

Alberta Utilities
Commission

FEBRUARY 2024

Market Perception Study

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Executive Summary

The Alberta Utilities Commission commissioned a market perception study from Longview Communications and Public Affairs (recently renamed “FGS Longview”¹) to review the attractiveness of Alberta’s power market from an investor perspective, identify the drivers behind changes in stakeholder perceptions, and assess investor views on potential market design changes.

FGS Longview conducted interviews with stakeholders in Alberta’s power market, including capital providers, incumbent and prospective developers of renewable and thermal generation in Alberta, industry analysts and Indigenous participants in energy and infrastructure projects. The following is a summary and overview of the primary conclusions of those interviews.

It is important to note that this report presents the views shared by the study participants. It makes no recommendations nor does it reach any conclusions or offer a view on government policy choices, which must take into account a wide range of stakeholder interests. Investment considerations should be viewed in this broader context.

Stakeholder perception of Alberta’s power market is highly varied and changing rapidly. Study participants identified numerous factors that contributed to their historical and current outlook on the attractiveness of Alberta’s power market. However, one factor stood out as a key driver of changing stakeholder perception among all participant groups: policy uncertainty.²

Policy uncertainty is leading to a reduction in appetite for investment from both incumbent and non-incumbent generators as well as from providers of capital. Participants in the study agreed that policy uncertainty has increased over the past decade, which prevents prospective investors from accurately projecting future market and policy environments, and modelling project revenues based on those projections. Participants in the study do not uniformly agree on who bears the responsibility for creating this uncertainty, with participants suggesting a variety of responsible parties. However, participants were aligned on the assertion that a more coordinated and measured approach from all parties would support a more constructive environment for investment in Alberta.

Participants were in general agreement that the existing energy-only model is well positioned to deliver on concurrent goals of emissions reduction and affordability, but many participants indicated that the existing market framework was not set up to deliver on reliability. Despite this, most participants indicated a preference for minor revisions to

the energy-only model to competitively procure reliability services over substantive market reforms such as capacity markets or provincial Crown corporations. Participants expressed concern over the considerable time required to implement market design reforms, as well as varying degrees of conviction that other market designs would deliver better reliability outcomes than the energy-only market.

Finally, most participants indicated that their primary concerns with the Alberta power market were short-term, stemming from uncertainty around unfinalized Clean Electricity Regulations (“CER”), the provincial pause on renewable energy development, and other policy proposals being considered at the federal and provincial levels. **Participants largely agreed that, over the long term, when federal environmental legislation is finalized and provincial questions around potential market reforms are answered, Alberta would continue to be an attractive market for investors.** However, if policy uncertainty persists in the long run, Alberta will likely continue to face a reduction in investor appetite for participation in new generation projects.

¹ During the study period, Longview concluded a transaction in which it was acquired by FGS Global and commenced operations as FGS Longview. For the purposes of this report, the term “FGS Longview” will be used throughout.

² Participants in this study frequently used the terms “regulatory uncertainty” and “policy uncertainty” interchangeably. For the purposes of this report, both terms were understood to mean policy uncertainty unless a participant is referring to specific regulations governing Alberta’s power market.

Background and Process

OVERVIEW

The market perception survey was commissioned by the Alberta Utilities Commission (“AUC”) under its Inquiry into the ongoing economic, orderly, and efficient development of electricity generation in Alberta. Under Module B of the Inquiry, the AUC commissioned two separate entities to prepare research reports independent of one another, focused on the qualitative and quantitative impacts of the increasing growth of renewables on both generation supply mix and electricity system reliability.

The goal of the survey was to assess the attractiveness of the Alberta power market, views on potential market structure changes, and appetite for merchant power risk by relevant generation developers (incumbent and non-incumbent) and sources of capital. Following a competitive submission process, FGS Longview was commissioned to prepare the qualitative report based on long-form, open-ended interviews with volunteer participants.

STUDY DESIGN

The survey targeted a variety of participant categories from the investment community, from operators of generation facilities in the province and from Indigenous participants in energy and infrastructure projects. The initial list of potential participants was developed by FGS Longview in conjunction with the AUC. Some participants were included through recommendations by other participants, or through their own direct requests to the AUC or FGS Longview to be included in the Inquiry.

All participants provided useful stakeholder perspectives on the investibility of the Alberta power market.

Within the investment community, participants included institutional providers of debt and equity capital³, as well as research analysts employed by investment dealers specializing in utilities and power generation companies. The capital providers were included because of their access to capital and their exposure to investment opportunities throughout the industry and in many jurisdictions. The research analysts were included for their deep knowledge of the industry across multiple jurisdictions and frequent engagement with hundreds of institutional investors, providing research and investment recommendations on a regular basis.

Within the generators, participants included those exclusively in the power business as well as participants who were also consumers of electricity in the province. There was also meaningful input from those who were either Indigenous or worked closely with Indigenous communities to support Indigenous participation in energy and infrastructure projects, as well as an industry association representing members in the power generation business. More detail on the breakdown of participants is available below.

The survey questions were prepared by FGS Longview in consultation with the AUC. Survey questions were customized to target the area of interest for each category of participant. The survey primarily focused on the following topics:

- ▶ Background and nature of participation in the Alberta energy market
- ▶ Current views on the Alberta economy and the attractiveness of Alberta’s power market
- ▶ Impact of regulatory/market structure considerations on investment intentions
- ▶ Views on potential market design changes
- ▶ Policy considerations for capital markets respondents
- ▶ Investment considerations for power generators
- ▶ Considerations in the investment decision-making/valuation processes

STUDY PROCESS

During the course of interviews, FGS Longview contacted 111 potential participants of which 44 participated in 30 interviews. These interviews all took place between November 10 and December 21, 2023, with the exception of one interview in January 2024. Interviews were held over Zoom with at least two interviewers per session. Participants were offered the opportunity to comment for attribution or to remain anonymous. Almost all participants agreed to take part on the condition of anonymity. The sessions were recorded and transcribed for accuracy. To preserve confidentiality, all copies of the recordings will be deleted upon submission of the final report. Themes and findings were analyzed within each participant group, but responses may be aggregated on questions where they are aligned.

³ Definitions of these terms are available in the Glossary section of this report.

PARTICIPANTS

INVESTMENT COMMUNITY

Capital Providers (afterwards known as “Investors”)

This group had invested equity or debt capital in the Alberta power market and are potential providers of future capital. There were 12 participants in a series of 8 interviews offering 9 separate perspectives. The participant mix included representatives from private investment counsellors (4), bank-owned investment managers (4) and insurance companies (4). The remaining data is based on the nine unique respondents.

Total assets under management at the organizations ranged from \$30 billion to \$200 billion. Most of the investors managed assets across multiple mandates including retail mutual funds, institutional pooled and segregated funds, insurance company funds and dedicated project finance portfolios.

Participants offered a diversity of exposures including holding equities

in public utilities (2), bonds in public utility companies (4) and non-public utilities (1) or non-specific exposure ranging from \$50 million to \$3 billion across the sector (3).

Industry Analysts

Participants in this group included representatives of four of the top five major Canadian banks. They either had primary research coverage of Canadian utilities and power producers or were involved in structuring capital transactions on behalf of public and private issuers. There were seven (7) participants in a series of six (6) interviews. For the purposes of this survey, the two (2) respondents in one interview offered a shared perspective and will be counted as one (1) participant.

The participants had a diverse range of research coverage responsibilities which included regulated utilities, pipelines, and independent power producers, within Canada and North America.

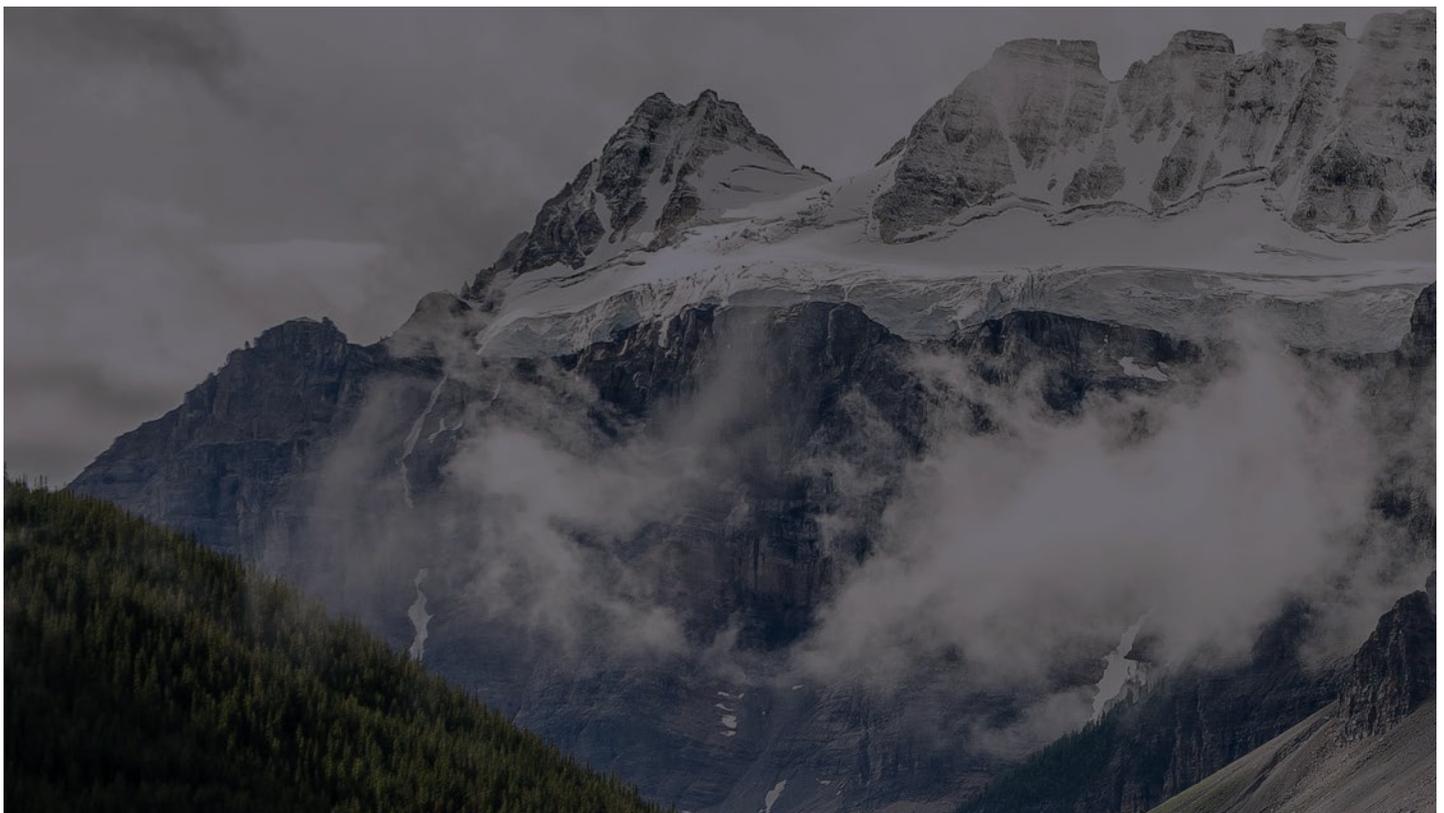
Power Generators

Participants in this group included twenty-three (23) individuals repre-

senting fourteen (14) companies or associations. For this report, the comments of multiple individuals representing one company have been reflected as the comments of one participant. Five (5) individuals representing three (3) companies or associations were exclusively in the business of renewable energy. Seven (7) individuals representing three (3) participants had existing investments across a diverse portfolio of generation technologies, including both renewable and thermal generation. Eleven (11) individuals representing eight (8) companies were exclusively in the business of thermal generation. For the remainder of this report, the “participant” refers to the company or association, not the individual.

Indigenous Market Participants

Two participants in the study were representatives of a First Nation or work closely with Indigenous communities to support Indigenous participation in energy and infrastructure projects.



Participant Feedback

The following sections set out the responses from participants to questions on various aspects of the Alberta power market that contribute to an overall view on investibility. The feedback represents the opinions of the different participant groups as presented.

MARKET OUTLOOK

All participants were asked to describe their current outlook for the Alberta power market, identify if their outlook had changed substantially in recent years, and specify the drivers behind any changes in outlook.

INVESTORS

When asked for an unprompted assessment of the Alberta economy and the Alberta power market, participants offered the following observations:

Link to energy industry

The most commonly identified feature of the Alberta economy was the link between Alberta's economy and the movement in energy prices. Although energy had been a source of growth in the province in the past, this link was now seen as a source of increased risk compared with other jurisdictions due to a) higher volatility in the economy due to the cyclicity of energy prices, and b) the risk to the energy sector from the transition away from fossil fuels.

“ There was a lot of pain and a lot of difficulty in with respect to decarbonization and investing in coal has been a difficult space and [we are getting] a lot of pushback there and we're getting increasing pushback on the natural gas side from investment committee. Looking at gas more cautiously than in the past.

Power market uncertainties

Looking at the power market in Alberta, the most common investor response cited the nature of merchant contracts in Alberta as a source of concern due to the perceived lower credit quality of merchant contracts as determined by internal risk ratings or third-party credit rating agencies. Many investors were supportive of the transition away from coal but were concerned about overbuilding of new supply. In particular, a few participants indicated concerns regarding the increasing percentage of renewables creating price volatility and grid instability.

“ Even going back more than 10 years, the AESO itself pointed out that the more non-dispatchable assets you add to the grid, the harder it is to maintain grid stability.

Regional comparison

When asked to compare Alberta with other jurisdictions for power market investments, participants frequently cited lower credit quality of merchant contracts in Alberta. For some investors, the lower quality of merchant contracts precluded any investment in renewable power whilst others said they would require some form of compensation for the higher risk in the form of higher spreads, shorter-term contracts, or lower debt component in the funding structure. All these types of compensations would increase the cost of construct-

ing power generation in Alberta relative to other markets.

“ [In] Alberta, if you're lucky, you can get 50 cents on the dollar of leverage versus if you're an IPP and you're doing a wind project in Ontario, you can probably get 90 cents of it borrowed and only have to put in 10.

And so, the way I would look at it is...from an owner standpoint, the inability to leverage your capital to build a plant in Alberta -that means that again, you're using the highest cost of capital in equity.

Many investors also cited Alberta as having an increased risk of stranded assets relative to other jurisdictions. Some investors cited the risk of investor losses due to catastrophic events. Some investors cited a history of losses to investors from changes in policy treatment.

INDUSTRY ANALYSTS

Favourable view of the economy

When asked about their current views of the Alberta power market and economy specifically, participants largely agreed that Alberta is seen as a largely favourable market due to the improving economy and job opportunities, investments in decarbonization, infrastructure growth and high load growth, robust economy for renewables and the fact that firms have been able to optimize existing assets. The

link to the health of the energy sector was seen as a positive contributor to economic growth. Some respondents also mentioned that industry is healthy, and companies under coverage have strong balance sheets.

History of policy and regulatory uncertainty

There was general agreement on the need for policy certainty. Several respondents mentioned there is uncertainty in the market and expressed concern that the economic life of legacy assets may not translate into new market structures. Other respondents expressed concern about current and past levels of government involvement in setting market structures. A small subset of the participant group added that regulatory decisions have not always been timely to the detriment of market participants. Another small subset was hopeful that the Inquiry process would lead to improved policy clarity and transparency.

Several participants referred to the Inquiry itself and the pause on approvals of renewable projects. Few participants suggested that companies should suspend decisions on new investments until the new market structure was announced. Others were hopeful that the moratorium would be temporary and that good opportunities for investment in renewable generation would follow in time. A small subset of the participant group expressed concern about future oversupply.

Shifting market outlook

When asked if respondents views on the Alberta power market have changed in the past five years, all participants who responded referred to increasing uncertainty. Sources of that uncertainty included:

- ▶ The end of the balancing pool
- ▶ Changes in government affecting the economics of an investment in power
- ▶ The current policy “squabble” between the provincial and federal governments

▶ Introduction of Clean Electricity Regulations

Several respondents pointed out the specific risks of overbuilding of renewables capacity causing more zero-priced hours and hurting grid reliability. Others said that it was becoming more difficult to make investment decisions due to increasing policy uncertainty. By contrast, a small subset said they had become more of a believer in the ability of the energy-only market to incent renewables construction.

Regional comparison

When asked how Alberta compares with other jurisdictions for investing in power projects and if there are differences between variable, base-load and dispatchable power, participants’ answers demonstrated that the dynamics of Alberta can be seen as both a help and a hindrance. A few respondents said Alberta was a more challenging place to build projects because a lack of contract certainty made the project economics riskier, whilst other markets have mechanisms to incent generation with government-sponsored Crown corporations. Alternatively, some saw the ability to partner with the private sector as a positive, as government involvement was seen as a source of delay and cost escalation.

POWER GENERATORS

Investibility today

Within this group, perspectives varied on the investibility of the Alberta power market in both the near term and the long term. A majority of the participants affirmed that the Alberta power market was investible or that they were currently exploring new generation projects.

“Generally speaking, we’re very bullish on the future of renewables, not only in Alberta but in Canada. I think the sky is the limit to achieve climate change targets.”

Several participants said the Alberta power market was not investible in the short term but could be in the long term. A small number of participants said that renewables were investible, but thermal generation was “challenging.” A small number of participants indicated the Alberta power market was not investible.

Concern for power prices

Many participants indicated that they expected power prices to decline in 2024 and 2025, driven by significant capacity additions of both thermal and renewable generation. A small subset of the participant group, including one of the representatives of a large, diversified operator stated that there was no need for additional investment in supply—renewable or thermal—on a short-term basis because expected capacity additions in 2024 and 2025 would meet current electricity demand.

“ Alberta is full.

Impact of policy uncertainty

Participants invested in **renewable energy** indicated that the appetite for corporate power purchase agreements remained strong and investment would likely continue after the pause on approvals ends, depending on the outcomes of the Inquiry. Participants invested in **thermal generation** indicated that future investment decisions were more challenging than in recent years. This is attributed to overlapping and unfinalized regulations that make it difficult to model project revenues with any certainty.

Policy uncertainty was the most frequently cited factor having a negative impact on the participants’ market outlook. All participants interviewed identified that increasing policy uncertainty negatively impacted their outlook for the Alberta power market. In general, the interviewed participants did not attribute blame for causing this uncertainty to any individual government, department, agency, policy, or regulation.

Rather, there was a consensus that it was the lack of agreement across governments, departments, and agencies that most significantly contributed to policy uncertainty. Participants indicated that the inability to understand and model future policy environments with any certainty inhibits them from modelling projected cash flows. Different participants identified the Government of Alberta, the Government of Canada, the Alberta Utilities Commission, and the Alberta Electric System Operator all as contributors to this lack of policy certainty.

“Any uncertainty is the enemy of a free market.

Other drivers behind shifting perceptions of Alberta’s power market include (listed alphabetically):

- ▶ A desire for regional diversification
- ▶ Clean Electricity Regulations
- ▶ Concern about oversupply
- ▶ Delays in regulatory processes
- ▶ Growth in share of intermittent renewables
- ▶ Pause on approvals for renewable energy generation projects
- ▶ Uncertain long-term carbon prices
- ▶ Uncertain treatment of natural gas generation beyond 2035
- ▶ Volatile power prices

Shifting market outlook

Nearly all participants reported that their outlook for the Alberta power market had changed significantly in the past five years. A small subset of the participant group said their outlook was unchanged. Of the participants that identified a shift in market outlook, most said their outlook today had deteriorated from five years ago. Longer regulatory approval processes and conflicting approaches to renewable power development were identified as the main drivers of this shift in outlook.

A few participants said they were now more likely to invest in renewables and

less likely to invest in thermal generation, and others were uncertain. The participants who were most uncertain about their outlook for Alberta’s power market are industrial consumers of electricity. These participants did note that they were now more likely to invest in non-emitting self-generation to support their corporate net-zero goals and ensure cost certainty.

Regional comparison

Participants were asked to compare Alberta with competing and neighbouring jurisdictions when it comes to the attractiveness of the power market.

Five (5) of the participants are geographically constrained to Alberta due to proximity to company assets that require electricity (i.e., cogeneration). The comments of these participants have been separated from the other nine (9) participants due to this geographic constraint.

Of these participants, most indicated that Alberta’s power market has more regulatory and cost uncertainty than competing jurisdictions. Additionally, some of these participants indicated that Alberta’s volatile electricity prices and high transmission costs have forced them to reduce their exposure to Alberta’s power market and pursue business opportunities in other jurisdictions with reliable, affordable, and non-emitting power such as British Columbia. All of these respondents indicated that transmission costs were a greater concern in Alberta than in competing jurisdictions.

“There is no way that this market can continue to be competitive for industrial production.

Of the remaining nine (9) participants who are not also industrial consumers of electricity (i.e., are exclusively in the business of power generation), most indicated that they were increasing their focus on jurisdictions outside of Alberta because of recent changes to their market outlook. Revenue certainty in other jurisdictions was

listed as the primary driver behind this desire to invest elsewhere. Some of these participants indicated that they were exploring investment opportunities outside Alberta for the first time in 2023.

“Alberta has always been a priority market for us. But for the first time in 2023, we started to evaluate other jurisdictions that had become relatively more attractive.

One developer expressed the view that attractive opportunities for renewable power development existed across Canada, including in Alberta.

A few participants—all of whom are developers of small, dispatchable generation—indicated that Alberta remained the most attractive jurisdiction for their projects. Alberta’s deregulated market was viewed favourably by these participants, who view the deregulated market as a key driver for investment from smaller firms.

“From an investment perspective, no, our outlook hasn’t changed. It’s a good place to do business.

Developers of renewable energy indicated that Saskatchewan, Ontario, Quebec, Nova Scotia, and New Brunswick were becoming attractive destinations for investment that would compete with Alberta to attract investment from renewable energy companies. Participants indicated that Alberta was previously the most preferable—or only—jurisdiction for developers, but recent procurements for non-emitting power in other jurisdictions would prevent Alberta from being the “most investible market in Canada” going forward. Participants indicated this effect would be exacerbated by the fact that Alberta became a relatively less attractive destination for renewable energy investment when it implemented a pause on project approvals.

Several of the globally diversified companies indicated that the power industry was becoming increasingly global with jurisdictions across the world competing to attract investment. Participants listed cost certainty, regulatory certainty, as well as favourable investment and production incentives as key drivers pulling investment outside of Alberta. Participants also expressed concerns over recent policy uncertainty in Alberta that made it relatively less attractive when compared with other jurisdictions. A small subset of the generator group indicated that other jurisdictions, particularly the United States, are focused on incenting investment in new generation, but Canada is more focused on punitive measures.

INDIGENOUS MARKET PARTICIPANTS

Investibility today

Both participants expressed interest in further investment in Alberta's power market, particularly in renewables. Both expressed concern about the uncertainty caused by the recent pause on approvals for renewable projects. One was concerned that the pause on renewables would reduce the number of opportunities for Indigenous participation. The other pointed out that the delay in approving projects made cash flow calculation more difficult and could cause providers of capital to reconsider investment in Alberta-based projects, with negative economic consequences for Indigenous partners.

“ We're doing things like power forecasting out and now having to relook at power forecasting out because of [the pause on approving renewable energy projects] which is actually delaying projects that are already in process.

So, I think it is very uncertain right now and I can tell you that that capital source we talk to does not like uncertainty...

When I translate that back to Indigenous communities, increased risk comes with an increased [interest] rate. When they're financing at that rate it comes to decreased cash flows to the communities.

Regional comparison

Unlike some of the other participants, the jurisdictions of interest to the Indigenous groups were limited to within Canada. Both participants pointed to a disparity of existing structures for incorporating Indigenous participation across and within Canada. British Columbia was identified as having a good model for constructive engagement.

Shifting market outlook

Both participants indicated that their market outlook had deteriorated in recent years. The quality of engagement with the provincial government had shifted with a change in leadership and the resulting shift in priorities. Both mentioned being frustrated with the pause on renewables and with the effect of the conflicting federal and provincial goals on the outlook for investment. One also mentioned a deteriorating level of co-operation on issues such as abandoned wells and high power prices in the province.

SUMMARY

Uncertainty surrounding the outlook for renewable energy development, the perception of competing policy objectives between government bodies and concern about the ability to earn returns on legacy investments were all identified as sources of risk to future investment decisions. All respondents were agreed that the power market in Alberta had at one time been an attractive place to operate. Positive features identified across the participant groups included the underlying economic growth in the province, link to the energy industry and the participation of the private sector. However, that same link to energy prices and lack of a

government-sponsored counterparty were also seen as sources of volatility and uncertainty that increased the risk to investors in the market.

There was also a general consensus that the Alberta power market today was less attractive than it had been historically. The implications of this increase in perceived market risk are considerable. In some cases, the risk is seen as adding to the cost of capital of investing in projects in Alberta, making it more expensive to build in Alberta compared with other provinces or with jurisdictions outside Canada. In other cases, participants are increasingly looking outside Alberta for investment opportunities, some for the first time.

SPECIFIC FEATURES OF THE POWER MARKET

Capital market participants were asked to offer unprompted comments on specific elements of the Alberta power market. Not every participant provided an opinion on every topic, but the quality and conviction of the responses was high.

REVENUE CERTAINTY

Investors

Investors agreed that revenue certainty was important. Nearly all of the participants who offered an opinion said that the market did not offer a satisfactory level of revenue certainty. Several cited higher risk to production volumes in Alberta due to the nature of merchant contracts. A few said their investment horizon was limited by the term of contractually supported cash flow, which was five to seven years, and that they would not invest in projects beyond the term of the contract. Others cited the volatility of the power price in Alberta as being negative for revenue certainty.

“ You do the best you can, appreciating that there's uncertainty on both supply and demand. Even when you get that right, big numbers of megawatt

hours consumed in the year, that doesn't tell you everything about prices because prices go up and down an hour by hour. Different hours that have very different prices.

Industry analysts

This group also considered revenue certainty to be an important element for investment. Many respondents mentioned that revenue certainty was low and attributed that low certainty to:

- ▶ The merchant power market
- ▶ Volatility of power prices
- ▶ The expectation that power prices will decline in the near term
- ▶ The influence of the Clean Electricity Regulations on corporate PPAs

A small subset of the participant group said that revenue certainty is unlikely to improve as companies will need new production to meet Scope 2 emissions guidelines despite the fact that most revenue generation is from existing assets. Others said that market fundamentals are reasonable for a merchant market. Anticipating the next question, participants pointed out that investors required a higher return for the lower visibility on revenues.

“I think it's always been that view that if you're making a good part of your return from the merchant market, you need to earn a higher return.

INVESTMENT HURDLE RATES

Investors

A definition of “hurdle rate” is available in the Glossary on page 23 of this report. Most participants said that they required higher spreads to compensate for higher perceived risk of merchant power contracts in Alberta compared with utilities in other jurisdictions. A few also mentioned that renewable projects, being of smaller size than large, baseload projects, would be funded with smaller and less liquid instruments. Investors would have addi-

tional requirement for higher spreads to compensate for lower liquidity of smaller issues. A few also mentioned that spreads would change with the economic cycle and offer opportunities to add value through trading.

Industry analysts

All respondents who answered this question said hurdle rates need to be high. The most common factors that require hurdle rates to be high include (sorted by frequency of mention):

- ▶ Merchant market exposure
- ▶ Rising interest rates
- ▶ Policy uncertainty

A small subset of the respondents recommended that investors avoid making any investments until the new market rules are available.

AVAILABILITY OF PROJECT FINANCING

Investors

There was no clear consensus among investors on this issue. A few felt that it would be difficult to obtain financing for generation projects. An equal proportion mentioned that there would be no trouble in sourcing capital at the right price. A small subset of the participants characterized availability as “middle of the pack.”

Industry analysts

The industry analysts were more constructive on the topic of the availability of project financing with the consensus that capital was available at the right terms and price, even if that price was high. A few respondents said that access to capital is still favourable at the right price, an equal proportion said that capital is available for quality developers with good track records and contracted projects, despite the increase in interest rates, and some respondents went on to say that there is an increasing acceptance of a certain level of market risk, but other investors are more conservative and participate less. A small subset of respondents said financing is there but accessing it is challenging.

“So, there is a set group of lenders that have gotten their heads around [merchant power risk]. And there's others that don't and are more conservative and not willing to deal with any merchant risk at all. And participate far less in [Alberta's power] market.

POLICY FRAMEWORK GOVERNING POWER IN ALBERTA

Investors

A majority of participants raised concerns about the current state of uncertainty in the policy framework governing power in Alberta. The policy framework is seen as detrimental to the investment climate in the province as investors may move to the sidelines or invest elsewhere until policy clarity is available. Most investors raised concerns about the policy of prioritizing investment in renewable power generation. Concerns included:

- ▶ Increasing power price volatility from greater reliance on renewables
- ▶ Renewable tax credits incentivizing uneconomic projects
- ▶ Overbuilding capacity leading to lower returns in the market
- ▶ Risk of grid instability from increasing reliance on non-dispatchable assets

“This is a constitutional battle between the province and the federal government. It's not clear how it gets resolved.... And the power generation companies are caught in the crossfire. And they're being demanded by the federal government to retire assets that are still serviceable and still needed for grid stability.

Several investors pointed out that Alberta's policy framework has been unpredictable in the past because of multiple reviews. A few participants also suggested that the existing framework benefits incumbent operators by

discouraging new investment. An equal number of participants characterized the existing policy framework favourably as a true market in contrast to the oligopoly or monopoly framework in other provinces. A small subset of the participants raised the issue of abrogation of contracts in a past review and expressed concern that something similar could happen again.

Industry analysts

All participants agreed that the current uncertainty was making investment decisions harder than in the past. Like the investor participants, the analysts were quick to recall past regulatory and policy reviews and the impact of changing political regimes on the expectation of investment returns.

“I don’t mind if different governments come in and have different views of how to subsidize the next megawatt. But if you start making policies that hurt my existing assets, before I have the chance to actually recover return on and of the capital, that’s difficult.”

Respondents expressed frustration about the way changes have been communicated, including the announcement of the potential for a Crown corporation, adding to the already uncertain investment climate. A few respondents were critical of the province and accused them of political posturing, citing the need for a unified front among Federal and Provincial governments. A smaller proportion said they understood the need for market redesign and that a Crown corporation might be appropriate.

BARRIERS TO ENTRY FOR SMALLER COMPANIES

Investors

All participants who provided a response agreed on the existence of barriers to entry for smaller companies. Some suggested this was

due to the market dominance of a small number of large companies in the province. An equal proportion suggested that smaller companies lacked the financial and human resources necessary to raise capital, negotiate contracts and participate in a competitive bidding process.

Industry analysts

A strong majority of participants agreed that barriers to entry are significant for smaller companies. Half of these participants also indicated that this held true in other markets as well. Examples of barriers were access to capital, and bargaining power in securing contract agreements. Several participants suggested that a successful business model for smaller players would be to bring a project to a late stage of development and sell it to a larger company. A smaller number of participants took a different view and said that small companies can easily enter the market and that barriers to entry for renewables are minimal.

Indigenous market participants

Both participants agreed that barriers to participation in power projects exist for Indigenous groups. One such barrier was the occupied market share of existing power generators such as Capital Power and TransAlta, including the pending acquisition of Heartland (which makes it even harder for smaller groups to break into the market). Another barrier was the lack of standardized structure for incorporating the participation of Indigenous market participants. The participants encouraged the development of standards across government bodies that would remove the barriers to Indigenous participation. Suggestions for standards included:

- ▶ Formal recognition of the value of Indigenous contributions
- ▶ A common definition of Indigenous across federal and provincial governments
- ▶ Incentives to project developers to incorporate Indigenous contributions

- ▶ A financing structure to facilitate economic participation
- ▶ Compliance verification of fulfillment of commitments

SUMMARY

Participants had very little conviction of how to incorporate their concerns about the current state of policy uncertainty into an investment calculation. In their comments about specific features of the Alberta power market, capital markets participants were aligned on the importance of revenue certainty. They were able to identify several variables that contribute to the revenue certainty of a project and how those variables could be incorporated in an investment valuation. Similarly, with hurdle rates and access to project financing, participants differed in their appraisals of the challenges created by rising hurdle rates and availability of project financing, but they were able to articulate ways to incorporate these challenges in a valuation exercise. This was not the case with the policy framework governing investment in the province. While respecting the intention of a market based on private sector investment, participants were mindful of the negative economic consequences for historical investments of policy shifts in the past.

MARKET DESIGN

All participants were asked to provide comments on the effectiveness and adequacy of Alberta’s existing market regime, the energy-only model. Participants were also asked to comment on the effectiveness of introducing elements of a capacity market or integrated system planning as means to achieve concurrent goals of emissions reduction, affordability, and reliability. Participants were also asked to identify their preferred market design to incent investment in the province. Some participants also used this opportunity to comment on the potential introduction of a provincial Crown corporation.

ENERGY-ONLY MARKET

Investors

All participants expressed a preference for cash flow certainty and regulatory stability but there was a great deal of concern about how implementation of any market design changes could have negative consequences for confidence in the market. The negative impact of past policy changes on market economics was a recurring theme.

“ You know, the [province] was going to add a capacity market; the government canceled that, and now we’re back into some kind of uncertainty.

Most investors suggested that investible contracts could be structured within the energy-only market.

Further, most of these investors also expressed concern that changes in market design had been harmful to operators in the past and that the mismatch between contract terms and election cycles created added risk to investors.

“ You always are going to have trouble when you’ve got an AESO that needs to make 20/30-year recommendation on how the power market’s going to work in a government who is thinking about getting elected in the next five years.

Several investors suggested that only a PPA or contract for differences would be acceptable investment options in an energy-only market. However, an equal number of investors believed that the energy-only market already offered appropriate price signals for investment decision-making. A few investors expressed caution about increasing reliance on renewable energy in an energy-only market due to the price volatility that comes with a heavy concentration of non-dispatchable power, and the economic distortions caused by renewable energy credits. The remaining respondents said the issue required more study.

Industry analysts

When asked what the current level of support is for the energy-only market, participants said support for the energy-only market was high but there was disagreement over what modifications could be implemented without negative consequences. **There was support for the price signalling benefits of an energy-only market to investors, and resistance to changing a model now that market participants know how to work within it.** A few suggested that investors would resist adding elements of a capacity market due to the risk of overcapacity.

A few participants were less supportive of the energy-only market, suggesting the market was currently not suitable for attracting investment. A small subset of the participant group suggested that the energy-only market is becoming a “monopoly-light” that keeps prices artificially high. The pending acquisition of Heartland Generation by TransAlta Corporation was offered as an example.

“ There’s high expectation that there is going to be some market redesign. In Alberta, the reason for that is that the energy-only market was put in time in a place where other factors didn’t matter. Emissions were not part of the consideration, location, time of use, those sorts of things were not a consideration.

Power generators

At a high level, there was a general agreement amongst the participants that the existing market framework is set up to deliver on concurrent goals of emissions reduction and affordability. However, most participants agreed that minor interventions to support system reliability could be warranted, which includes support from participants in each of the three technology groupings (renewables-only, thermal-only, and diversified).

“ We need an energy-only market that has the provision for ancillary services to be provided.

Despite the many and diverse comments from participants on the various shortcomings of the energy-only model, it remained the most supported model to incent investment, with near unanimous support. The energy-only model was the most preferred option for nearly all of the participants.

“ I believe the energy-only model can work. I think high prices are bringing in new participants to the market and that will bring prices down. So, I think it’s working as it should.

The remaining participant, who is also an industrial consumer of electricity, expressed support for integrated system planning. This participant suggested that this model would result in less volatility in the power price, thereby facilitating improved decision-making regarding the siting of generation and transmission to minimize total delivered cost.

CAPACITY MARKET

Investors

Investors were supportive of cash flow certainty and policy stability but did not necessarily see a capacity market as the means to achieve this outcome. Several investors expressed indifference between energy-only and capacity market and were comfortable with the possibility that investible contracts could be created in either market design. An equal number of investors were concerned about the risk of overbuilding in a capacity market, particularly when compounded with the misleading economic effects of Renewable Energy Credits. The potential combination of a capacity market with Renewable Energy Credits would not provide appropriate price signals for investment decision making.

“Make sure it’s not done in a way that opens a floodgate of subsidized capital that disadvantages the incumbent players who have earned very low returns on the capital they have invested in the market.

Industry analysts

The analysts were asked for their view of investor support for a capacity market rather than their own opinions. Most respondents said support was not high which aligns with the feedback from investor participants. There was concern about how such a change would be implemented and skepticism that a capacity market could meaningfully change the risk-reward characteristics of the market in comparison with the existing market design. A small subset of the participant group suggested that a change to a capacity market would cause investor sentiment to improve.

“Let the market function as is and don’t interfere with the structure because once you set the rules of engagement, you should just let the firms invest based on what they know of the rule of engagement. But continue to change the dynamic of market -- it’s just not fair for companies that are potentially putting billions of dollars to work.

Power generators

Nearly all participants in this group did not view introducing elements of a capacity market or integrated system planning favourably. Participants who were opposed to introducing elements of a capacity market or integrated system planning argued that substantial market design changes cannot be completed quickly enough to address the challenges that proponents suggest it could solve, such as ensuring affordability.

Several participants indicated that they expect new capacity additions of

renewable and thermal generation in 2024 and 2025 to drive down prices, which demonstrates the “healthy functioning of Alberta’s power market,” where the high prices of recent years have signalled investors to invest in new generation.

“Capacity markets are highly complicated. We just don’t feel that path is worthwhile for the invested time.

INTEGRATED SYSTEM PLANNING

Investors

This model was not very well understood by investors and most declined to offer an opinion. All investors that contributed answers believed that some amount of system planning is necessary in a market where assets are aging and being replaced. Some of these participants also suggested that a model similar to that of Ontario would be beneficial.

Industry analysts

Support from industry analysts was mixed for a market design with a greater role for integrated system planning. Most were unclear about how such a system would be implemented. Most participants were not supportive of the integrated planning option for the disruption in price signalling, although a few suggested that this type of structure might be appropriate to solve specific problems such as building assets to support grid stability or sunsetting legacy assets. A few participants cited Ontario as an example of an ineffective pricing system.

SUGGESTED POLICY CHANGES IN SUPPORT OF A MORE CONSTRUCTIVE INVESTMENT ENVIRONMENT

Investors

There was no clear consensus among the investment community on suggested policy changes to promote investment in Alberta’s power market. A few investors suggested the regulator should provide clearer guidance and transparency about the path forward. A smaller number of inves-

tors was concerned about the negative impacts of too much investment in renewable power. A few investors also suggested the best course for regulators would be to avoid creating any further uncertainty as current and past regulatory changes have hurt investors. Other participants were of the view that there should be increased investment in renewable power or said there was nothing that policymakers could do to improve investor confidence.

Industry analysts

Similarly, there was little consensus on policy changes among industry analysts. Some respondents said less government intervention, but a subset of this group added that if interference was limited to support for grid reliability, then that would be encouraged. Several respondents advised against any measures that added to market uncertainty including intervention in the energy-only market or reduced visibility on carbon prices. A few respondents recommended measures to add predictability, including carbon price commitments. A small subset of the analyst community recommended incentives/tax credits for specific types of investments such as batteries or nuclear. Another small subset said they were unsure because the market seemed to be working prior to the review but recognized that market needs are changing and it’s good the government is consulting because “we can’t just experiment.”

“So I think I’ll start with saying that if you don’t need to intervene, that itself is good policy...

Power generators

A majority of the participants who indicated the energy-only model was their most preferred model to incent investment also indicated that they would support the introduction of new market products for reliability services. They acknowledged that the energy-only model does not currently provide meaningful incen-

tives for investors to support system reliability. Participants urged that these services should be procured competitively to maintain the fundamental principle of competition within Alberta's power market.

“In the energy-only market, we assume that all the services that aren't energy will magically appear with the energy megawatt hours, but that isn't the case. We need to pay for those services.

Several of these also respondents indicated that a functioning energy storage tariff could also provide a means to ensuring reliability within the existing energy-only construct. A small subset of the generator group suggested that market reforms to support reliability might make sense once the draft federal Clean Electricity Regulations have been finalized, but to make market reforms before the final form of the regulations is known would not make sense.

A few participants indicated that new measures to strengthen offer control limits would support a more competitive marketplace that minimizes aggressive offer behaviour from Alberta's largest power companies.

“Alberta isn't a competitive marketplace, it's an oligopoly.

APPROPRIATE CONDITIONS FOR LARGE-SCALE DISPATCHABLE FACILITIES

Investors

When asked what conditions would provide appropriate incentives for large-scale dispatchable facilities, investors were unanimous in the requirement for cash flow certainty in some form. Suggestions included:

- ▶ Demand guarantees
- ▶ Capacity payments
- ▶ Fixed prices
- ▶ Long-term contracts
- ▶ Debt service reserve

- ▶ Risk mitigation at the construction phase

Industry analysts

The industry analysts provided similar responses to the investors on this issue with emphasis on the requirement that predictability of return on investment should survive any changes in government. A few analysts made specific reference to the historical treatment of coal-fired generation.

“I want to know that I can run my unit for 15, 20 years to make a return of and all my capital. If there was a concern about the useful life or how long that unit can be in the market, then that would be a big deterrent.

Recommendations included:

- ▶ Long-term/life-of asset contracts
- ▶ Government/regulatory support
- ▶ Clarity on carbon pricing

POWER PURCHASE AGREEMENTS WITHIN THE ENERGY-ONLY MARKET

Most participants did not have strong opinions on the topic and those that did, indicated that agreements of this type should be reviewed on a case-by-case basis. One offered that there may be cases where such power purchase agreements would be beneficial but cautioned that they were a “blunt instrument” that could do more harm than good in the market if improperly implemented. Another respondent was also cautious on implementation and mentioned variables such as inflation protection for added certainty.

Discussion of a provincial Crown corporation

A strong majority of participants who were asked to provide comments on the impact of introducing a provincial Crown corporation to purchase, build, and operate natural gas assets said such a move would have negative

consequences for existing investors in the marketplace and disincentivize future investment.

“A provincial Crown corporation would be entirely destructive to investment in Alberta.

A small subset of the participant group viewed the prospect of introducing a provincial Crown corporation positively, suggesting that current circumstances warrant intervention from the government.

SUMMARY

Participants from all groups were broadly supportive of the energy-only market. They view energy-only as a fair and theoretically attractive feature of the Alberta market which should support competition and provide incentives for new construction. Energy-only was identified, particularly by power generators, as the preferred model for achieving the objectives of affordability and emissions reduction in the market. Participants recognized that the concurrent objective of reliability would require special arrangements but were generally confident that those arrangements could be achieved through competitive procurements for reliability services within the energy-only model. Similarly, members of the investment community believed that their concerns about revenue certainty could be addressed within the current market design.

Participants were generally unwilling to recommend structural changes in market design. This was particularly evident among power generators but also true of capital market participants. The responses of all groups made it clear they would prefer to work within the existing market structure both because they considered it to be superior to other structures and because they had no appetite for the disruption that would result from a new market structure and the long-term risks to the market from a poorly designed or poorly implemented change.

POLICY ISSUES FOR CAPITAL MARKETS PARTICIPANTS

Capital markets participants were asked for unprompted opinions on specific policy elements to gauge whether these items had meaningful impacts on the investibility of the market.

OUT-OF-MARKET AGREEMENTS FOR RENEWABLES

Investors

This issue was not well understood and most declined to comment. The few investors who did provide comments were not in favour due to the economic distortions to the market created by renewable energy credits.

Industry analysts

When asked about out-of-market agreements or credits for renewables, only a few participants provided a response. **Most respondents said out-of-market agreements are not necessary today because the market provides sufficient incentives for investment.** They suggested exceptions were possible to incent particular types of essential assets such as energy storage that might not be constructed by relying on market conditions alone. The remaining subset of the participant group said that these agreements are constructive as the right mix of policies and subsidies offer support for investment in the province.

UNCERTAINTY OF THE FEDERAL APPROACH TO GAS-FIRED GENERATION

Investors

A strong majority believed that the uncertainty was having a negative effect on the power market. A smaller number believed that the focus away from gas-fired generation was misguided and would leave the power market in deficit. Others suggested that the change from 2050 to 2035 had negative consequences for the economic life of assets in the market and that such decisions should be left to the province. The remaining partic-

ipants said the topic could not be considered in isolation.

“The federal government wants Alberta to add renewable resources which are non-dispatchable and don’t have any grid support characteristics like voltage and frequency support and stability, synchronicities, spinning reserve. All these ancillary services that are critical to maintaining grid stability, renewables just don’t offer that.

Industry analysts

Many analysts pointed out that the Clean Electricity Regulations (CER) were not yet final and subject to change with the upcoming election cycle. Several respondents said the uncertainty is impacting investment, with some respondents saying that investors do not understand it and investment is sitting on the sidelines until the details are final. Fewer respondents said that CER can work with some modifications. A small subset of the analyst group indicated that they hope the CER can be relaxed. Another subset suggested that the CER present affordability concerns and that any shift to a lower carbon future should be done with a consideration of affordability.

Some analysts indicated they would require evidence of available returns on zero-emissions and carbon capture projects before making an investment decision. Further, they suggested that the time required for a first-of-a-kind project to gain regulatory approval, secure investment, complete construction, and measure investment returns before new projects are sanctioned will make it unrealistic to achieve a target decarbonization date of 2035.

“Generally, we see two to three years of planning, permitting, circling, financing, and then three years of actually building. Round-trip, we’re talking six years to build facilities. If

you’re building facilities that are first of a kind or novel in any way, instead of building them in parallel, you’ll want to see how one of them works.

UNCERTAINTY OF THE PROVINCIAL APPROACH TO RENEWABLE GENERATION

Investors

Investors were divided on this issue with the only consensus around the assertion that the markets were surprised with the manner in which the pause was implemented.

“this kind of, kind of pause in renewables really came at as a surprise. It wasn’t something I was expecting now...markets hate uncertainty.

Several investors believe that the pause on renewable energy development was appropriate. However, an equal proportion believed that Alberta needs to increase investment in renewables. A small subset of the investor group is concerned that the unexpected pause on renewable development adds to investor uncertainty.

Industry analysts

All of the analysts agreed that the uncertainty that resulted from the provincial pause on approvals for renewable energy projects was negative for the investment climate, there was no consensus on whether it was prudent or what would be achieved by it. A few respondents said that the motivations by the province were unclear, and they are waiting to see the outcome of the Inquiry. However, an equal number of analysts see the pause as important for grid reliability to put a framework around renewables and think about the asset impact on the grid. A subset of this group also suggested that the pause could have been implemented in a less abrupt manner. A small subset of the analyst group said that the provincial approach seems ideological and

inconsistent with its approach to oil and gas development.

“ you could have more certainty that you would have project success a few years ago, because there’s fewer projects that you were competing with. Now, in totality, there’s 43 gigawatts looking to be interconnected to the grid. So, your prospects of being successful are much lower.

PERCEPTION OF DIFFERENT APPROACHES BETWEEN FEDERAL AND PROVINCIAL AUTHORITIES

Investors

All investors agreed that the uncertainty created by the conflicting approaches was a problem for all stakeholders. Sources of uncertainty cited by investors included:

- ▶ Mismatch of long-term investment horizons with short-term political cycles
- ▶ Concern about what actions one group might take to push back against another
- ▶ A shortage of necessary investments pending clarification of jurisdictional authority

Although there was agreement about the negative effects of conflicting policy objectives, there was less agreement about where decision-making authority should reside. Many investors believed that jurisdictional authority should reside with the province. Fewer investors believed that the federal approach was the correct one. The remaining investors believed that the federal government was within its authority to make national decarbonization commitments, but the implementation should be left to the provinces.

Industry analysts

Again, there was agreement from all participants that this discrepancy was having a negative impact on the investibility of the market.

“ But it does create a disruption in the eyes of investors. Someone’s deciding here what stock they want to buy, which company comes to market to raise equity, fund a growth ambition. If there is something that just seems more complicated than it needs to be, or a seed of doubt that keeps coming back up, that does a disservice to those companies.

There was less agreement on how to resolve this discrepancy. Many analysts questioned the economic justification for the behaviour of the province. However, several participants said that the federal program does not take provincial differences into account and went on to say that the federal government does not recognize the uniqueness of power and resources available for power by each province.

SUMMARY

Participants had a range of views on the policy initiatives of the different government bodies. There was no consensus on which approach was valid or which body should have jurisdiction. There was agreement, however, that the reality of differing approaches added uncertainty to the investibility of the provincial power market. **The overwhelming response to uncertainty was delay.** Investors were willing to delay investment decisions pending regulatory clarity. Given the many years’ lead time required for approval and construction of power projects, the prospect of delays could have implications for the achievement of all three objectives of reliability, affordability, and emissions reduction.

INVESTMENT CONSIDERATIONS FOR POWER GENERATORS

Power generator participants were prompted to comment on any other policy, regulatory, or market considerations that have or might influence their outlook for investing in the Alberta power market.

At a high level, participants within both power-only and load groups shared the sentiment that many of the various policy proposals aimed at achieving concurrent goals of emissions reduction, affordability, and reliability could be tenable if they were perceived to be durable over time. However, participants were clear that, despite their concerns with certain aspects of the transmission regulations, permitting, carbon pricing, the Clean Electricity Regulations, or any other federal or provincial legislation, it was the inability to predictably model future policy environments that presented the most considerable impediment to investment. The perceived complexity of the regulatory and market dynamics in the Alberta power market presented a more significant barrier to investment than the content of any individual policy.

“ I think the uncertainty that’s going on right now has made everybody take a step back to say, hey, hold on a second, if I’ve got other options, I’m going to go pursue those.

Acknowledging the above, the participants in the study did provide specific comments on several policy, regulatory, or market considerations that influenced their outlook for investing in the Alberta power market. To categorize the responses, the participant groups have been separated into two groups: participants that are exclusively in the business of electricity generation (8 participants) and participants that are also industrial consumers of electricity (5 participants) in recognition of the fact that the policy interests would differ between the two groups.

Power-only (9 participants)

Participants in this group provided comments on the following considerations:

▶ Carbon pricing

Regarding carbon pricing,

perspectives varied widely. A few developers of dispatchable gas generation indicated that carbon pricing negatively impacted their outlook for investing in Alberta. By contrast, developers of renewable generation indicated that carbon pricing had a positive impact on their market outlook.

“ [the carbon price] will effect change and drive people to do things differently. It already is.

Several other participants indicated that current carbon pricing made them more likely to invest in renewable generation and less likely to invest in thermal generation. The remaining participants said that the impact of the carbon price was neutral.

▶ **Draft Clean Electricity Regulations**

Participants were generally aligned that the draft Clean Electricity Regulations (CER) were a disincentive to investment. Most participants indicated that they would be less likely to invest in thermal generation until the CER are finalized. A subset of this group also indicated that the CER increases uncertainty across technology types until it is finalized. The remaining participants indicated that the CER would not influence their investment decisions or that they were uncertain. Participants generally agreed that the uncertainty regarding the final form of the draft regulations was a greater concern than the regulations themselves, which were viewed as challenging, but tenable. Many participants indicated that they expected the final form of CER to be more flexible than the current draft regulations.

▶ **Provincial pause on approvals for renewables**

Regarding the pause on approvals for renewables, participants were divided. Several participants called for an immediate cancellation of

the pause on project approvals. They were concerned with the lack of consultation in implementing the pause and concerned that the pause was a signal to investors that investment in renewables was not welcome. A smaller group of participants expressed support for the pause, suggesting the rapid growth of renewables warranted a pause. The remaining participants did not comment.

▶ **Investment tax credits (ITCs)**

Participants were divided in their views on tax credits for both renewables as well as carbon capture and storage. Many companies expressed support for a level playing field, with no investment tax credits for any form of generation or carbon abatement. However, several participants indicated that ITCs were required to attract capital to Alberta, particularly in competition with the Inflation Reduction Act in the United States. One company was ineligible for investment tax credits and did not comment.

▶ **Government de-risking for dispatchable and baseload generation**

Most participants expressed support for minimal or zero government intervention in the marketplace. Some of the participants expressed support—those participants were developers of small-scale (<25MW), dispatchable generation. A small subset of the participant group suggested that capital providers located in the province such as ATB Financial and the Alberta Investment Management Corporation should become more directly involved in providing debt financing on favourable terms to developers of baseload and dispatchable generation.

▶ **Policy certainty**

All participants agreed that policy uncertainty presented a serious impediment to their outlook for investing in Alberta. Whilst perspec-

tives varied greatly on the causes of policy uncertainty, participants identified the following factors as contributing to policy uncertainty:

- Draft Clean Electricity Regulations
- Long-term carbon prices, or the existence of a carbon tax regime itself
- Combative provincial approach to federal environmental policy
- Discussion of potential market design changes
- Pause on approvals for renewable energy generation projects
- Long or complex decision- and rate-making processes at the Alberta Utilities Commission
- Transmission regulations

“ As [generators] are trying to decide whether or not to work in Alberta, they don’t know what they are going to be investing into in the next several years because policy is under question and the market structure itself is under question.

Load (5 participants)

Participants in this group provided comments on the following considerations:

▶ **Cost of transmission**

Participants in this group generally agreed that the cost of transmission was their principal concern with Alberta’s power market. Most participants called for consideration of transmission costs to be more thoroughly integrated in proposals for new generation. These participants also called for the introduction of cost causation in provincial transmission regulations, suggesting that generators should be required to pay for at least a portion of any new transmission infrastructure. A subset of these participants also called for a requirement that new generation be built near Alberta’s existing transmission infrastructure.

► Volatility

Participants expressed concerns about the impact of volatile electricity prices on their operating decisions. Several participants indicated they were more likely to invest in self-generation today than in recent years to achieve better cost certainty for power. A subset of this participant group indicated that the Alberta power market would not continue to be an attractive destination for load if volatility was not addressed.

“I can’t see how this continues to work for industrial load.

► Emissions

Several participants indicated they were more likely to invest in self-generation today than in recent years to achieve corporate net-zero goals. The emissions intensity of Alberta’s power supply was listed as the key driver for this change in outlook.

“If we’re going to import electricity, that comes with a carbon intensity. We can’t credibly claim our products are net-zero if we include those emissions.

► Consultation on regulation and market reforms

Nearly all participants indicated that consultations by the AUC, AESO, and the Government of Alberta on potential market design and policy changes need to be more inclusive of the perspectives of load. A few participants also indicated that they felt they had difficulties participating in consultations and were overwhelmed by the incumbent power generators who have greater financial resources as well as teams of regulatory and legal staff working to shift policy decisions in their favour.

Scarcity pricing and economic withholding

None of the participants indicated that it would be beneficial to prevent companies from economically withholding at the risk of not being dispatched. Participants who responded to this question indicated that scarcity pricing was a core tenet of the energy-only model that provides an incentive for risk-taking companies to invest in the power market. In removing the ability to economically withhold, participants suggested they would lose the potential to generate a return on capital and consequently the incentive to invest in new generation.

“Scarcity pricing is a fundamental tenet of the energy-only market, you have to have it in some form.

Barriers to entry for new entrants

All generator participants were prompted to comment on any perceived barriers to entry in Alberta’s power market. Respondents were divided on the existence of barriers to entry, as well as on the potential causes. Several participants indicated that there were no barriers to entry in Alberta’s deregulated power market. Other identified barrier to entry for new entrants included (ranked by frequency of mention):

- The complexity of AUC application processes
- Policy uncertainty
- End-of-life treatment for gas-fired generation
- Lack of a functioning tariff for energy storage

SUMMARY

An enduring and reliable policy environment was seen as a more important contributor to effective market function in the future than any other single policy element. The two different groups of market participants diverged on the aspects of the market that were most relevant to them. The power-only generators were deeply

concerned about policy certainty and the impediments to investments caused by federal Clean Electricity Regulations still in draft form and the provincial pause on approvals for renewables. The load participants were concerned about the cost of transmission and the volatility of electricity prices. None of the participants advocated for increased government intervention as a means to resolve these concerns.

INVESTMENT ANALYSIS AND VALUATION

To assist in understanding the perspectives of investors on the investibility of the market, the investor participants were asked to describe the inputs to their investment decision-making processes. Participants included providers of both debt and equity capital. A description of both types of capital investment is available in the Glossary on page 23.

For both debt and equity investors, the investment process consists of an assessment of the timing, quality and reliability of cash flows associated with an investment. As such, many of the elements of the process were common to all participants including:

- Analysis of the revenue opportunity
- Calculation of the capital and operating costs associated with producing that revenue
- Assessment of the risks to the resulting cash flow calculation
- Comparison with similar competing investment opportunities
- Incorporating the analysis into a valuation model

INVESTORS

Within the analysis, several investors identified specific inputs to the decision-making process:

- Almost all investors stated that they considered environmental or environmental, social and governance (“ESG”) factors when making investment decisions.

A few of these investors also mentioned investment policies that prohibited certain types of investments in fossil fuels.

- ▶ The majority of investors mentioned looking at the policy and regulatory environment as part of the investment decision. This was important for considerations of:
 - Opportunity for revenue growth
 - Allowed return on equity (“ROE”) and equity thickness
 - Risk of unfavourable changes in regulation or legislation
 - Potential for unprofitable operations or stranded assets
- ▶ The majority of investors mentioned the need for an appropriate mix of debt and equity in the financial structure that would properly reflect the risk to the cash flows of an investment.
- ▶ Most investors identified quality of management as a consideration.
- ▶ Most investors were limited to minimum credit quality standards as determined by a third party or internal risk rating.
- ▶ Most investors referred to adjustments to their risk models for the contractual nature of the cash flows including:
 - Whether the cash flows were contracted at all
 - Whether the contract incorporated inflation protection
 - Whether the term of the contract covered the term of the investment
 - Whether a contract was for baseload or peaking capacity
 - The form of the contract (Power Purchase Agreement (“PPA”) or merchant power)
 - Quality of counterparty to the contract
- ▶ About half cited generating technology as a factor affecting such considerations as estimated asset

life, capacity utilization, land lease term or future land remediation cost.

INDUSTRY ANALYSTS

The inputs to the valuation models were similar for the industry analysts.

- ▶ The majority said that revenue certainty as defined by the predictability of cash flows was very important for the evaluation of investments. The most frequently mentioned factors supporting revenue certainty included:
 - Cash flow visibility
 - Duration of contract
 - The form of the contract (PPA or merchant power)
 - Quality of counterparty to the contract
 - Contractedness including bargaining power and the duration of PPAs
- ▶ A number of participants referred to the incorporation of operating costs and risks as defined by:
 - Asset quality
 - Asset efficiency
 - Dispatch frequency
 - Maintenance costs
 - Expected economic life of an asset
- ▶ Participants raised the issue of the quality and track record of management.
- ▶ About half the participants mentioned interest rates and the cost of capital.
- ▶ A few referred to financial risk as defined by the balance sheet and cash flow coverage of principal and interest payments.
- ▶ A few mentioned growth rates in demand for power in the market.

On the question of how these considerations would be adjusted to assess the value of an investment in renew-

able energy, investors and analysts had similar responses which are aggregated below:

- ▶ Most participants mentioned an increased consideration of the physical properties of a project.

“ [With] wind, you do have more of a definite life. The re-powering looks different than say re-powering a hydro project. So, as you’re getting later in the life of a bond of a hydro project, your asset coverage is a fair bit higher than say for a wind project where there might be a land lease that’s not indefinite.

And your asset life is shorter overall. that equity cushion is shrinking as you’re getting late into a wind project where it’s not really the case with hydro.

- ▶ Many noted that the credit quality of renewables was lower due to shorter asset life, lower capacity factor, less predictability of non-dispatchable assets and higher risk of non-economic operations.
- ▶ Many also mentioned the larger role of government in the renewables market compared to non-renewable projects in the form of incentives and subsidies. Some suggested that renewables should receive a higher valuation due to cash flow support from government.

“ The valuation difference between thermal and renewables is that you would take a different approach to how you value post-2035 cash flows from a non-renewable project because you don’t know whether or not that is going to be running and most investors will either place a very little value... on it running beyond 2035 until there is certainty.

INVESTMENT JURISDICTION

Investors

As part of the Inquiry into the investment decision-making process, participants were asked to identify characteristics of investment jurisdictions that they considered attractive.

The most commonly cited characteristic of an attractive investment jurisdiction was policy stability, followed by (in order of frequency of mention):

- ▶ Credible fossil fuel transition plans
- ▶ Availability of long-term contracts
- ▶ Contracts with investment-grade counterparties
- ▶ Supportive regulatory frameworks
- ▶ Attractive allowed returns on equity and equity thickness

Specific jurisdictions that were identified as attractive to investors were (in order of frequency of mention):

- ▶ British Columbia
- ▶ Ontario
- ▶ Florida
- ▶ Parts of the United States
- ▶ Quebec
- ▶ Nova Scotia
- ▶ Arizona
- ▶ California
- ▶ UK
- ▶ Other European countries
- ▶ Australia

Some investors reported that they had considered Alberta an attractive jurisdiction in the past but that this was no longer the case. When asked about recent capital deployments, several investors cited recent participation in a BC Hydro debt issue. **BC Hydro was offered as an example of an attractive investment with long-lived baseload hydro power generation assets and a low-risk counterparty in the form of a provincial Crown corporation.**

Some mentioned participating in the Capital Power issue following

their recent US acquisition. Others invested in securities of Epcor, Northland Power, and NextEra Energy.

Industry analysts

There was general consensus among participants about the characteristics of an attractive investment jurisdiction. The most commonly cited characteristic was breadth of opportunity, followed by supportive regulatory/political environment, demand growth, availability of long-term contracts, and active fossil fuel transition plans. There was general agreement that markets with uncertainty were difficult to invest in.

Specific jurisdictions that were identified as attractive included (in order of frequency of mention):

- ▶ Parts of the United States
- ▶ Canada
- ▶ Alberta
- ▶ Ontario
- ▶ Quebec
- ▶ Florida
- ▶ PJM
- ▶ Europe
- ▶ Asia

Interestingly, the investor preference for British Columbia as a jurisdiction was not reflected in the answers given by industry analysts.

“ I’d say the US market is almost table stakes for most companies just because of the breadth of the opportunity there. But increasingly Canada, after going through what was probably a dry spell for new growth opportunity... We’re now seeing an upswing both on the needed investments on the utility side... and on the power demand side from electrification trends, but also some more energy intensive industries that have been sort of stronger in the last couple of years.

INVESTOR PERCEPTION

Industry analysts are in contact with hundreds of investors on a regular basis. As part of their interviews, analysts were asked to disclose what were the most significant issues for investors in connection with the Alberta power market. The most common response was that investors were increasingly concerned about policy uncertainty and the impact on asset life. Several mentioned a shift from a focus on growth to balance sheet quality. Several mentioned changes in the cost of capital and return on capital. A few participants suggested that investors were concerned about the effect of new supply on power prices. Others suggested that growth was the most important consideration.

SUMMARY

Any risks to cash flows in the form of uncertain operating profile, volatile input costs, uncontracted cash flows or excess financial leverage would result in a reduction in valuation through lower multiples or higher discount rates. There was a good level of consensus among members of the investment community on the factors that contributed to the attractiveness of an investment. Predictability of cash flows and long asset lives would be rewarded with higher valuations.

“ ...and those that have policy uncertainty as well - those are difficult to invest in because of those uncertainties and we would require a higher discount rate.

The main difference between the two groups of market participants is that investors, unlike industry analysts, are often subject to the constraints of an investment policy that incorporates external credit quality and ESG parameters. Despite this difference, analysts did correctly identify the issues of primary concern to the investor population.

Investors and analysts were all able to identify jurisdictions in which attractive investment opportunities were available. Investors pointed to more opportunities within Canada whilst analysts were likely to identify jurisdictions both inside and outside Canada as desirable.

SUPPLEMENTARY COMMENTS

Participants were offered the opportunity to provide additional comments. This was an open-ended question to allow participants to contribute content outside the framework of the interview. These comments are summarized below.

Investor comments

- ▶ They could be a much more meaningful investor in Alberta if they could consider it on par with other jurisdictions such as British Columbia.
- ▶ Alberta has been thoughtful about managing its environmental impacts and is encouraged to continue.
- ▶ Policymakers must be mindful that investors have not earned returns in the last five to ten years that allowed them to recover the costs of invested assets in the market.

Industry analyst comments

- ▶ There is a need for a more unified message between industry and government at the provincial level.
- ▶ There should be more emphasis on storage procurement if the market is to switch to non-dispatchable intermittent power.
- ▶ They hope that not much meaningful changes.
- ▶ Certainty is important for investment and that the discrepancy in priorities between governments makes it hard to invest.

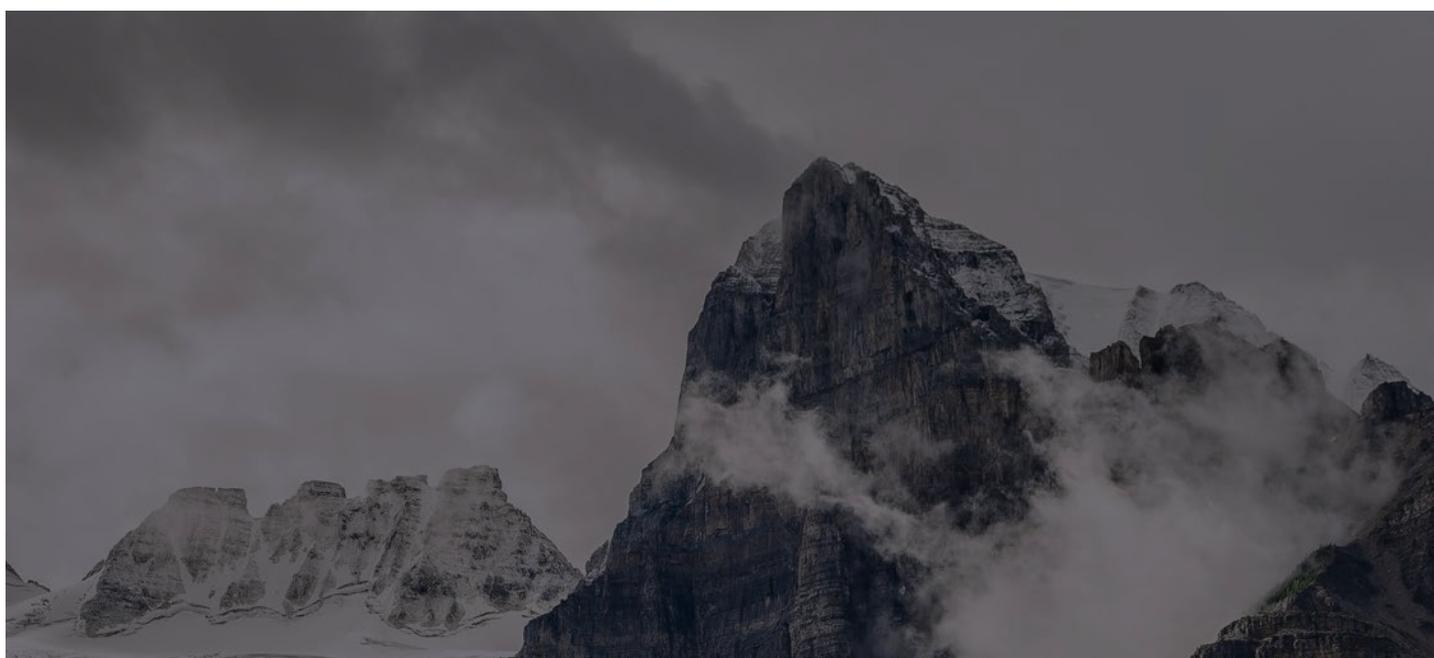
Power generator comments

- ▶ The AUC was understaffed and required more resources to process applications expediently.
- ▶ The AUC must provide its honest advice to the government, rather than tell the government what it wants to hear.
- ▶ There should be a requirement for storage quotas for renewable projects, in line with the requirements for other infrastructure businesses in the province.
- ▶ The province needs to invest in intertie capacity to maintain reliability.

- ▶ Markets that move away from renewables, for whatever reason, have challenges attracting investment back to the region for several years.
- ▶ The industry needs to see the various inquiries and ambiguities facing Alberta's power market resolved as quickly as possible, and to have the results communicated back to industry as quickly as possible.
- ▶ It is important for the people of Alberta to understand that wind and solar power can reduce the cost of electricity in the province and offers as evidence the government-backed contracts that secured the Renewable Electricity Program.

Indigenous market participants

“Where do you identify opportunities for meaningful dialogue and actual partnership on these issues? It is really important to create space for us to be involved with government and with regulators because with these issues, if they are done well, they can have a long-term benefit for our communities. Let's work together.”



Conclusions

Perspectives on the outlook for Alberta’s power market are varied and changing rapidly.

Participants in this survey represent a diverse set of stakeholders in the market including providers of debt and equity capital, industry advisors, Indigenous market participants, and a subset of current and prospective generators of renewable and non-renewable electricity. Most participants agree that their outlook has changed substantially in recent years. Policy uncertainty is the primary driver of this shift in outlook.

For capital market participants, the perceived risk to returns on invested capital has led to market participants either withdrawing from the market or requiring significantly higher returns before committing capital to the market, increasing the cost of invested capital in the province compared with other jurisdictions. Similarly, policy uncertainty is leading several generators, particularly developers of thermal generation, to now be less likely to invest in Alberta in the short term. Other drivers were noted by participants, but no other factor was as frequently mentioned as policy uncertainty. **Many participants indicated that Alberta would continue to be an investible market in the long term if these policy concerns were to be resolved.**

Perspectives on the best solutions to support concurrent goals of emissions reduction, affordability, and reliability are equally diverse. However, there are areas of agreement where

developers of electricity generation agree, including market design. **There was a general agreement amongst participants that the energy-only market is the most preferred market to incent investment in the province.** Introducing elements of other market designs, including capacity markets, integrated system planning, or a provincial Crown corporation was not viewed favourably by the respondents to the survey.

Similarly, capital markets participants emphasized the need for predictability of cash flow to incent investment and expressed confidence that structures to provide that predictability should be available within the energy-only market. Participants largely agreed that government participation in the power market would be destructive for investment from the private sector. Many made reference to the discrepancy between economic life of an asset and the duration of an election cycle as well as to the negative impacts to investment returns from past policy changes. For that reason, many market participants are less concerned with the shortcomings of the existing market design than with the potential adverse effects of implementing any change. **At a minimum, investors would be likely to pause investment in the market if not fully withdraw until sufficient long-term policy clarity is available.**

Participants largely agreed that the existing energy-only market is equipped to ensure an affordable and clean power system. However, many participants across respondent groups agreed that the introduction of new market products for reliability services could help support system reliability. These participants urged that these reliability services be procured competitively to uphold the foundational principle of competition within Alberta’s power market.

Policy uncertainty is currently the most significant impediment to investment in Alberta’s electricity market. This takes many forms, but the consensus amongst the participants of the survey was that the complicated, overlapping, and rapidly changing policy environment facing investors in the power market prevents them from modelling project revenues with any confidence and making sound investment decisions based on their modelling. Perspectives varied on who is most responsible for causing policy uncertainty. Participants suggested that the federal government, the provincial government, the Alberta Utilities Commission, and the Alberta Electric System Operator all play a role in contributing to the current situation. The consensus was clear that a more aligned approach would create a more constructive investment climate.

Glossary

Clean Electricity Regulations	The Clean Electricity Regulations are an element of the Government of Canada's actions to achieve a net-zero electrical grid by 2035. They were released in draft form in August 2023.
Debt	Providers of capital in the form of debt receive a return in the form of fixed principal and interest payments on the debt. Debt investors are primarily interested in the credit quality of an investment which is defined as the level of certainty of receiving the scheduled principal and interest payments. Debt investments are considered to be lower risk because project cash flows are allocated to debt payments ahead of any returns to equity investors. Because debt investments carry lower risk, they are generally a lower cost funding option than equity investments.
Equity	Equity investors receive a return on investment in two ways. They may receive dividend payments on their investment as well as an increase in the value of their investment on disposition. The value of an investment is a function of the cash flows to an entity after the payment of all required interest payments and taxes. If an investment is considered attractive, investors will pay a higher multiple of cash flows, resulting in a higher value for the investment. The goal of equity investing is to identify investments that are attractive today with the expectation of selling for a higher price in future.
Equity thickness	Equity thickness is the proportion of the capital base of a utility that consists of shareholder equity rather than debt. Other things being equal, investors prefer a thicker equity base over the alternative of taking on more debt.
Hurdle rate	The hurdle rate of an investment refers to the level of return on investment in a project that is necessary to entice investors to participate in that project. The reference for hurdle rate was yield spread over Government of Canada Bonds for debt investors and multiple of cash flow for equity investors. Investors and analysts all recognize the need for appropriate risk-adjusted returns or compensation for taking different types of investment risk.
Investment-grade	Investment-grade refers to the group of credit ratings that imply a low risk of default. Entities with investment-grade credit ratings are able to issue debt at a lower interest rate than others with weaker credit ratings.
Investment tax credits	Investment tax credits in Canada are incentives to business investment that allow investors to deduct a portion of their investment costs from their taxes.
Net zero	Net zero refers to a state in which all emissions of greenhouse gases into the atmosphere from human activities are offset by removal of greenhouse gases from other activities.
Power purchase agreement	A power purchase agreement is a long-term arrangement between the producer and consumer of power that specifies the volume and price of the purchased power.
Renewable energy credits	Renewable energy credits (also renewable energy certificates) are evidence of power generation from a renewable source. These can be purchased and sold to transfer the renewable aspect of energy generation from one owner to another.
Return on equity	Return on equity is a measure of the financial performance of an entity calculated by dividing the net income of an entity by the equity capital invested to produce that income.
Scope 1, Scope 2 emissions	Scope 1 emissions refer to greenhouse gases that are generated from sources owned or controlled by an organization. Scope 2 emissions are indirect emissions of greenhouse gas by an organization from purchased energy. Greenhouse gas emissions are a widely accepted reporting standard of the climate impact of an organization.

