not convinced that the offsetting plan is technically feasible or likely to be effective.

Benga's assessment on westslope cutthroat trout, including changes in water quality and loss of habitat, has implications for other fish species and aquatic organisms present in the streams and rivers downstream of the project, including bull trout, which are listed as threatened under *SARA*. However, Benga and other participants provided little information on these matters.

#### Surface water quantity and flow

The effects of the project on surface water quantity and flows will be adverse, but not significant.

The lack of hydraulic connection between the original licensed points of diversion and the proposed mine site, coupled with the historically low or non-use of the water licences, means that these licence transfers would result in new and adverse impacts on Blairmore and Gold Creeks, and on the aquatic environment and adjacent landowners along Gold Creek. These impacts warrant a strong and reliable flow-augmentation plan based at least on meeting the instream flow needs of Blairmore and Gold Creeks.

When considering the simplifying assumptions in the groundwater model, together with a simplistic hydrological model that uses average annual precipitation as the only changing parameter, the model's ability to assess the impact of the project on baseflow, fish, and fish habitat is uncertain. Due to

uncertainty about the effectiveness of the saturated backfill zones, there is also a high level of uncertainty about Benga's analysis of predicted surface flows in Blairmore Creek.

The project is likely to have an adverse impact on the quantity of surface water flows in Gold and Blairmore Creeks. These impacts will likely be low to moderate in magnitude and limited to these creeks. We are unable to confidently conclude that the project will have an acceptable effect on the aquatic environment of Gold and Blairmore Creeks, given the uncertainties with water quality management, the presence of a threatened aquatic species, and the lack of a comprehensive flow augmentation plan.

#### Groundwater quantity, flow, and quality

The effects of the project on groundwater quantity, flow, and quality will be adverse, but are not likely to be significant.

The project will change groundwater levels and flow, which will likely affect base flow to Blairmore and Gold Creeks. The project will also change groundwater quality, with implications for water quality in these creeks. The effects on groundwater quality of most concern are the potential for seepage from the external waste rock disposal areas, saturated backfill zones, and the end-pit lake. We find it unlikely that project impacts on groundwater quality would adversely affect domestic or municipal groundwater wells due to their distance from the project and current understanding of groundwater flow directions. However, some potential remains for the project to adversely affect the flow or quality of springs used by landowners within or adjacent to the proposed mine permit boundary and west of Gold Creek.

Due to limited site-specific hydrogeological information, the use of simplifying assumptions in the groundwater model, and the complexity of site geology, large uncertainties remain about the magnitude, lateral extent, and duration of predicted project effects.

#### Air quality

Overall, the project is not likely to result in significant adverse effects on air quality. The project will adversely affect ambient air quality in the area immediately surrounding the mine permit boundary, but the effects will be largely localized to the mine permit boundary and the rail loadout facility.

Uncertainties remain regarding the potential effects of dust. Dust emissions from wheel entrainment would be a major source of particulate matter emissions from the project. We find that Benga did not adequately demonstrate the efficiency of its proposed road dust mitigation measures. We also find that Benga likely underestimated the potential for, and effects of, worst-case wind-driven dust emissions.

#### Greenhouse gas emissions

The project's greenhouse gas emissions would have an adverse, but not significant, effect by contributing to global greenhouse gas emissions and increasing concentrations of greenhouse gases in the atmosphere.

Total greenhouse gas emissions from the project would be approximately 10 million tonnes over the life of the project. We find that, overall, the project will not be a major contributor to greenhouse gases, as it will produce approximately 0.14 per cent of Alberta's and 0.05 per cent of Canada's greenhouse gas emissions, based on 2013 emissions data and the project's predicted maximum annual (year 19) emissions. Benga did not provide evidence to support its assertion that the project would be among the best greenhouse gas performers for metallurgical coal mines. Environment and Climate Change Canada

noted that the project's emissions intensity would be in the middle range of currently operating metallurgical coal mines.

Benga committed to complying with Alberta's new *Technology Innovation and Emissions Reduction Regulations* but did not provide a plan on how it would do so. The project would pose a challenge to the Government of Canada's objective to achieve net-zero emissions by the year 2050. However, at this point in time, the federal government does not have a detailed management or regulatory system in place to achieve this objective.

#### Noise, light, and visual aesthetics

The project will result in increased noise levels from mine operations, but they are predicted to be within permissible sound levels. The rail loadout facility will result in a slight increase in overall noise at adjacent receptors. Benga's noise mitigation measures are reasonable and consistent with industry-accepted best practices. The project will result in an increase in nighttime light levels, but the mitigation measures proposed by Benga are appropriate and expected to minimize unnecessary lighting and associated effects. The project will result in visual impacts during mining operations that will persist into the post-closure period.

#### Human health

We find that Benga's assessment of the potential risk of adverse health effects from exposure to nitrogen dioxide and fine particulate matter is conservative, indicates only marginal exceedances, and is driven by baseline concentrations. However, Benga's assessment of risk from exposure to dust in general and coal dust in particular is not conservative, relies on limited baseline data, does not consider the effects of coal dust as a complex mixture, and does not consider the combined risk of coal dust and dust from other sources. The potential for increased health risks associated with dust and coal dust is therefore subject to some uncertainty.

The project is predicted to result in increased hazard quotients for selenium in Blairmore Creek, Gold Creek, the end-pit lake, and the Oldman Reservoir. Predicted hazard quotients are greater than 0.2 but less than 1.0, but we find the assumptions for the capture and treatment of selenium used in the assessment were not conservative. Therefore, concentrations of selenium reaching water bodies and hazard quotients could be higher than predicted. The fish consumption pathway dominates the risk to human health for selenium exposure. We recognize that the anticipated hazards do not necessarily imply a health risk. We find that the potential for an adverse health effect is low, based on the conservative exposure assumptions used in the human health risk assessment (lifetime exposure). However, the potential for increased risk to human health cannot be eliminated.

The end-pit lake is predicted to contain water with elevated concentrations of a number of contaminants of potential concern, including arsenic, aluminum, cadmium, cobalt, lead, and thallium, and there is a higher potential for adverse health effects from long-term exposure to end-pit lake water. While it is unlikely that humans would be exposed to end-pit lake water on a continuous and long-term basis, arsenic is a concern as it is a non-threshold contaminant with no known safe level of exposure.

Our confidence in the results of the human health risk assessment for the project is low due to the lack of conservatism in the water quality modelling, changing risk estimates during the review process, and other limitations of the health risk assessment. But even with all of the uncertainties in the assessment, adverse project-related effects on human health due are unlikely due to the conservative exposure assumptions used in the assessment.

### Conservation, reclamation, and closure

Reclamation is the primary mitigation measure for many project effects. The project is located in steep terrain within the highly diverse and specialized landscape of the Montane and Subalpine Natural Subregions of the Rocky Mountain Natural Region of Alberta. Careful analysis and planning are therefore required to achieve reclamation and closure objectives. Benga's proposed conservation and reclamation plan did not provide enough detail to give us confidence that reclamation will effectively mitigate all project effects on terrestrial resources, or that proposed reclamation outcomes can be achieved.

While Benga's conservation and reclamation plan would at some point likely achieve equivalent land capability from a land use perspective, it is uncertain whether such a state can be achieved in a timely manner. There is considerable uncertainty about how long it may take for the project site to reach a stable and self-sustaining state that satisfies the requirements for reclamation certification. Considering the need for ongoing use of some project features, such as the surge ponds and saturated backfill zones, during the closure period for selenium management, the uncertainty is problematic. These areas may not be available for reclamation until 25 years or more after mining operations cease.

We are not confident that all of Benga's proposed reclamation measures are technically feasible and would result in the restoration of important vegetation species and communities removed during development of the project. The conservation and reclamation plan does not mitigate the loss of rare plants and rare plant communities because there are no viable mitigation measures that can counter the loss of rare plants. Nor are we confident that Benga's plans to restore whitebark pine, limber pine, and rough fescue grasslands would be successful, as restoration of these species can be challenging and has not been demonstrated successfully at similar sites. There is also significant uncertainty about whether treed wetlands would be successfully established in the closure landscape due to the proposed timing of restoration, after water management ponds are no longer required for selenium management. These uncertainties are compounded by the potential effects of climate change on long-term reclamation success, specifically changes in annual temperature, precipitation, and evapotranspiration.

### Vegetation and wetlands

The project-related effects on vegetation will be adverse and significant for whitebark pine and rough fescue grasslands, as well as for vegetation species and community biodiversity. The project would also have other adverse effects on vegetation that we find will not be significant.

The project area includes undisturbed lands as well as some previously disturbed and unreclaimed areas. Benga proposed to mitigate the effects on vegetation and wetlands primarily through progressive reclamation of the project footprint during the operational phase of the project. Benga proposed to re-establish the variety of species and plant communities found in the pre-disturbance landscape and attain equivalent land capability. We find that Benga's plan to reclaim the project to four broad vegetation classes is insufficient to mitigate the loss of 27 forested ecosite phases. Moreover, it is unclear when



existing ecosite phases will develop on the reclaimed landscape. Benga's proposed reclamation would initiate a vegetation community in the project footprint. But, given the harsh climates of the Rocky Mountains, where plant development is slow, we are not confident the closure landscape would return to equivalent diversity of species and communities found at baseline, within the next 100 years, and possibly much longer.

The project would result in the removal of productive forests, old-growth forests, vegetation species identified as important to Indigenous peoples, and most of the organic wetlands in the local study area. We find, however, that these effects would not be significant due to the localized nature of project effects and because equivalent vegetation communities will continue to exist in the project area.

The project would also result in the removal of rare plants and rare plant communities, including approximately 21 000 whitebark pine and 1000 limber pine trees. The whitebark pine is listed as endangered under *SARA* and Alberta's *Wildlife Act*, while the limber pine is designated as endangered under Alberta's *Wildlife Act* and currently under consideration for listing under *SARA*. The project would also result in the permanent removal of rough fescue-dominated grasslands, including areas subject to a protective notation under the *PLA*.

We find that the overall effects on rare plants and rare plant communities would not be significant due to the localized nature of project effects and because most rare plant species and communities would remain in the local study area. However, we find that the project would likely result in significant adverse effects on whitebark pine and rough fescue grasslands, given their status as at risk or protected, their limited distribution, and the likelihood that restoration in the closure landscape will not be possible.

The collective loss of species and plant communities (ecosite types), rare plants, old-growth forest, rough fescue grasslands, whitebark pine, and organic wetlands in the reclaimed landscape would result in the loss of vegetation species and community biodiversity in the local study area for 100 years or longer. We consider this effect to be significant and likely.

#### Wildlife and wildlife health

The project would adversely affect a number of wildlife species, including some listed under *SARA* and identified as sensitive under the *General Status of Alberta Wild Species*. The project would cause changes in wildlife habitat availability, habitat connectivity, movement, mortality risk, and abundance. Although individuals would be affected by the project, we find that overall the project would not likely affect the sustainability of the populations of listed species in the regional study area. We find that the project would not likely result in significant adverse effects on wildlife, including species at risk and migratory birds.

For little brown bats, in the event that the destruction of previously unidentified hibernacula occurred, a significant adverse residual effect from the project would be expected. However, as no hibernation sites have been identified within the project footprint to date and with the mitigation measures proposed, we find that this is unlikely.

Benga's baseline surveys may have underestimated project effects on amphibians and little brown bats, causing uncertainty over the magnitude of these effects. There is also uncertainty associated with the technical feasibility of some of the measures proposed by Benga to mitigate effects on wildlife, including

progressive reclamation, wildlife deterrents, amphibian pitfall traps, wildlife crossings, and bat boxes. We find that uncertainty associated with the effectiveness of Benga's proposed mitigation measures, particularly progressive reclamation, means that certain wildlife species—such as those dependent on old-growth forests—may not return to the project area for decades after project operations end, if they come back at all.

We find that selenium was the only contaminant of concern that would pose potential risks of adverse effects on wildlife health. We find that the surge ponds, raw water pond, and end-pit lake would contain elevated levels of selenium for an extended period and may pose a risk to wildlife. This risk is also concerning for migratory birds that may frequent or interact with contaminated pond waters and may be attracted to suitable habitat in and around ponds. We are not confident that the limited mitigation measures proposed by Benga, in both the short and long term, would discourage birds from landing on the surge ponds or raw water pond.

We find that Benga did not demonstrate that the constructed wetlands would be a safe and suitable habitat for amphibians. We are concerned that the loss of effective amphibian habitat may not be mitigated through the constructed wetlands, as Benga was unable to confirm when the wetlands will no longer contain contaminants of potential concern at levels that pose a risk to individual amphibians.

We find that the residual effects of the project, in combination with other projects and activities that have been and will be carried out, are likely to contribute to existing significant adverse cumulative effects on little brown bats and grizzly bears.

### **Social and economic effects**

The project will have a moderate positive economic impact on the Crowsnest Pass area, and a low economic impact on the rest of Alberta and Canada. Benga's socioeconomic impact assessment presented three benchmark coal prices (in real, 2019 dollars) for calculating royalties: US\$100, US\$140, and US\$200 per tonne. It used the US\$140/tonne long-term average price to estimate royalty revenues.

Benga submitted that, during the operations phase, it would employ approximately 400 workers directly, and pay about \$77 million annually in royalties and income taxes to the provincial and federal governments over the 23-year life of the project. Benga estimated it would pay approximately \$990 000 and \$490 000 annually in municipal taxes to the Municipal District of Ranchland No. 66 and the Municipality of Crowsnest Pass, respectively, over the life of the project.

The project would provide well-paying jobs and have a positive effect on the regional economy through employment, spending, and revenue to municipal governments. However, as Benga did not submit key methodological details and models to support its estimates, we are not able to verify the magnitude of the estimated benefits. Additionally, we are not confident that Benga's estimate of future royalty payments of \$30 million per year is accurate. Benga did not submit a detailed financial feasibility model or provide a clear explanation to support its estimates. Nor did it provide an adequate explanation of why its royalty payments would be significantly higher than those of other bituminous coal mines in the province. We find that Benga's estimated royalty payments are likely overstated. By extension, we do not have confidence in the tax estimates that Benga produced, as they came from the same model.

Benga argued that demand for steel will remain high, but it did not address the issue of what technologies will be used to make steel over the lifetime of the mine. It also did not discuss whether steel-making technologies might evolve to become less dependent on metallurgical coal as part of efforts to reduce greenhouse gas emissions responsible for climate change.

The project has the potential to impose negative impacts on other economic sectors, while other risks in Benga's estimates that were not assessed could reduce the positive economic impacts of the project, including

- the likelihood that Benga overestimated the royalties that the project would generate;
- the potential for negative impacts on the tourism and recreation sectors;
- the potential for the quality of coal from the project to decline in later years of mine life, reducing the prices received and resulting in lower government revenues; and
- the potential for negative impacts on the demand for or price of metallurgical coal later in the life of the project due to global measures to reduce greenhouse gas emissions, general economic conditions in the metallurgical coal and steel markets, and competition from new technologies for steel-making.

If these risks materialize and the benchmark price of metallurgical coal in the future is closer to Benga's low-price scenario of US\$100/tonne, then government revenues from the project would be very low. We find that Benga presented an overly optimistic economic analysis that did not adequately consider these economic risks, which could undermine project economic viability, employment, and payments to governments later in the mine life.

#### Effects on Indigenous traditional use of lands and resources, culture, and rights

The project lies within Treaty 7 territory, in the headwaters of the Oldman watershed. The Crowsnest Pass is an important harvesting area and cultural landscape, and a traditional travel route for many Indigenous groups. Indigenous groups emphasized the importance of the Oldman watershed as a cultural landscape and source of traditional resources, and the need to protect it.

In our review, we evaluated two distinct but interrelated issues with respect to the effects of the project on Indigenous peoples. Under *CEAA 2012*, we assessed whether the project would cause changes to the environment that would affect: current use of lands and resources for traditional purposes; physical and cultural heritage; any structure, site or thing that is of historical, archaeological, paleontological, or architectural significance; or health and socioeconomic conditions. As part of our terms of reference, we also considered the adverse impacts of the project on asserted or established Aboriginal and treaty rights of 14 Indigenous groups:

- Káínai First Nation (Treaty 7)
- Piikani Nation (Treaty 7)
- Siksika Nation (Treaty 7)
- Stoney Nakoda Nations (Treaty 7)
- Tsuut'ina Nation (Treaty 7)

- Métis Nation of Alberta – Region 3
- Ktunaxa Nation
- Shuswap Indian Band
- Samson Cree Nation (Treaty 6)
- Louis Bull Tribe (Treaty 6)
- Ermineskin Cree Nation (Treaty 6)
- Montana First Nation (Treaty 6)
- Métis Nation British Columbia
- Foothills Ojibway First Nation

All of the Treaty 7 First Nations and the Métis Region 3 signed agreements with Benga and provided letters stating they had no objection to the project. They all indicated that they came to agreement on the basis that Benga had addressed their concerns. The Ktunaxa stated at the hearing that they were in discussions with Benga with the aim of negotiating an agreement as well.

Although details of the private agreements are not available, Benga provided information on “basic Indigenous commitments” it said were central to the agreements. Benga committed to consulting with Indigenous communities on the development of final monitoring and mitigation plans, reclamation plans that reflect traditional knowledge, a community-based monitoring program, communications protocols, and an access management plan. Benga stated that these commitments would apply to the Ktunaxa Nation and Shuswap Indian Band until such time that an agreement is made that supersedes the commitments.

Regardless of whether an Indigenous community signed an agreement or stated its support for the project, the potential adverse effects the project may have on Indigenous peoples are included in our assessment. We also consider the project’s effects on asserted or established Aboriginal or treaty rights and information regarding any measures proposed to avoid or mitigate the potential adverse effects of the project on asserted or established Aboriginal or treaty rights.

Overall, we find the project will result in the loss of lands used for traditional activities, and this would affect Indigenous groups and their members who use the project area. The mitigation measures proposed are not sufficient to fully mitigate these effects. We find that the project would have an adverse, but not significant, effect on the current use of lands and resources for traditional purposes for the Indigenous groups who demonstrated use of the project area: the Káínai, Piikani, Siksika, and Métis Region 3.

We also find that as a result of sensory disturbances from mining and blasting, the project would have an adverse but not significant effect on the current use of lands and resources for Indigenous groups harvesting occasionally in the project area, as well as those harvesting in the regional study area, including the Stoney Nakoda Nations, Tsuut’ina Nation, Ktunaxa Nation, and the Shuswap Indian Band.

We also find that the project would have a significant adverse effect on physical and cultural heritage for the Káínai, Piikani, and Siksika. These project effects, in combination with other projects and activities that have been or would be carried out, are likely to contribute to existing significant adverse cumulative

effects on the current use of lands and resources by the Káíñai, Piikani, and Siksika for traditional purposes and physical and cultural heritage.

We find the project is not expected to have an effect on Indigenous health conditions.

We agree with Benga's characterization that the economic opportunities resulting from the project are likely to have both positive and negative social and cultural implications. We also agree that the socioeconomic effects of the project would be experienced differently by each Indigenous group, and by individuals within each group. Neither Benga nor individual Indigenous groups provided information about the potential socioeconomic effects of the project on specific communities. As such, we were unable to complete an assessment of the effects of the project on the socioeconomic conditions of individual Indigenous groups.

The project is likely to have an impact on the Aboriginal and/or treaty rights of the Treaty 7 groups, the Ktunaxa Nation, and the Métis Region 3. The potential severity of impacts on rights is low to moderate for these groups. For all other groups, we summarize the information we received, but did not have sufficient information to make any determination of impact on rights.

#### Decision of the AER

To make decisions on the provincial applications as a panel of AER hearing commissioners, we must consider certain factors described in the AER's governing legislation. The mandate of the AER is set out in section 2 of *REDA*. In considering the applications, we are also aware of our responsibilities under section 15 of *REDA* and section 3 of the *REDA General Regulation*. The *Coal Conservation Act* requires us to consider whether the proposed project is in the public interest. We must also have regard for the purpose and requirements of the energy and specified enactments under which the applications are made, including the purposes of the *EPEA* and the *Water Act*. We are satisfied that, throughout this proceeding and in this decision report, we have considered the identified factors.

As part of our consideration of the public interest, we evaluated the potential impacts of the project on the rights and interests of Indigenous peoples. We also took into account the requirements of the *SSRP*. Furthermore, we considered the views expressed by different participants, and the economic, environmental, and social impacts that we expect the project to cause.

In our capacity as a panel of AER hearing commissioners, we find that the project's significant adverse environmental effects on surface water quality and westslope cutthroat trout and habitat outweigh the low to moderate positive economic impacts of the project. Therefore, we find that the project is not in the public interest. In making this determination, we understand that this means that the expected employment, related spending and economic benefits for the region will not be realized. However, even if the positive economic impacts are as great as predicted by Benga, the character and severity of the environmental effects are such that we must reach the conclusion that approval of the *Coal Conservation Act* applications is not in the public interest.

The project is likely to result in additional significant adverse effects beyond effects on surface water quality and westslope cutthroat trout and their habitat. We find that these effects, in and of themselves, would not have been sufficient to determine that the project is not in the public interest. It is the effects on surface water quality and westslope cutthroat trout and habitat that drive our public interest determination.

Exercising our authority as the AER, we deny Benga's applications 1844520 and 1902073 under the *Coal Conservation Act*. Correspondingly, there is no need for the approvals sought by Benga under the *EPEA*, the *Water Act* and the *PLA* and we deny these applications as well.

In May 2020, prior to the hearing, Alberta rescinded the 1976 *Coal Development Policy for Alberta (Coal Policy)*. Several participants at the hearing expressed concern about rescission of the policy and its implications for coal development in the region. In February 2021, subsequent to the close of the record for the hearing, Alberta reinstated the *Coal Policy*. The reinstatement of the *Coal Policy* did not persuade our decision because of our conclusion that the project was not in the public interest as a result of its environmental effects.

### Federal responsibilities

In our capacity as a review panel under *CEAA 2012*, we are submitting this report to the Minister of Environment and Climate Change. Within this report, we provide our rationale, conclusions, and recommendations related to the environmental effects of the project.

We considered all records relating to the review, including submissions, correspondence, hearing transcripts, exhibits, and other information received and posted to the public registry.

In accordance with *CEAA 2012*, we take into account potential environmental effects on the components of the environment that are within the legislative authority of Parliament: fish and fish habitat as defined in the *Fisheries Act*, aquatic species as defined in *SARA*, and migratory birds as defined in the *Migratory Birds Convention Act*.

Our assessment includes whether any resulting changes to the environment would occur on federal lands, in a province other than Alberta, or outside Canada. We find that there are no such effects. However, the project's greenhouse gas emissions would contribute to global greenhouse gas emissions and increase atmospheric concentrations of greenhouse gases.

With respect to Indigenous peoples, our assessment considers the effects on the environment in Canada; health and socioeconomic conditions; physical and cultural heritage; the current use of lands and resources for traditional purposes; and any structure, site, or thing of historical, archaeological, paleontological, or architectural significance.

The project is subject to permitting and authorization by Fisheries and Oceans Canada under the *Fisheries Act* and *SARA*, and by Natural Resources Canada under the *Explosives Act*. In accordance with *CEAA 2012*, we take into account additional environmental effects in the context of the federal authorizations required for the project.

As required by our terms of reference, we provide an assessment of all incremental air pollutants and greenhouse gas emissions directly attributable to the project, including those associated with rail transport to the west coast of British Columbia and marine emissions within Canadian territorial waters.

We also provide our rationale, conclusions, and recommendations that relate to the manner in which the project may adversely affect asserted or established Aboriginal or treaty rights, as well as measures that may reduce or avoid potential impacts. In addition, we provide a summary of comments received from the

public, including Indigenous persons and groups. As required by our terms of reference, we also consider the effects of the project on *SARA*-listed species and their critical habitat.

In accordance with the precautionary principle, our review considers the project in a careful and precautionary manner, so to avoid significant adverse environmental effects on components of the environment that are within the legislative authority of Parliament.

We do not provide mitigation measures for consideration by the federal minister should the project proceed. In our capacity as a panel of AER hearing commissioners, we deny Benga's applications under the *Coal Conservation Act* and related applications under the *EPEA*, *Water Act*, and *PLA*. Without approval of the provincial applications, the project cannot proceed. However, we make a number of recommendations to the federal government relating to the environmental effects of the project. These recommendations address limitations that we observed during the review process. Implementation of the recommendations may improve the effectiveness of future reviews of proposed projects, and provide helpful information and direction to decision makers, proponents, and members of the public.