



# The End of Coal: Alberta's coal phase-out

**IISD REPORT**



Lauren Vriens

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## The End of Coal: Alberta's coal phase-out

May 2018

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**Cover:** Recession of the Saskatchewan Glacier in Banff National Park, Alberta

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## Executive Summary

In November 2015, just six months after winning a surprise election, the New Democratic Party (NDP) in Alberta committed to the most ambitious climate plan in North America to date. The capstone components of the plan were a phase-out of coal power by 2030 and an economy-wide carbon price. The phase-out of coal power in Alberta will involve the retirement of over 40 per cent of Alberta's 2016 installed capacity and the de facto phase-out of local thermal coal mines. As a jurisdiction with privately owned coal plants, no noticeable smog and strong public support for the energy industry, Alberta had many challenges to overcome in designing an effective coal phase-out.

In the two years that followed the Climate Leadership Plan, the NDP announced a CAD 1.1 billion payout to coal power companies to lock in their coal exit, a new electricity market design to bring in replacement power and CAD 45 million in programming to transition coal workers and communities.<sup>1</sup> While public opinion is still divided, Alberta's solution gained the support of organized labour, power companies, public health advocates, environmental non-governmental organizations (ENGOS) and the federal government. Political change in the provincial election, the rise of new stakeholders, allegiances between federal and provincial governments, and the pressures of being a land-locked energy economy were all critical in setting the stage for Alberta's coal exit.

This paper explores the circumstances leading to the phase-out and the actions taken by affected players for those who may draw inspiration and lessons from Alberta: policy-makers, campaigners, environmental groups, the coal industry and others transitioning to a low-carbon economy. To analyze critical factors and the positions of stakeholders, this case study uses the “four C” energy reform framework created by the International Institute of Sustainable Development: context, champions and opponents, case for reform and complementary policies.

**Context.** The rise of the NDP and the dissolution of the previous government allowed new stakeholders to gain influence in a policy landscape where they were previously excluded. ENGOS, labour unions, academics and public health groups became important players in shaping the outcomes of the Climate Leadership Plan and the NDP's public messaging on health impacts and climate change. Practically, significant amounts of cheap natural gas provided Alberta with an accessible alternative to coal power.

Alberta is an energy-producing jurisdiction and the oil and gas sector is one of the main employers. While improving the environment was key, the NDP hoped its climate actions would influence domestic and international stakeholders to allow cross-border oil pipelines, which are critical for Alberta's continued economic growth.

One year after the NDP's Climate Leadership Plan was released, the federal government announced its intent to phase out coal by 2029 across Canada. This action bolstered Alberta's efforts and provided an important backstop against future changes in provincial government.

**Champions and Opponents.** Alberta was proactive in finding ways for workers, communities and companies to endure the transition. The NDP recycled industrial carbon taxes into a payout for the coal power companies and designed programming for affected communities and workers. These actions created support for the coal phase-out in surprising places, notably among labour unions and the coal

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<sup>1</sup> The Government announced CAD 1.1 billion (in 2016 Canadian dollars); the total payments will amount to CAD 1.36 billion in aggregate over 14 years.



power companies. While the coal power companies should have been weakened by sustained low power prices, their size, Albertan ownership and importance as the likely developers of new electricity provided them with significant leverage. The thermal coal mining industry, which lobbied against the phase-out, did not fare as well. Declining economics and the lack of export potential will likely lead to the de facto phase-out of the province's thermal coal mines. The labour unions were supportive of the Climate Leadership Plan and played an active role in visiting communities and providing information to workers in the absence of communication from government. Ultimately, the labour unions influenced the extent and design of government's just transition programming.

**Case for Reform.** In 2015, Alberta contributed 38 per cent of Canada's greenhouse gas (GHG) emissions, while making up only 11 per cent of the population (Government of Alberta, 2017a). The Climate Leadership Plan allowed Alberta to improve its reputation while also retaining provincial control over environmental mechanisms. The health costs of poor local air quality associated with coal power—estimated by health groups to be around CAD 3 billion in Alberta—were a major component of the case for reform (Government of Alberta, 2016d). Federally, the targets established in the Paris Agreement were important drivers for action on coal. The Canadian government has since emerged as a global leader in the coal phase-out movement, along with the United Kingdom, as part of their Powering Past Coal Alliance.

**Complementary Policies.** The Alberta government undertook three areas of action to mitigate the possible negative economic and social impacts of the coal power phase-out: (i) they introduced a capacity product into the electricity market; (ii) they lobbied for a favourable coal-to-gas regulatory framework; and (iii) they implemented just transition programs to help affected communities and workers. While the NDP government's policy on phasing out coal set a timeline of 2030, several of these complementary policies will likely result in a much faster retirement of coal plants in the form of coal-to-gas conversions.

Most notably, Alberta's solution contains several backstops against the rollback of the coal phase-out. This includes the acceptance and cooperation of many of the affected stakeholders, financial contracts with the power companies and the federal regulation of coal emissions. Cheap natural gas and the carbon price would have contributed to the retirement of some coal plants regardless of government policy and will maintain the momentum. As the main opposition party in Alberta is advocating for the reversal of the carbon tax and "clean coal" in the upcoming 2019 election, backstops such as these are critical to ensuring longevity and certainty for affected stakeholders.



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## Acronyms and Abbreviations

<b>AAMDC</b>	Alberta Association of Municipalities, Districts, and Counties
<b>AESO</b>	Alberta Electric System Operator
<b>CAPE</b>	Canadian Association of Physicians for the Environment
<b>COP</b>	Conference of the Parties
<b>ENGO</b>	Environmental Non-Governmental Organization
<b>GHG</b>	Greenhouse Gas
<b>NDP</b>	New Democratic Party
<b>PPCA</b>	Powering Past Coal Alliance



## 1.0 Introduction

In May 2015, a centre-left party with a platform of climate action and social justice came into power in Alberta, a province that had not seen a change in political party in 44 years. Within six months of being elected, the New Democratic Party (NDP) government announced its Climate Leadership Plan, which was centred on economy-wide carbon pricing and the phase-out of emissions from coal power by 2030. Alberta, a western Canadian province with massive oil and gas resource potential, is often referred to as the “Texas of Canada.” At the time, coal power supplied nearly two thirds of the province’s electricity demand (Alberta Electric System Operator [AESO], 2015). Climate action on this scale was surprising to many.

The demise of coal power in the industrialized world is beginning to seem inevitable. International momentum is building to keep global temperatures below a 1.5°C increase. The economics of power markets, and coal plants in particular, are changing with the integration of renewables and access to abundant low-cost natural gas. At the end of 2017, the United Nations Framework Convention on Climate Change Conference of the Parties (COP) in Bonn and the One Planet Summit in Paris saw the emergence and expansion of the Powering Past Coal Alliance (PPCA). The PPCA unites over 30 national and subnational governments as well as some companies whose ambition it is “to accelerate clean growth and climate protection through the phase-out of... existing traditional coal power”; it has placed “a moratorium on any new traditional coal power stations” (Government of Canada, 2018b).

As a national entity, the Government of Canada has taken a strong stance against coal power with its 2016 declaration to phase out all coal power by the end of 2029 and by co-founding the PPCA with the United Kingdom.<sup>1</sup> Within Canada, Alberta is the largest producer of coal-fired electricity. The phase-out of coal power in Alberta will involve the retirement of over 40 per cent of Alberta’s 2016 installed capacity by 2029 as well as the de facto phase-out of local thermal coal mines. Thermal coal mines in Alberta have little prospect for export given low global prices and the logistical difficulty of transporting the resource to the ocean. This degree of change is unprecedented and contributed to the province’s decisions to compensate the coal power companies and re-design the electricity market (Figure 1).

While there can always be improvements in policy design and delivery, Alberta’s solution managed to gain the support of power companies, labour unions, federal entities and environmental non-governmental organizations (ENGOS). This unique mix of stakeholders makes Alberta’s story worth examining. It can serve as a useful case study for other governments embarking on a coal exit as well as for external stakeholders seeking to influence the outcomes of energy sector reforms.

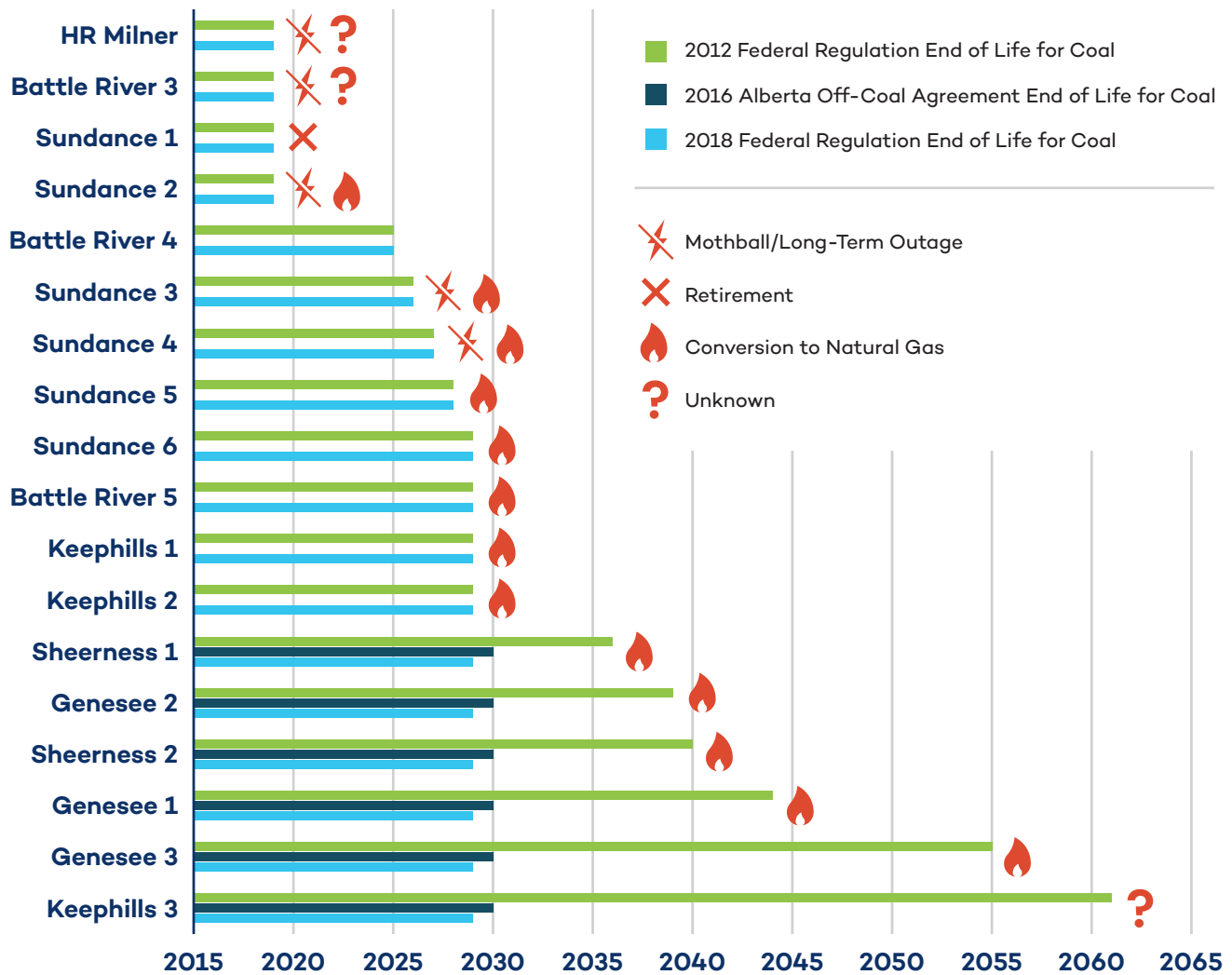
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<sup>1</sup> At the United Nations’ COP 23 in fall 2017, Canada and the United Kingdom co-founded the PPCA to phase out existing traditional coal power and place a moratorium on new coal power stations without operational carbon capture and storage.





**Figure 1. Federal/provincial actions limiting lifespans and company plans for coal plants in Alberta**



Source: Author's summary,<sup>2</sup> AESO, 2016e; AESO, 2016d; DeNeve, 2017; Kent, 2016; Maxim Power Corp., 2018; TransAlta, 2017a

### 1.1 Approach and Scope

To help structure the analysis, this study uses a framework provided by the International Institute for Sustainable Development (IISD) to examine energy sector reforms. The IISD's “four C” framework is a useful tool to help systematically examine the coal phase-out by identifying: 1) the context of the policy change; 2) the key actors championing the policy shift; 3) the public rationale for the policy shift; and 4) other policies that are interconnected with energy sector reform (Figure 2).

<sup>2</sup> The horizontal lines on Figure 1 show the successive regulations/agreements issued at the federal and provincial levels that limited the lifespans of coal plants in Alberta. The 2018 Federal Regulation takes legal precedence and was the last to be issued (Government of Canada, 2018c).



**Figure 2. “Four C” Framework for Alberta’s Coal Phase-Out**



*Source: Adapted from Harris, Beck & Gerasimchuk, 2015*

Progress toward a coal-free electricity system is already being witnessed in Alberta. As utility companies recognize coal’s declining economic value, with a price on carbon and with low natural gas prices, several of them are making plans to retire units early or convert them to natural gas, which makes it difficult to determine the exact date that Alberta’s coal phase-out will be complete. Examining any policy change in real time poses challenges for researchers. However, the unique political, social and economic circumstances surrounding the coal phase-out make Alberta an interesting case to examine while providing lessons for other jurisdictions pursuing similar policies. The timeline for this case study spans from 2015 to March 2018. Given that the coal phase-out is still in progress, there is limited scope for evaluation of the reform’s impacts, but they are briefly reviewed.



## 2.0 Context

Alberta is a land-locked province in Western Canada, with a total population of 4.3 million in 2016 (Government of Alberta, 2017d). Although there are many elements that affected the Government of Alberta's decision to phase-out coal power, there are four specific factors that help explain why the province adopted a proactive approach. These four factors include the political circumstances in Alberta, the province's natural resource endowment, the availability and abundance of electricity and natural gas, and the structure of Canadian federalism and its impact on the relations between the provinces and the federal government.

### 2.1 Political Change in Alberta

In 2015, the NDP came to power in Alberta riding a wave of dissatisfaction with the Progressive Conservative Party that had been bred through 44 years of its largely uncontested power. In addition to committing to sweeping social policy changes, the NDP platform stated their intent to phase out coal power under item 5.10 in their platform (Alberta's NDP, 2015). Although the previous government under Premier Jim Prentice had alluded to an intent to accelerate the phase-out of coal power, this was by far the strongest stance a political party had taken to date (Mason, 2017).

The political capital required for the NDP to introduce broad policy changes in the energy sector was partially acquired through the collapse of the Progressive Conservative Party. The change in government meant changes in the province's decision-making apparatus and disrupted the access of influencers who had previously informed policy. In addition to the political collapse, a long period of sustained low oil and gas prices meant that opponents to climate action were not as strong as they had previously been. The drop in the West Texas Intermediate price of a barrel of oil from USD 105.15 in June 2014 to a low of USD 30.62 in February 2016 created one of the longest stretches of depressed oil prices in recent history (Government of Alberta, n.d.e). Both the political and economic disruption allowed the newly inaugurated NDP government to introduce policy ideas that would have been previously inconceivable.

### 2.2 Natural Resource Endowment: Oil

Alberta's action on climate change is intricately connected to its position as the world's third largest reserve of oil, behind only Venezuela and Saudi Arabia. The coal phase-out must be understood as part of the larger Climate Leadership Plan initiative undertaken by government. The oil and gas sector contributes 17 per cent of Alberta's GDP and is a major employer both directly and indirectly (Government of Alberta, 2017d). It is also a significant source of emissions in Alberta at 24 per cent of the total (Harvie, 2016). In contrast, the electricity industry as a whole represented 17 per cent of the province's emissions but only 2 per cent of the workforce and 1 per cent of the province's GDP, making it an easier target for emissions reductions than the oil and gas sector (Kuby Energy, n.d.; Torrie, n.d.).

As a land-locked province, the realized value of Alberta's oil and gas is compromised by limited export potential. Each barrel of oil transported from Alberta is discounted because of its transportation costs, which can be as high as CAD 20 per barrel when transported by rail. Alberta has the potential to export more crude oil than there is pipeline capacity (Scotiabank, 2018). Pipeline access to the ocean in particular would allow Albertan producers to gain a higher dollar value for each barrel of oil. To diversify its export opportunities, Alberta needs trans-boundary pipelines and, thus, regulatory approvals and political support from stakeholders in other Canadian provinces and internationally.



Because of Alberta's oil sands and industrial economy, the province requires low-cost, reliable electricity. This demand has historically been fulfilled by coal, which is also an abundant commodity in the province. The combination of significant industrial processes and a fossil fuel-based electricity system means that Alberta contributed 38 per cent of Canada's GHG emissions (in 2015), while making up only 11 per cent of the population (Government of Alberta, 2017a). This imbalance created a reputational issue for Alberta and its efforts to get export pipelines approved. The NDP's Climate Leadership Plan was a part of Alberta's effort to get domestic and international stakeholders to allow export pipelines to be built. After announcing the tenets of Alberta's Climate Leadership Plan in November 2015, Premier Rachel Notley stated, "I'm hopeful that these policies, taken overall, will lead to a new collaborative conversation about Canada's energy infrastructure on its merits, and to a significant de-escalation of conflict worldwide about the Alberta oil sands" (Government of Alberta, 2015a).

When the federal government announced its intent to bring in a CAD 50 carbon tax by 2022, the province temporarily withheld its support to push the pipeline issue further (CBC News, 2016b). The manoeuvre succeeded in getting federal support. Following a meeting between Prime Minister Justin Trudeau and Alberta Premier Notley in Edmonton in February 2016, a joint press release was issued: "Because of the work Alberta has done in introducing its Climate Leadership Plan, conversations about pipelines are now easier to have" (Government of Alberta, 2016c). In November 2016, just after the Off-Coal Agreements were signed, Prime Minister Trudeau stated in a press release: "We could not have approved [Kinder Morgan Trans Mountain Pipeline Expansion Project] without the leadership of Premier Notley, and Alberta's Climate Leadership Plan—a plan that commits to pricing carbon and capping oil sands emissions at 100 megatonnes per year" (Justin Trudeau, Prime Minister of Canada, 2016). Despite the press releases, at the time of writing, there is still uncertainty about whether any major export pipelines will be built, particularly because of opposition from British Columbia and other provinces.

## 2.3 Abundance of Electricity and Natural Gas

There are two major attributes of Alberta's electricity system that enabled the government to take a strong stance on coal power, namely, an oversupply of low-cost electricity and the abundance of an alternative source of electricity in the form of Alberta-produced natural gas. Alberta also has good renewable resources with eligible rivers for hydro, a strong wind regime in the south and good sun exposure (Invest Alberta, n.d.).

For the past few years, Alberta has enjoyed abundant and low-cost electricity (Hydro Québec, 2017). In 2016, Alberta had a reserve margin of over 35 per cent, which is the amount of electricity that exists in excess of what is needed to meet the highest demand. As a result, Alberta's power companies faced the lowest average pool price for electricity in over eight years (AESO, 2017). The abundance of electricity made the actions by the provincial government easier to initiate than if Alberta had been in a tight supply situation with already high electricity prices.

Unlike other jurisdictions where low-cost alternatives to coal are harder to gain access to, Alberta has a substantial supply of natural gas that provides an alternative for policy-makers. The province's in-place conventional natural gas reserves amount to 31 trillion cubic feet with a further 3.5 trillion cubic feet of unconventional reserves available (Natural Resources Canada, 2017). Alberta's natural gas abundance provides the province with a "greener" and convenient alternative to coal, at least temporarily until alternative baseload options are readily available. Natural gas combined cycle power plants offer half the



amount of carbon dioxide emissions and a fraction of the amount of air contaminants as coal power. The Government of Alberta is also pursuing a target of 30 per cent renewables by 2030 through its Renewable Electricity Program (AESO, n.d.b).

## 2.4 Federal–Provincial Interaction

In Canada, each province has the ability to develop their own environmental policies and measure them against the legislation set by the federal government. However, failing to meet the goals of the federal government through the equivalency mechanism can result in provinces being forced to adopt the rules and regulations set out by the federal government. This system creates strong incentives for provincial actors to develop local alternatives to federal legislation to ensure provincial economies and stakeholders are not unduly harmed by the Government of Canada's approach.

In 2012, under the Canadian Environmental Protection Act (CEPA), the federal government passed a regulation that required coal plants to meet an emissions standard of 420 tonnes of carbon dioxide equivalent per gigawatt hour (tCO<sub>2</sub>e/GWhr) by approximately 50 years of age or retire. The emissions standard is unachievable by coal plants unless carbon capture technology is installed, which is currently cost-prohibitive. The regulation effectively meant a staged retirement of coal units in Alberta over time according to their commissioning date (see Figure 1). Given how new some of Alberta's coal plants were, Canada would have to wait until 2061 to see a complete phase-out of coal.

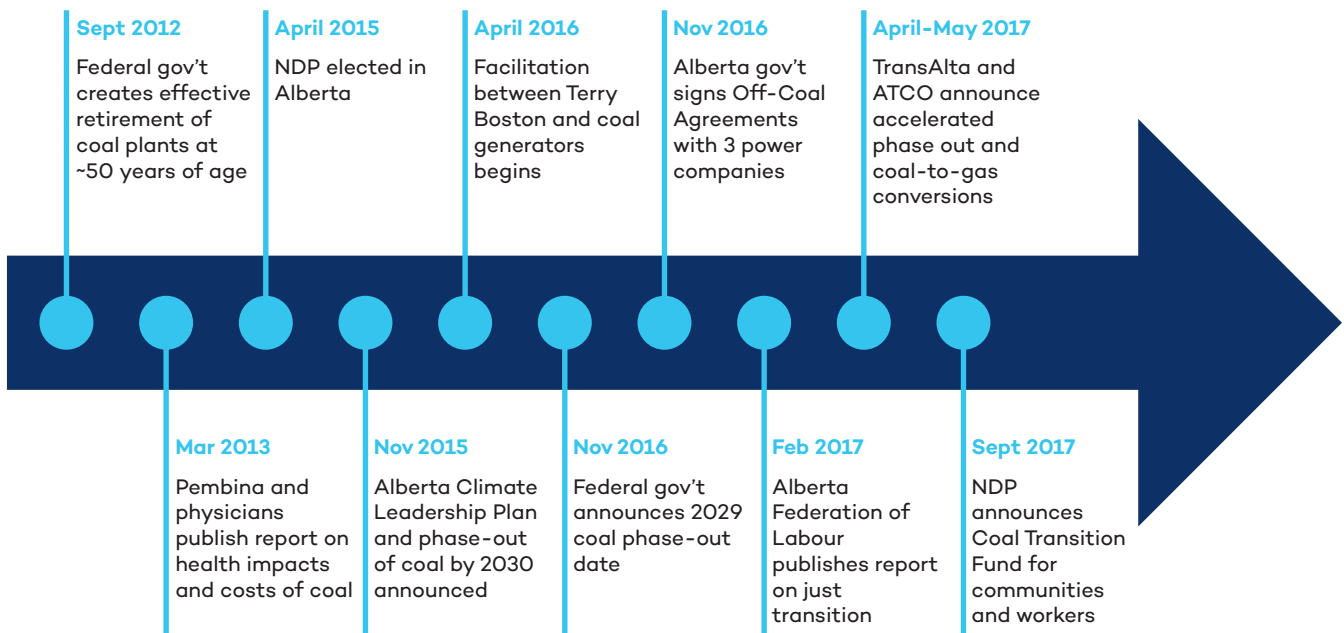
Under the federal regulation, 12 out of Alberta's 18 coal units were expected to retire by 2030. Alberta's Climate Leadership Plan targeted the remaining six units. Terry Boston, former CEO of PJM Interconnection, a large multi-state electricity market in the northeastern United States, was hired by the Government of Alberta in April 2016 to lead the dialogue with the affected power companies under this limited scope (Henton, 2016).

In November 2016, under the Pan-Canadian Framework on Clean Growth and Climate Change and driven by the country's emissions targets set out in the 2016 Paris Agreement, the federal government announced an effective phase-out of coal power across all of the provinces by December 2029 (Government of Canada, 2018a). The only provinces left with coal-fired power plants at this point were Saskatchewan, Nova Scotia, New Brunswick and Alberta. Saskatchewan's Premier Brad Wall criticized the federal government's announcement on coal and argued for a renewed effort on carbon capture and storage (Power, 2016). Nova Scotia received an exemption for the federal regulation by agreeing to find emissions reductions elsewhere (Canada Press, 2016).

Alberta was the largest coal power producer in the country with approximately 6,300 megawatts of installed coal power capacity in 2016 (AESO, 2016c). This announcement would have normally resulted in some consternation and concern. However, Alberta was already in the midst of negotiating a compensation plan with the three companies most affected. Marketed as a "made-in-Alberta solution," this allowed Alberta to set the terms of the coal phase-out provincially. The federal regulation had the added benefit of providing a backstop to prevent future governments in Alberta from reversing course.



**Figure 3. Timeline of factors involved in the coal phase-out in Alberta**



Source: Author's summary



## 3.0 Champions and Opponents

With the introduction of a new government, stakeholders who did not previously have a regular audience with the government were now afforded the opportunity to influence. Organized labour, ENGOs and public health advocates were some of those stakeholders who started to contribute to the political discourse with the rise of the NDP. The most surprising supporters were the power companies, once they were confident that compensation would be offered. Notable opponents included the municipalities, particularly from non-NDP ridings affected by the phase-out, and the thermal coal mining industry. While the solutions were not perfect, the NDP found ways to support workers, communities and companies through the transition, which may provide useful examples for stakeholders currently designing a phase-out of coal power.

### 3.1 Forces of Support

#### 3.1.1 Power Companies

Power plants in Alberta have been privately owned since the electricity sector was deregulated in 2001. In the current “energy-only” system, generators are paid for the electricity they sell to the grid and not for their overall capacity. Consequently, generators bear considerable risk (and gain all the reward) when building new power assets. In this type of market, trust in regulatory fairness and consistency is critical to continued private investment.

A perception existed that the Government of Alberta could not phase out coal power without financially harming long-standing Albertan power companies and their shareholders, with potentially far-reaching repercussions in investment confidence across other sectors. A report commissioned by the AESO that interviewed 25 domestic and international electricity market participants concluded that a negative outcome of the negotiation with the coal power companies would be a critical issue for future investments in the province (Alberta Electric System Operator, 2018). This was particularly concerning because the province needed approximately CAD 15 billion in investment to replace the coal capacity and was planning for the Renewable Electricity Program to attract a further CAD 10 billion in investment. In this context, the premier’s original direction to the Minister of Energy on the coal phase-out was to avoid stranded capital (Government of Alberta, 2015a).

Alberta has four power companies that own coal assets: ATCO Power, Capital Power, TransAlta and Maxim, the last of which has since shut down its only coal power facility. All are headquartered in Alberta and are considered household names, particularly within the communities in which they operate. While sustained low electricity prices should have weakened the coal power companies’ negotiating position, the fact that they were the largest power companies in the province and the likely builders of the next fleet of electricity generation provided them with significant political leverage. The capacity market was introduced in order to encourage investment in the electricity system.

At the same time that the NDP announced the capacity market, the premier introduced a price cap of 6.8 cents per kilowatt-hour for consumers’ electricity bills to May 2021 (Government of Alberta, n.d.d). The cap on consumers’ electricity prices may have been part of an effort by the NDP to mitigate the political influence of the power companies. In Alberta’s electricity system, the price of electricity is driven by demand and supply—if the power companies restricted supply by shutting down power plants or not



building new ones, the prices would go up, possibly to politically untenable levels. The high electricity prices experienced in Ontario following their coal phase-out (although it can be attributed to many factors) was a well-known political risk in Alberta (Office of the Auditor General of Ontario, 2015).

The power companies, perhaps surprisingly, did not publicly oppose Alberta's announcement to end emissions from coal-fired power by 2030 (Government of Alberta, n.d.f). They acknowledged climate change and the government's intent to ensure a reliable transition away from coal power. TransAlta, the largest producer of coal power, released this statement by CEO Dawn Farrell in 2015: "What's critically important is that the Premier has committed to an orderly transition that ensures system reliability and price stability for our customers, given that it is now certain that coal-fired generation will be phased out by 2030, and that the province's policies will not unnecessarily strand capital" (TransAlta, 2015).

A key component of Alberta's Climate Leadership Plan was a carbon price levied on industrial emitters. The Carbon Competitiveness Incentive Regulation penalizes coal plants for their inefficiency as compared to new natural gas plants (coal plants emit more carbon dioxide per megawatt hour generated than natural gas plants) (Government of Alberta, n.d.a). In addition to weak electricity prices, the added costs of paying for carbon must have factored into the companies' strategic decision to play ball with the government. Their coal assets were no longer as attractive as they had once been.<sup>3</sup>

Over six months, the government's designated negotiator Terry Boston worked with the companies and, in September 2016, delivered his advice to government. This advice shaped a negotiated agreement between the Government of Alberta and the three power companies (Boston, 2016). The value of the compensation scheme amounted to CAD 1.36 billion cumulative to be paid out in yearly installments until 2030. This money will come from the province's carbon tax levied on coal plants and other heavy emitters (Morgan, 2016). The agreements committed the companies to phasing out emissions from the six units by 2030, as well as maintaining their headquarters in Alberta, keeping a nominal number of employees in Alberta, and continuing to invest in Alberta's electricity system and in their surrounding communities.

Internationally, "just transition" conversations are gaining momentum, but there are still different visions of what is or is not "a just transition" and who should pay for it. The NDP used carbon tax revenues to compensate the electricity companies and negotiated from them a level of financial support for the transitioning communities. The other supports for the communities (discussed in Section 5.3) come from both carbon revenues and the government's annual budget as part of broader economic development initiatives.

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<sup>3</sup> It is worth noting that pre-NDP, Alberta had a carbon price in the form of the Specified Gas Emitters Regulation, but it was levied on a facility-by-facility basis, meaning that each power plant had to achieve reductions compared to its own standard. The Carbon Competitiveness Regulation, in contrast, penalizes coal plants for their inefficiency compared to new natural gas plants and also applies a higher dollar-per-tonne cost (Alberta Environment and Parks, 2018).

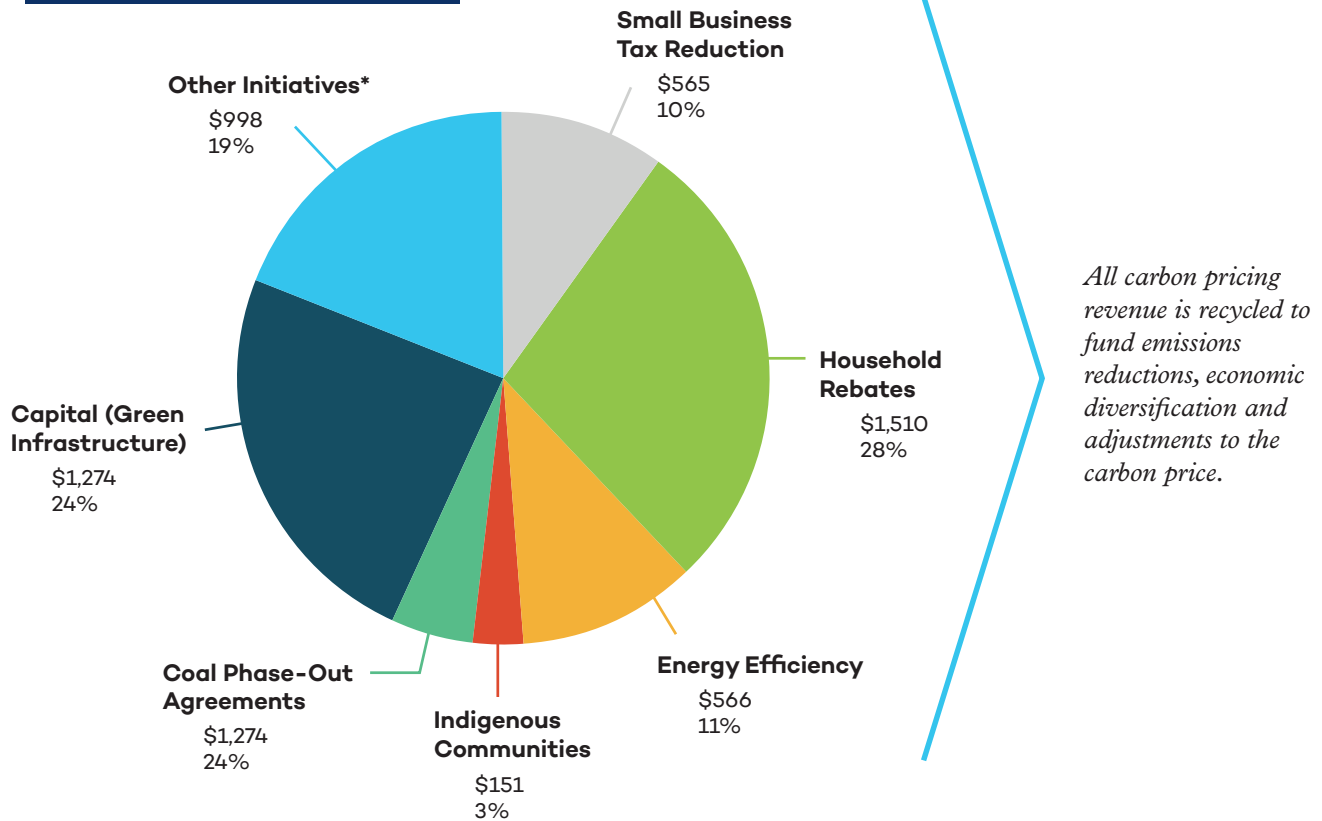




**Figure 4. Breakdown of carbon revenue recycling**

**Climate Leadership Funding**  
(millions of dollars)

**3-Year Total Funding: \$5.4 Billion**



*All carbon pricing revenue is recycled to fund emissions reductions, economic diversification and adjustments to the carbon price.*

\* Revenue recycling into bioenergy, renewable energy, innovation and technology, coal community transition and other Climate Leadership Plan implementation initiatives.

Source: Government of Alberta, 2017b

According to a copy of the agreement posted online, the compensation for the electricity companies was based on the unit's 2015 net book value, pro-rated by the number of years between 2030 and the original federal end-of-life date (the years that the unit was "stranded" by Alberta's policy). A portion of value was deducted for the potential that some components could be reused for coal-to-gas conversions. In Terry Boston's letter to the premier, he states that using a net book value-based approach is fully auditable and defensible, as opposed to valuing the assets using future market value or discounted cash flow, both of which would require extensive forecasting that could be heavily debated (Boston, 2016).

Reactions by the investment community following the announcement were positive. A note from CIBC stated: "As specifics become clearer, TransAlta's financial flexibility and cost of capital should improve, making it relatively more competitive for new investments" (CIBC, 2016). On November 25, 2016, BMO Bank stated: "we see this as improving investor confidence in the [Alberta] power market following a year



of significant uncertainty and disruption.” Without cooperation by the companies, it is hard to imagine that the negotiation would have progressed so quickly and the outcome would have been so favourable.

The agreements ensure political longevity to the coal phase-out, as they require both the companies and Government of Alberta to agree to change or cancel the contracts. Some will argue that Alberta could have used one of the following options to shut down coal rather than pay compensation to the electricity companies:

1. Allow the federal regulation to shut down Alberta's coal by 2029 without provincial involvement
2. Allow the rising carbon price to drive coal retirements over time
3. Institute a strict GHG requirement that coal plants cannot meet.

These are all viable options. However, none of them ensures political longevity or fosters a positive investment climate. The Off-Coal Agreements provided both of these benefits. Contracts like this are not possible in every legal system, but they can be an effective way of creating lasting change.

### 3.1.2 Organized Labour

Organized labour groups in some other countries have historically been vocal in their concerns over climate action. In Alberta, the phase-out of coal became a lightning rod for political dissent and opposition to the NDP government, particularly in the affected communities after the announcement of the phase-out and before government proffered any transitional programs. Many of the union members in the coal mines and power plants blamed the NDP's Climate Leadership Plan for closing down their places of employment (Coal Transition Coalition, 2018).

Against this backdrop it is somewhat surprising that organized labour in Alberta supported the Climate Leadership Plan. Gil McGowan, CEO of the Alberta Federation of Labour (AFL), which represents many of the unions in the power industry, stated a few months after the release of the Climate Leadership Plan: “We know that [climate change] is a real problem... and we accept that governments all around the world say something has to be done” (Love, 2016). In 2016, the Alberta Federation of Labour formed a unique coalition with environmental groups such as the Pembina Institute and BlueGreen Canada to advocate for the transition of coal workers to renewable electricity and other “green” jobs (Jeyakumar, 2016).

Labour's language on the coal phase-out progressively turned more positive as it became clear that both the provincial and federal governments intended to assist communities and workers through the transition. In November 2017, in reaction to the federal announcements on the PPCA, Gil McGowan was quoted as saying, “We needed [Federal Minister Catherine McKenna] to step up and make it clear that the government's climate change initiatives included just transition and the good news is that she has done that” (DeSouza, 2017).

Gil McGowan hosted several town hall meetings in the communities and served as an important advocate of workers' needs in the absence of advocacy from their employers. The dissolution of the Progressive Conservative government and the rise of the NDP provided an opportunity for organized labour to become a bigger influencer of government. They took advantage of that opportunity by publishing a report titled *Getting it Right: A Just Transition Strategy for Alberta's Coal Workers* (Coal Transition Coalition, 2018). Many of the recommendations outlined in the report were ultimately mirrored in the recommendations that emerged in November 2017 from the panel of labour experts hired by the Government of Alberta to advise on a just transition.



## 3.2 Forces of Opposition

### 3.2.1 Municipalities

In Alberta, all of the coal power plants are mine-mouth operations, meaning that they are co-located with thermal coal mines. The municipalities in these areas are heavily dependent on coal power as a provider of high-paying jobs and as a major source of property tax revenue. Housing values and the service industry in these areas are also connected to the coal industry. While the phase-out of coal generation will only mean the loss of approximately 3,100 direct jobs over 13 years, the ripple effects through entire municipalities without mitigation may be significant.

Parkland County, the location of TransAlta's Sundance coal plant, became a strong critic of the NDP government after TransAlta filed an appeal in 2017 with the Municipal Government Board to accelerate their Sundance coal plant's depreciation and thereby pay fewer taxes to the county (Parkland County, 2017; ParklandCountyAB, 2017). Linear taxes on power plants (which are paid to the municipalities) are based on the lifespan of the units' components using a straight-line depreciation model. A shortened lifespan may mean fewer taxes paid to municipalities the year following the decision to abbreviate the lifespan. Tax receipts will then decline every year until depreciation reaches zero. If TransAlta is successful in its application to the Municipal Government Board, Parkland County may start to feel the constriction of its budget years before the coal plant is actually retired.

The municipalities in the province are represented by the Alberta Association of Municipalities, Districts, and Counties (AAMDC). In November 2015, 30 of these municipalities published a full-page advertisement in the *Edmonton Journal* condemning the NDP government's campaign commitment to phase out coal power. In fall 2016, AAMDC followed up with a joint resolution that insisted that the Government of Alberta allow coal plants to continue to operate while they explored "clean coal" alternatives. Clean coal typically means carbon capture and storage, which has been largely viewed in Canada as a failed experiment due to Saskatchewan's costly Boundary Dam carbon capture and storage project. A visit by Alberta's Deputy Premier to AAMDC's annual conference in November 2016, a full year after the Climate Leadership Plan announcement, was met with hostile jeering from the crowd of mayors and local politicians (CBC News, 2016a).

The complaints about the impacts on the municipalities and communities around the coal plants are not unfounded. The Town of Hanna, for example, has minimal alternative sources of revenue or industrial activity following the retirement of the Sheerness Plant (Hanna, 2013). Now that carbon pricing in Canada seems inevitable, power companies are seeking ways to get off coal even earlier than 2030 by converting their coal plants to burn natural gas in the 2020s (Environment and Climate Change Canada, 2017). With fewer employees required at a converted unit (approximately a third of a coal plant) and no mine employees, this is accelerating the issues faced by the municipalities. The municipalities were largely bystanders during the coal phase-out negotiation and afterwards. With concrete suggestions and positive partnerships with environmental groups, organized labour became the de facto advocate for communities and municipalities during the Advisory Panel on Coal Communities process. The government's programs that have been put in place as a result of the recommendations from the Advisory Panel have been a source of renewed optimism in the communities (Alberta Federation of Labour, 2017).

When dealing with the municipalities, policy-makers faced several challenges. Most significant was the fact that most of the near-term effects experienced by the municipalities were the result of the



2012 federal regulation on coal plants, not Alberta's Climate Leadership Plan. In reality, Alberta's Off-Coal Agreements targeted the youngest coal plants, which were expected to run well past 2030. The overlapping regulations proved difficult to explain to the public and the near-term demand for action required a response. Alberta's just transition initiatives ultimately provided programs for all of the communities and workers over a period of two years from the date of the announcements, without making the distinction between which government entity was at fault (Government of Alberta, n.d.b).

### 3.2.2 Mining Industry

In 2014, Westmoreland Coal Company, a U.S.-based coal mining company, purchased all of Sherritt International's coal assets in Alberta and Saskatchewan for USD 435 million (Westmoreland Coal Company, 2013). This move made them the biggest owner of coal mining assets in Alberta and also made them financially exposed after the Climate Leadership Plan was announced. The thermal coal mines that support the coal plants have little prospect for export given low global prices and the logistical difficulty of transporting the resource to the ocean. Unless commodity prices change dramatically in the next decade, the phase-out of emissions from coal plants will mean a de facto phase-out of the thermal coal mines as well.

**Table 1. Owners and operators of Alberta's thermal coal mines and associated power plants**

Power Plant	Plant Owner	Mine	Mine Owner	Mine Operator
Genesee Power Station	Capital Power	Genesee Mine	Capital Power (formerly 50-50 split with Westmoreland)	Westmoreland Coal Company
Keephills Power Station	TransAlta Utilities	Highvale Mine	Sunhills Mining (subsidiary of TransAlta Utilities)	Sunhill Mining (subsidiary of TransAlta Utilities)
Sundance Power Station	TransAlta Utilities	Highvale Mine	Sunhills Mining (subsidiary of TransAlta Utilities)	Sunhills Mining (subsidiary of TransAlta Utilities)
Sheerness Power Station	ATCO Power	Sheerness Mine	Westmoreland Coal Company	Westmoreland Coal Company
Battle River Power Station	ATCO Power	Paintearth Mine	Westmoreland Coal Company	Westmoreland Coal Company

Source: Author's summary

It is notable that the Off-Coal Agreements do not include Westmoreland. The language in government press releases indicates that the motivation behind compensating the coal power companies was to ensure future investment in the electricity system's transition (Government of Alberta, 2016d). In a world with no coal plants and dim prospects for export, the thermal coal mining industry had little future utility. In April 2016, at the same time that Terry Boston started his conversations with the power companies, the world's largest coal mining company, Peabody Energy, declared bankruptcy. This undoubtedly coloured the discussion.



The CEO of Westmoreland Coal Company, John Schadan, was the Chair of the Coal Association of Canada, a federal pro-coal lobbyist organization, until December 2017. This organization actively promotes the development and growth of the coal industry in Canada. Schadan's partner in the association's leadership was another notable figure, Robin Campbell, who was named its president in November 2015. Campbell was a former minister of the Progressive Conservative Party and took an antagonistic stance against the NDP government's plan to phase out coal (CBC News, 2015). Campbell hosted a series of town halls in communities that were going to be affected and helped foment dissent against the government's plan (Campbell, 2017).

It remains to be seen how financially difficult the coal phase-out will be for Westmoreland, but it is clear that they are more exposed to the transition than the coal power companies. In November 2017, Westmoreland's CEO Kevin Paprzycki resigned without stated reason, and by early 2018, the company started undergoing a capital restructuring to prevent defaulting on loans (Miller, 2017). It is unknown if a more conciliatory approach by Westmoreland and the Coal Association of Canada would have resulted in a different outcome, but it is clear that they did not succeed in negotiating a place for themselves in Alberta's future economy.



## 4.0 Case for Reform

The NDP government's public case for the coal phase-out focused on the global impacts of GHGs, but also on the local health impacts of coal generation. In Premier Notley's speech announcing the Climate Leadership Plan, she warned of the melting glaciers in the province's national parks (Government of Alberta, 2015a). Government of Alberta press releases also focused on the health costs of poor air quality: "an accelerated Alberta phase-out will prevent 600 premature deaths and 500 emergency room visits and will avoid nearly [CAD] \$3 billion in negative health outcomes" (Government of Alberta, 2016c).

At the federal level, the coal phase-out narrative included the Paris Agreement targets for Canada to reach a 30 per cent reduction in overall GHG emissions by 2030. While Canada represents only 1.6 per cent of GHG emissions globally, when considered on a per capita basis, Canada is among the top 10 global emitters of GHGs (Boothe & Boudreault, 2016). In the most recent inventory data available, Alberta's emissions account for approximately 38 per cent of Canada's total emissions (and that number is growing), which creates a reputational issue for the province and provided one of the motivations for the Climate Leadership Plan (Government of Alberta, 2015b). In public documents, the federal government estimates that the phase-out of coal nationally will result in a cumulative reduction of carbon dioxide emissions of approximately 100 million tonnes with CAD 4.9 billion saved from avoided climate change damage and health impacts (Government of Alberta, 2015b).

In March 2013, a report titled *A Costly Diagnosis: Subsidizing Coal Power with Albertans' Health* was published by the Pembina Institute and the Canadian Association of Physicians for the Environment (CAPE) (Weis et al., 2013). This report outlined the number of health incidents related to coal-fired air pollutants in Alberta and tallied the cost to the province's health care system at CAD 300 million per year. Another report published by the Pembina Institute showed several Albertan cities as having the worst air quality in the country, even though visible smog is rare (Thibault & Read, 2016). Yet another article published by the Pembina Institute demonstrated that five of Alberta's coal plants are in the top ten emitters of GHGs in the province, even among refineries and oil sands operations (Thibault & Read, 2016).

The language used by the NDP government in many ways reflects the influence of the Pembina Institute and CAPE on the policy dialogue. From the government's perspective, these articles and reports provided important third-party validation of the government's messaging on coal power and its effects on health, air quality and GHG intensiveness.

The messaging on poor air quality and health impacts appeared to have difficulty gaining traction in Alberta, however. The distributed population and smaller cities of the province mean that air quality issues are not as obvious to the average Albertan (Thibault & Read, 2016). This is in stark contrast to the public attention that arose in Ontario and the discontent that currently exists in China—in both cases around significant smog issues (Harris, Beck, & Gerasimchuk, 2015). Although Alberta is vulnerable to a changing climate and has suffered from more frequent and catastrophic wildfires, floods, pine beetle infestations and droughts, the population has a divided opinion on the coal phase-out. Public opinion polls taken after the Climate Leadership Plan was released show that between 51 and 58 per cent of the populations in Edmonton and Calgary, Alberta's biggest cities, support the phase-out of coal, with slightly less support (47–49 per cent) outside of the metropolitan areas (Coletto, n.d.; Mainstreet Research, 2017).



ENGO advocacy did appear to influence the political parties in Alberta, however. Joe Vipond, an active anti-coal advocate from CAPE, organized a panel discussion in January 2014 with representatives from all four political parties on the phase-out of coal. Rachel Notley, the NDP leader who became Alberta's Premier in 2015, was in attendance, along with opposition representatives from the Liberal Party and the Wildrose party, as well as Donna Kennedy-Glans, the Progressive Conservative member of the Legislative Assembly. They all agreed that the evidence on the harmful effects of coal power was indisputable (PIAlberta, 2014).

It was a unique occasion to have all the parties agree on the impact of coal, although there does not seem to be agreement on the best mechanism to deal with coal power. The United Conservative Party, a combination of the Wildrose and the Progressive Conservatives, has opted to support "clean coal" in their campaign for the next election, which is expected in 2019 (Thompson, 2017).



## 5.0 Complementary Policies

There are three areas of action that the Alberta government undertook to mitigate the possible negative economic and social impacts of the coal power phase-out: introducing a capacity product into the electricity market; lobbying for a favourable coal-to-gas regulatory framework; and implementing just transition programs to help affected communities and workers.

### 5.1 The Capacity Market

The phase-out of coal announcement in Alberta meant a significant capital stock turnover of electricity supply in only 13 years. Combined with the addition of large numbers of renewables and a global trend in the capital investment markets away from risky energy investments, the announcement prompted fears that the energy-only electricity market would not be sufficient to entice the investment needed to replace coal. The AESO recommended to the Government of Alberta that they evolve the energy-only market to also include a capacity market. A capacity market offers some amount of revenue certainty to generators and is considered an enticement to invest in new power plants. Without this market switch, the AESO feared that system reliability would be compromised and that there would not be enough supply to handle demand peaks (AESO, 2016a).

The NDP government chose to accept the AESO's advice. By creating a capacity market, the Government of Alberta is taking on some of the risk of building new electricity assets, which is a departure from the market of the last 18 years. While there was debate on whether the doomsday scenario would occur, the risk to both electricity supply and a successful coal phase-out were too great to ignore. The capacity market is being designed at the time of writing and is expected to be operational by 2021 (AESO, 2016b).

It is important to note that the capacity market will likely incentivize a combination of new natural gas plants and coal-to-gas converted plants to replace the retiring coal plants.<sup>4</sup> While the government intends to increase the share of renewables to 30 per cent in the power mix by 2030, the current programming is focused on lowest cost variable renewables that will need natural gas as a backup. As of early 2018, the AESO has been tasked with evaluating how to bring on “dispatchable” renewables like hydroelectricity and storage, which can supply electricity on demand and may supplant some natural gas, but it remains to be seen whether this initiative will make progress (AESO, n.d.a). Dan Woynillowicz, Policy Director at Clean Energy Canada, made this statement in November 2016: “As we make the shift to a grid that’s as clean as possible, there will be a need to limit the role of natural gas in Canada’s electricity system in the decades ahead. Doing so means we can avoid the risk of stranded assets” (Clean Energy Canada, 2018). As Alberta replaces coal, it will be important to prevent a rush to gas as the solution given the increasing international pressure on the fossil fuel industry writ large.

### 5.2 Coal-to-Gas Conversions

While the NDP government’s policy on phasing out coal set a timeline of 2030, several of its other actions, including its work with the federal government on coal-to-gas emissions regulations, the carbon price and the capacity market, will result in a much faster retirement of coal.

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<sup>4</sup> Renewable electricity (without batteries and excluding hydro) does not typically satisfy the requirements to compete in a capacity market.





The Government of Alberta has referred to coal-to-gas conversions as being a critical component of Alberta's transition to a stable, reliable and cleaner electricity system by 2030 (Government of Alberta, n.d.f). In his letter to the premier, Terry Boston emphasized that some coal-to-gas conversions are preferable to replacing all coal plants with new natural gas combined cycle because coal-to-gas conversions have shorter lifespans. If Alberta replaced all of its coal with natural gas combined cycle plants with 30-year lifespans, the province could become vulnerable to future federal regulations on natural gas and international pressure. Coal-to-gas conversions, which have a much shorter lifespan, will reduce the need for as many new natural gas plants while cheaper renewables and new alternatives develop (Boston, 2016).

As a result of the impending carbon price increases and poor economic conditions, three of the major power companies have publicly expressed their intent to convert some of their coal units to natural gas, some with specific accelerated timelines (Morgan, 2017; TransAlta, 2017b). An important enabling factor for the conversion of coal plants to natural gas is the federal government's forthcoming regulation on emissions from natural gas-fired generation. The Government of Canada's coal-to-gas emission rules will allow coal-to-gas units to run 5–10 years past their federal end of coal life, depending on their carbon dioxide emissions profile (Government of Canada, 2018c). The Government of Alberta was instrumental in getting this favourable regulation in place (Government of Alberta, n.d.h). The original iteration of this regulation proposed in 2016 would have required coal-to-gas conversions to meet a strict emissions standard that would have prevented conversions from occurring.

A combination of coal-to-gas converted units and new natural gas units will be an environmental improvement over the coal fleet. Compared to coal-based generation, new natural gas plants emit approximately half the carbon dioxide, 30 per cent of the nitrogen oxides, and negligible amounts of sulfur dioxide and heavy metals (Government of Canada, 2018c). Converted coal-to-gas units can be expected to perform less efficiently and reliably than a brand new natural gas plant, but still offer an improvement over a coal plant. Coal-to-gas units are less efficient due to the re-engineering of the boilers for an off-market purpose and the characteristics of the different fuel types (Brown, 2015).

The relaxed federal rules will allow electricity companies to invest a small amount of capital to convert their coal plants to natural gas and, in turn, receive a longer runway to recoup their invested capital. The federal regulation, combined with the capacity market and increasing carbon pricing, will lead to several coal-to-gas conversions, which ultimately means an accelerated shutdown of coal plants (Figure 1).

### 5.3 Just Transition Initiatives

In September 2016, the Government of Alberta established a panel of labour experts to advise on next steps with workers (Government of Alberta, 2016a). The recommendations of the panel were released in September 2017, nearly a full year after the Off-Coal Agreements were signed with the companies (Government of Alberta, 2017c; Advisory Panel on Coal Communities, n.d.). In the absence of communication from government, the arguments spread by the Coal Association of Canada resonated with the affected communities through several key questions (Varcoe, 2017): Is there really an air quality issue when the air is visibly clean in Alberta? Why should the province suffer when Canada as a whole represents only 1.6 per cent of global emissions? Why can't "clean coal" be a reasonable alternative? The government took nearly a year to address the communities after the announcement of the phase-out and another year to publish the recommendations of the Advisory Panel. The delay, combined with strong



lobbying efforts of the Coal Association of Canada, resulted in discontent among coal workers and coal communities (Campbell, 2017).

In response to the panel's recommendations, the Government of Alberta announced a Coal Community Transition Fund of CAD 5 million to which communities and municipalities could apply for grant funding for initiatives that support economic diversification and development over two years (Government of Alberta, 2018a). The grant recipients were announced in March 2018 and included funding for activities like tourism development, agribusiness economy development and feasibility studies (Government of Alberta, 2018b). In 2017, the government also set up a Community and Regional Economic Development Program of around CAD 30 million over two years to increase investment in rural communities around the province, including the coal communities (Government of Alberta, n.d.c).

A few months later, the government announced a CAD 40 million Coal Workforce Transition Fund to provide income support to both coal and power workers transitioning to new jobs or retirement. The fund also offers pension bridging, relocation assistance for workers who have to move to gain employment, tuition and retraining assistance, and career counselling (Government of Alberta, n.d.g.). In the press release, Alberta put out a call to the federal government to provide funding for the community transition due to their part in the phase-out of coal (Government of Alberta, 2017e).

This call-out proved to be successful. In November 2017, against the backdrop of COP 23 in Bonn, Germany, Federal Environment and Climate Change Minister Catherine McKenna pledged federal support for the coal workers and communities in Alberta. This support will include flexibility on Employment Insurance and using Western Economic Diversification Canada programs to support the affected communities (Canadian Labour Congress, 2017).

The workers and labour unions appear to have received the programs well. The United Steel Workers stated in November 2017: "We are pleased that the Alberta government plan contemplates assistance for workers retiring and for workers who need to be retrained to remain employed" (United Steel Workers, 2017). Alberta will likely emerge in the history books as having done the right thing for workers. But there was criticism that the Off-Coal Agreements were signed and dated a full year before programs were put in place for workers and communities and without their input. The negotiation with the electricity companies was managed by the Ministry of Energy while the programs for the communities and workers were created by the Ministry of Trade and Economic Development (Government of Alberta, 2016b). By separating the two processes in terms of accountability and in time, the workers and communities were not afforded an opportunity to advocate for themselves in the compensation negotiation with the power companies.



## 6.0 Lessons Learned

### 6.1 In Terms of Context

The NDP's Climate Leadership Plan was made possible in part through the collapse of the Progressive Conservative dynasty, which had ruled for 44 years. The dramatic change in government disrupted regular policy influencers and made way for new stakeholders. Those stakeholders who were the most effective at influencing government direction were those that chose to collaborate and present recommendations.

Alberta's position as an energy jurisdiction played a critical role in its climate action initiatives. Unlike other jurisdictions where alternatives to coal are hard to access, Alberta has a substantial supply of low-cost natural gas that provides an alternative for policy-makers. Being an energy jurisdiction that produced a large amount of the country's GHG emissions created a reputational issue for Alberta and its efforts to get export pipelines approved. In a bid to win support for cross-border pipelines from provincial neighbours, the federal government and the international community, the NDP implemented a robust climate action plan that solidified the province's exit from coal-fired electricity. Whether this bid for an export pipeline will prove successful is still unknown at the time of writing.

Another important factor for the phase-out of coal was provincial jurisdiction over environmental policies as long as they achieve equivalent or better outcomes to federal policy. Marketed as a "made-in Alberta solution," the Climate Leadership Plan allowed the province to set its own terms of the coal phase-out, a strategy to protect provincial stakeholders from unintended consequences of a federal plan. The federal government's 2018 regulation on coal phase-out and the proposed CAD 50 price on carbon by 2022 will make it difficult for a future Alberta government to change course. The Alberta solution is also interesting in that it is backstopped by commercial contracts. Even if the government wanted to reverse course, the power companies would need to agree to cancel the Off-Coal Agreements, which is a slim possibility given the financial benefits to the companies.

The United Conservative Party in Alberta has come out strongly against the Climate Leadership Plan and has vowed to turn back the policies on carbon pricing and pursue "clean coal." Regardless of how realistic it will be to revoke the policies, the test of the popularity of the Climate Leadership Plan as a whole will be ultimately uncovered during the next provincial election in 2019.

### 6.2 In Terms of Champions and Opponents

The disintegration of existing policy networks following the NDP's win in 2015 provided an opportunity for new influencers to come forward: the labour unions, public health organizations and ENGOs took advantage of this window. Others, like the thermal coal mining industry, did not succeed in making their case for compensation. From Alberta's case study, it is clear that those actors that actively engaged with government, and were economically important to Alberta's future, ultimately were the most successful in influencing positive outcomes for themselves. The best example of this is the coal power companies, who used their positions as the largest power companies and the most likely to build new electricity assets to their advantage. They succeeded in getting compensation to divest themselves of poorly performing assets and a capacity market to help them build new assets.

Organized labour partnered with environmental organizations to publish forward-looking reports with concrete recommendations for government. This was critical for their success in influencing government's



just transition programming. The municipalities were largely bystanders during the coal phase-out debate and chose to oppose the government's policy. Organized labour ultimately served as the advocates for the municipalities with government and the Advisory Panel as they recognized that the transition of the communities would be necessary for the workers' just transition.

Political will of the ruling party is often necessary for coal phase-outs to be successful in democracies, as it was in Alberta. However, the election cycle can also lead to a reversal of climate action, as has been seen in Germany and the United States. Unsympathetic political parties can use their election mandates to reverse climate action, often fuelled by labour groups who, understandably, do not see a future for themselves without fossil fuels. Alberta was proactive in finding ways for workers, communities and companies to endure the transition. The support of affected sectors for a coal exit may well prove to bolster the durability of climate action through election cycles.

### 6.3 In Terms of the Case for Reform

Publicly, the coal phase-out case for reform was presented to the public as being necessary for Alberta to play its part in combating climate change. Press releases on the coal phase-out emphasized the GHG intensity of coal plants and the causal relationship with climate change, but also the health impacts and health care costs caused locally by burning coal. Much of the language and data used in government press releases reflected the work of ENGOs and public health advocates.

Ultimately, public polling reveals that the population is split nearly 50/50 on the desire to phase out coal. This is because context matters greatly for effective messaging. Advocates for the coal phase-out in Alberta attempted to copy and paste the messages on air quality and smog pollution from the coal phase-out in Ontario but did not gain a lot of traction. This is likely because Alberta does not have the same smog problem that plagued Ontario and other coal-producing jurisdictions. At the end of the day, public opinion did not prove to be a determining factor in government's decision to proceed with the coal phase-out.

### 6.4 In Terms of Complementary Policies

Alberta's coal phase-out required government to undertake several complementary policies and programs. Most significant was the change in the electricity market structure, which was believed to be required to replace the coal fleet. It is estimated that the replacement of Alberta's coal fleet will require at least CAD 15 billion in private investment. By creating a capacity market, the Government of Alberta is taking on some of the risk of building those assets, which is a departure from the market of the last 18 years.

The Government of Alberta's collaboration with the federal government on the coal-to-gas regulations, in combination with weak power prices, the capacity market and increasing carbon pricing, will likely drive an accelerated coal exit. Many coal plants in Alberta will likely convert to natural gas in the 2020s, reducing the emissions profile of Alberta's electricity system earlier than mandated by regulations.

In the two years following the Off-Coal Agreements, the NDP government created programs worth CAD 45 million to facilitate the transition. This money went towards the Coal Community Transition Fund and the Coal Workforce Transition Program and were based on recommendations from the Advisory Panel, which were informed by the Alberta Federation of Labour. The programs were ultimately well received by the communities, although there is still significant work to be done to successfully transition them away from reliance on coal.



Governments (national, subnational and local) play a critical role in just transitions through how they choose to allocate economic development dollars and direct social support resources. The NDP used the carbon tax to compensate affected electricity companies and tied that money to some level of support for workers and communities. The majority of the efforts to transition the communities will come from the government budget, with a portion coming from carbon revenues. Details on the support expected from the federal government are still forthcoming. While the workers are represented in the Off-Coal Agreements, the amounts that companies are obligated to pay towards their transition are nominal. A government-led negotiation that had included all affected parties—unions, municipalities, coal mining companies, workers, Indigenous groups and the power companies—may have resulted in a more holistic solution.



## 7.0 References

- Advisory Panel on Coal Communities. (n.d.). *Supporting workers and communities: Recommendations to the Government of Alberta*. Retrieved from <https://www.alberta.ca/assets/documents/advisory-panel-coal-communities-recommendations.pdf>
- Alberta Electric System Operator. (n.d.a). Dispatchable renewables. Retrieved from <https://www.aeso.ca/market/current-market-initiatives/dispatchable-renewables/>
- Alberta Electric System Operator. (n.d.b). Renewable Electricity Program. Retrieved from <https://www.aeso.ca/market/renewable-electricity-program/>
- Alberta Electric System Operator. (2015). *Annual market statistics*. Retrieved from <https://www.aeso.ca/assets/listedfiles/2015-Annual-Market-Stats-WEB.pdf>
- Alberta Electric System Operator. (2016a). *Alberta's wholesale electricity market transition recommendation*. Retrieved from <https://www.aeso.ca/assets/Uploads/Albertas-Wholesale-Electricity-Market-Transition.pdf>
- Alberta Electric System Operator. (2016b) Capacity market transition. Retrieved from <https://www.aeso.ca/market/capacity-market-transition/>
- Alberta Electric System Operator. (2016c). Long-term outlook. Retrieved from <https://www.aeso.ca/assets/listedfiles/AESO-2016-Long-term-Outlook-WEB.pdf>
- Alberta Electric System Operator. (2016d). Status of Sundance Unit 1 (SD1) and Sundance Unit 2 (SD2) effective January 1, 2018. Retrieved from <https://www.aeso.ca/market/market-updates/status-of-sundance-unit-1-sd1-and-sundance-unit-2-sd2-effective-january-1-2018/>
- Alberta Electric System Operator. (2016e). Status of Sundance Units 3, 4 and 5. Retrieved from <https://www.aeso.ca/market/market-updates/status-of-sundance-units-3-4-and-5/>
- Alberta Electric System Operator. (2017). *Annual market statistics*. Retrieved from <https://www.aeso.ca/download/listedfiles/2017-Annual-Market-Stats.pdf>
- Alberta Electric System Operator. (2018). *Alberta's wholesale electricity market transition recommendation*. Retrieved from <https://www.aeso.ca/assets/Uploads/Albertas-Wholesale-Electricity-Market-Transition.pdf>
- Alberta Environment and Parks. (2018, January 8). Specified Gas Emitters Regulation. Retrieved from <http://aep.alberta.ca/climate-change/guidelines-legislation/specified-gas-emitters-regulation/>
- Alberta Federation of Labour. (2017, November 13). Alberta's coal transition plan a step in right direction for coal workers. Retrieved from <https://globenewswire.com/news-release/2017/11/13/1185378/0/en/Alberta-s-Coal-Transition-Plan-a-Step-in-Right-Direction-for-Coal-Workers.html>
- Alberta's NDP. (2015). Leadership for what matters: Election platform 2015. Retrieved from [http://d3n8a8pro7vhmx.cloudfront.net/themes/5532a70aebad640927000001/attachments/original/1429634829/Alberta\\_NDP\\_Platform\\_2015.pdf?1429634829](http://d3n8a8pro7vhmx.cloudfront.net/themes/5532a70aebad640927000001/attachments/original/1429634829/Alberta_NDP_Platform_2015.pdf?1429634829)
- Boothe, P. & Boudreault, F.-A. (2016). *By the numbers: Canadian GHG emissions*. Retrieved from <https://www.ivey.uwo.ca/cmsmedia/2112500/4462-ghg-emissions-report-v03f.pdf>



- Boston, T. (2016, September 30). Letter to Premier Rachel Notley and Members of Cabinet. Retrieved from <https://www.alberta.ca/documents/Electricity-Terry-Boston-Letter-to-Premier.pdf>
- Brown, J. (2015, December 2). De-bunking the myths of coal-to-gas conversions. Retrieved from <https://www.power-eng.com/articles/print/volume-119/issue-11/features/de-bunking-the-myths-of-coal-to-gas-conversions.html>
- Campbell, R. (2017, June 6). Opinion: Where is Alberta gov't plan for coal communities? Retrieved from <http://edmontonjournal.com/opinion/columnists/opinion-where-is-alberta-govt-plan-for-coal-communities>
- Canada Press. (2016, November 21). Nova Scotia exempt from coal power elimination 2030 deadline. Retrieved from <https://www.thestar.com/news/canada/2016/11/21/nova-scotia-exempt-from-coal-power-elimination-2030-deadline.html>
- Canadian Labour Congress. (2017, November 17). Unions applaud Canada's commitment to a just transition for coal workers. Retrieved from <http://canadianlabour.ca/news/news-archive/unions-applaud-canadas-commitment-just-transition-coal-workers>
- CBC News. (2015, November 26). Coal industry says miners, towns will suffer when mines close. Retrieved from <http://www.cbc.ca/news/canada/edmonton/coal-industry-says-miners-towns-will-suffer-when-mines-close-1.3338444>
- CBC News. (2016a, November 17). Alberta's deputy premier booed by rural politicians for defending coal phase-out. Retrieved from <http://www.cbc.ca/news/canada/edmonton/alberta-s-deputy-premier-booed-by-rural-politicians-for-defending-coal-phase-out-1.3855796>
- CBC News. (2016b, October 3). No support for national carbon plan until pipeline progress made, Notley warns PM. Retrieved from <http://www.cbc.ca/news/canada/edmonton/no-support-for-national-carbon-plan-until-pipeline-progress-made-notley-warns-pm-1.3789167>
- CIBC. (2016, November 30). *TransAlta Corporation: Leveraging the future of Alberta Power*. CIBC Research Note.
- CIA. (2017, January 1). World Factbook. Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2244rank.html>
- Clean Energy Canada. (2018, February 16). Progress toward a cleaner power grid in Canada. Retrieved from <http://cleanenergycanada.org/progress-toward-cleaner-power-grid-canada/>
- Coal Transition Coalition. (2018). *Getting it right: A just transition strategy for Alberta's coal workers*. Retrieved from [http://www.coaltransition.ca/read\\_the\\_report](http://www.coaltransition.ca/read_the_report)
- Coletto, D. (n.d.). *Progressives in Alberta: Public opinion on policy, political leaders, and the province's political identity*. Abacus Data. Retrieved from [https://d3n8a8pro7vhmx.cloudfront.net/progressalberta/pages/30/attachments/original/1451953093/Abacus\\_-\\_Progress\\_Alberta\\_-\\_Report\\_PDF.pdf?1451953093](https://d3n8a8pro7vhmx.cloudfront.net/progressalberta/pages/30/attachments/original/1451953093/Abacus_-_Progress_Alberta_-_Report_PDF.pdf?1451953093)
- DeNeve, B. (2017, September 14). *2017 Energy Conference*. Retrieved from <http://www.capitalpower.com/InvestorRelations/Events/Documents/2017%20Peters%20and%20Co.%20Limited%20Energy%20Conference.pdf>



DeSouza, M. (2017, November 16). McKenna rallies more than 25 governments to ‘power past coal.’ Retrieved from <https://www.nationalobserver.com/2017/11/16/news/mckenna-rallies-more-25-governments-power-past-coal>

Environment and Climate Change Canada. (2017, June 21). Pricing carbon pollution in Canada: How it will work. Retrieved from <https://www.canada.ca/en/environment-climate-change/news/2017/05/pricing-carbon-pollutionincanadahowitwillwork.html>

Government of Alberta. (n.d.a). Carbon competitiveness incentive regulation. Retrieved from <https://www.alberta.ca/carbon-competitiveness-incentive-regulation.aspx>

Government of Alberta. (n.d.b). Coal units, owners and associated mines in Alberta. Retrieved from <https://www.alberta.ca/assets/images/coal-mines-alberta.png>

Government of Alberta. (n.d.c). Community and Regional Economic Support (CARES). Retrieved from <https://www.alberta.ca/release.cfm?xID=48946866B1DC2-B873-AEB5-FC07E467C571A5AF>

Government of Alberta. (n.d.d). Electricity price protection. Retrieved from <https://www.alberta.ca/electricity-price-protection.aspx>

Government of Alberta. (n.d.e). Oil sands royalties. Retrieved from <https://www.alberta.ca/royalty-oil-sands.aspx>

Government of Alberta. (n.d.f). Phasing out coal pollution. Retrieved from <https://www.alberta.ca/climate-coal-electricity.aspx#toc-2>

Government of Alberta. (n.d.g.). Support for workers affected by the coal phase out. Retrieved from <https://www.alberta.ca/support-for-coal-workers.aspx>

Government of Alberta. (n.d.h). *Working together to build an economy for the future*. Retrieved from <https://www.alberta.ca/assets/documents/Coal-community-meeting-handout.pdf>

Government of Alberta. (2015a, November 22). Climate Leadership Plan speech. Retrieved from <https://www.alberta.ca/release.cfm?xID=38886E9269850-A787-1C1E-A5C90ACF52A4DAE4>

Government of Alberta. (2015b, November 20). *Climate leadership: Report to Minister*. Retrieved from <https://www.alberta.ca/documents/climate/climate-leadership-report-to-minister.pdf>

Government of Alberta. (2016a, September 22). Advisory Panel to consult communities on coal transition. Retrieved from <https://www.alberta.ca/release.cfm?xID=4346642A0B937-C466-BD49-0BB626D15886DDF1>

Government of Alberta. (2016b, May 16). Alberta takes next steps to phase-out coal pollution under Climate Leadership Plan. Retrieved from <https://www.alberta.ca/release.cfm?xID=40400064C4850-E326-56B9-4ED21CDD882F3960>

Government of Alberta. (2016c, February 3). Joint statement by the prime minister of Canada and the premier of Alberta. Retrieved from <https://www.alberta.ca/release.cfm?xID=401789F6A4A95-B653-73FA-B802E2B96BE5B804>





- Government of Alberta. (2016d, November 24). REVISED: Alberta announces coal transition action. Retrieved from <https://www.alberta.ca/release.cfm?xID=44889F421601C-0FF7-A694-74BB243C058EE588>
- Government of Alberta. (2017a, December). *Climate Leadership Plan: Progress report*. Retrieved from <https://www.alberta.ca/assets/documents/CLP-progress-report-2016-17.pdf>
- Government of Alberta. (2017b). Fiscal Plan: Climate Leadership Plan. In *Budget 2017: Working to make life better. Fiscal Plan*. Retrieved from <http://finance.alberta.ca/publications/budget/budget2017/fiscal-plan-climate-leadership-plan.pdf>
- Government of Alberta. (2017c, September 11). Diversifying economies in coal communities. Retrieved from <https://www.alberta.ca/release.cfm?xID=4857672C5E438-EC85-FAF0-14630432BEF57C52>
- Government of Alberta. (2017d). *Highlights of the Alberta economy*. Retrieved from [http://www.albertacanada.com/files/albertacanada/SP-EH\\_highlightsABEEconomyPresentation.pdf](http://www.albertacanada.com/files/albertacanada/SP-EH_highlightsABEEconomyPresentation.pdf)
- Government of Alberta. (2017e). New transition supports for Alberta coal workers. Retrieved from <https://www.alberta.ca/release.cfm?xID=48946866B1DC2-B873-AEB5-FC07E467C571A5AF>
- Government of Alberta. (2018a, March 15). Coal Community Transition Fund. Retrieved from <https://www.alberta.ca/coal-community-transition-fund.aspx>
- Government of Alberta. (2018b, March 15). Helping coal communities diversify. Retrieved from <https://www.alberta.ca/release.cfm?xID=54590B0E0FC9A-A0C4-7860-C3B79E5673061864>
- Government of Canada. (2018a, April 23). Coal phase-out: The Powering Past Coal Alliance. Retrieved from <https://www.canada.ca/en/services/environment/weather/climatechange/canada-international-action/coal-phase-out.html>
- Government of Canada. (2018b, April 23). Powering Past Coal Alliance Declaration. Retrieved from <https://www.canada.ca/en/services/environment/weather/climatechange/canada-international-action/coal-phase-out/alliance-declaration.html>
- Government of Canada. (2018c). Regulations Limiting Carbon Dioxide Emissions from Natural Gas-Fired Generation of Electricity. Retrieved from <http://gazette.gc.ca/rp-pr/p1/2018/2018-02-17/html/reg4-eng.html>
- Hanna. (2013). Corporate identity. Retrieved from [http://www.hanna.ca/townoffice\\_30](http://www.hanna.ca/townoffice_30)
- Harris, M., Beck, M. & Gerasimchuk, I. (2015, June). *The end of coal: Ontario's coal phase-out*. Retrieved from <http://www.iisd.org/library/end-coal-ontarios-coal-phase-out>
- Harvie, A. (2016, November). Alberta law to cap oil sands emissions. Retrieved from <http://www.nortonrosefulbright.com/knowledge/publications/144095/alberta-law-to-cap-oil-sands-emissions>
- Henton, D. (2016, March 18). Terry Boston, the \$600,000 man, takes on big coal. Retrieved from <http://calgaryherald.com/news/politics/terry-boston-the-600000-man-takes-on-big-coal>
- Hydro Québec. (2017). *Comparison of electricity prices in major North American cities*. Retrieved from <http://www.hydroquebec.com/data/documents-donnees/pdf/comparison-electricity-prices.pdf>



Invest Alberta. (n.d.). Renewable energy. Retrieved from <https://investalberta.ca/industry-profiles/renewable-energy/>

Jeyakumar, B. (2016, November). *Job growth in clean energy: Employment in Alberta's emerging renewables and energy efficiency sectors*. Retrieved from <https://www.pembina.org/reports/job-growth-in-clean-energy.pdf>

Kent, G. (2016, June 19). Northwest Alberta coal town could dissolve over lack of funds. Retrieved from <http://edmontonsun.com/2016/06/19/northwest-alberta-coal-town-could-dissolve-over-lack-of-funds/wcm/c4e01362-64b5-4366-a35d-1c95e81abfe7>

Kuby Energy. (n.d.). Infographic: Alberta's emissions and the need for solar. Retrieved from <https://kubyenergy.ca/blog/infographic-albertas-emissions-and-the-need-for-solar>

Love, M. (2016, May 27). Move to cleaner energy impacting coal community. Retrieved from <http://www.stonyplainreporter.com/2016/05/27/move-to-cleaner-energy-impacting-coal-community>

Mainstreet Research. (2017, February 23). 51% say carbon tax has had a "major impact." Retrieved from <https://www.mainstreetresearch.ca/51-say-carbon-tax-major-impact/>

Mason, G. (2017, March 25). New premier Prentice says Canada needs new markets for Alberta oil. Retrieved from <https://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/new-premier-prentice-says-canada-needs-new-markets-for-alberta-oil/article20651943/>

Maxim Power Corp. (2018). H.R. Milner Expansion Project. Retrieved from [http://www.maximpowercorp.com/html/operations/milner\\_expansion.html](http://www.maximpowercorp.com/html/operations/milner_expansion.html)

Miller, B. (2017, November 28). Colorado coal company CEO stepping down after less than 2 years. Retrieved from <https://www.bizjournals.com/denver/news/2017/11/28/colorado-coal-company-ceo-stepping-down-after-less.html>

Morgan, G. (2016, November 24). Alberta to pay three power companies \$1.36 billion to shut their coal-fired plants. Retrieved from <http://business.financialpost.com/commodities/energy/alberta-strikes-1-36-billion-deal-with-coal-companies-as-part-of-plan-to-shut-down-plants-early>

Morgan, G. (2017, May 11). Alberta could be coal-free years ahead of deadline as ATCO plans natural gas transition by 2020. Retrieved from <http://calgaryherald.com/business/energy/alberta-could-be-coal-free-years-ahead-of-deadline-as-atco-plans-transition-to-natural-gas-by-2020>

Natural Resources Canada. (2017, July 26). Alberta's shale and tight resources. Retrieved from <http://www.nrcan.gc.ca/energy/sources/shale-tight-resources/17679>

Office of the Auditor General of Ontario. (2015). Chapter 3: Electricity power system planning (Section 3.05). In *2015 Annual Report of the Office of the Auditor General of Ontario*. Retrieved from <http://www.auditor.on.ca/en/content/annualreports/arreports/en15/3.05en15.pdf>

ParklandCountyAB. (2017, November 28). Coal phase out. Retrieved from <https://www.youtube.com/watch?v=1ZUc4zXH1Ds>



Parkland County. (2017, May 10). Parkland County presents \$6 million immediate tax impact as a result of a linear tax appeal. Retrieved from <https://www.parklandcounty.com/Modules/News/index.aspx?newsId=d74dc9f8-31f8-47c3-9436-d36fa78aa82e&feedId=751d9bfa-fef1-4f2d-8753-b63088db86eb>

PIAlberta. (2014, January 21). Phasing-out coal in Alberta, Political Panel, January 16, 2014 (video). Retrieved from <https://www.youtube.com/watch?v=D2nGrVoV0ZQ>

Power, P. (2016, November 21). Ottawa to phase out coal, aims for virtual elimination by 2030. Retrieved from [https://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/ottawa-to-announce-coal-phase-out-aims-for-virtual-elimination-by-2030/article32953930/?click=sf\\_globe](https://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/ottawa-to-announce-coal-phase-out-aims-for-virtual-elimination-by-2030/article32953930/?click=sf_globe)

Prime Minister of Canada. (2016, November 29). Prime Minister Justin Trudeau's pipeline announcement. Retrieved from <https://pm.gc.ca/eng/news/2016/11/29/prime-minister-justin-trudeaus-pipeline-announcement>

Reitenbach, G. (2015, October 20). SaskPower admits to problems at first "full-scale" carbon capture project at Boundary Dam Plant. Retrieved from <http://www.powermag.com/saskpower-admits-to-problems-at-first-full-scale-carbon-capture-project-at-boundary-dam-plant/>

Scotiabank. (2018, February 20). *Pipeline approval delays: The cost of inaction*. Retrieved from [http://www.gbm.scotiabank.com/scpt/gbm/scotiaeconomics63/pipeline\\_approval\\_delays\\_2018-02-20.pdf](http://www.gbm.scotiabank.com/scpt/gbm/scotiaeconomics63/pipeline_approval_delays_2018-02-20.pdf)

Thibault, B. & Read, A. (2016, March 2). Fact checking the coal industry's "information meetings." Retrieved from <http://www.pembina.org/blog/fact-checking-coal-industry-s-information-meetings>

Thompson, G. (2017, September 23). Graham Thompson: The dirty truth of 'clean coal' in Alberta politics—it's a myth. Retrieved from <http://edmontonjournal.com/news/politics/graham-thomson-alberta-clean-coal-myth-adopted-by-ucp-leadership-candidates>

Torrie, R. (n.d.). Energy and Canada's GDP. Retrieved from <http://www.energy-exchange.net/fuel-electricity-canadian-gdp/>

TransAlta. (2015, November 22). Transition timetable in Alberta climate change policy protects long-term investment capital, supports renewables. Retrieved from <http://www.transalta.com/newsroom/news-releases/transition-timetable-in-alberta-climate-change-policy-protects-long-term-investment-capital-supports-renewables/>

TransAlta. (2017a, December 6), TransAlta announces accelerated transition to clean energy. Retrieved from <http://www.transalta.com/newsroom/news-releases/transalta-announces-accelerated-transition-clean-energy/>

TransAlta. (2017b, April 19). TransAlta board approves plan for accelerating transition to clean power in Alberta. Retrieved from <http://www.transalta.com/newsroom/news-releases/transalta-board-approves-plan-for-accelerating-transition-to-clean-power-in-alberta/>

United Steel Workers. (2017, November 10). Coal mining union positive on government transition announcement. Retrieved from <https://www.newswire.ca/news-releases/coal-mining-union-positive-on-government-transition-announcement-656716863.html>



Varcoe, C. (2017, July 29). Varcoe: Alberta's coal communities fed up with being left 'totally in the dark.' Retrieved from <http://calgaryherald.com/business/energy/varcoe-coal-communities-fed-up-with-being-left-totally-in-the-dark>

Weis, T., Farber, N., Anderson, K., Khan, F., Nanni, B. & Thibault, B. (2013, March 26). *A costly diagnosis: Subsidizing coal power with Albertans' health*. Retrieved from <http://www.pembina.org/pub/2424>

Westmoreland Coal Company. (2013, December 24). Westmoreland announces transformational acquisition of Sherritt's coal operations. Retrieved from <http://westmoreland.com/2013/12/westmoreland-announces-transformational-acquisition-of-sherritts-coal-operations/>

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