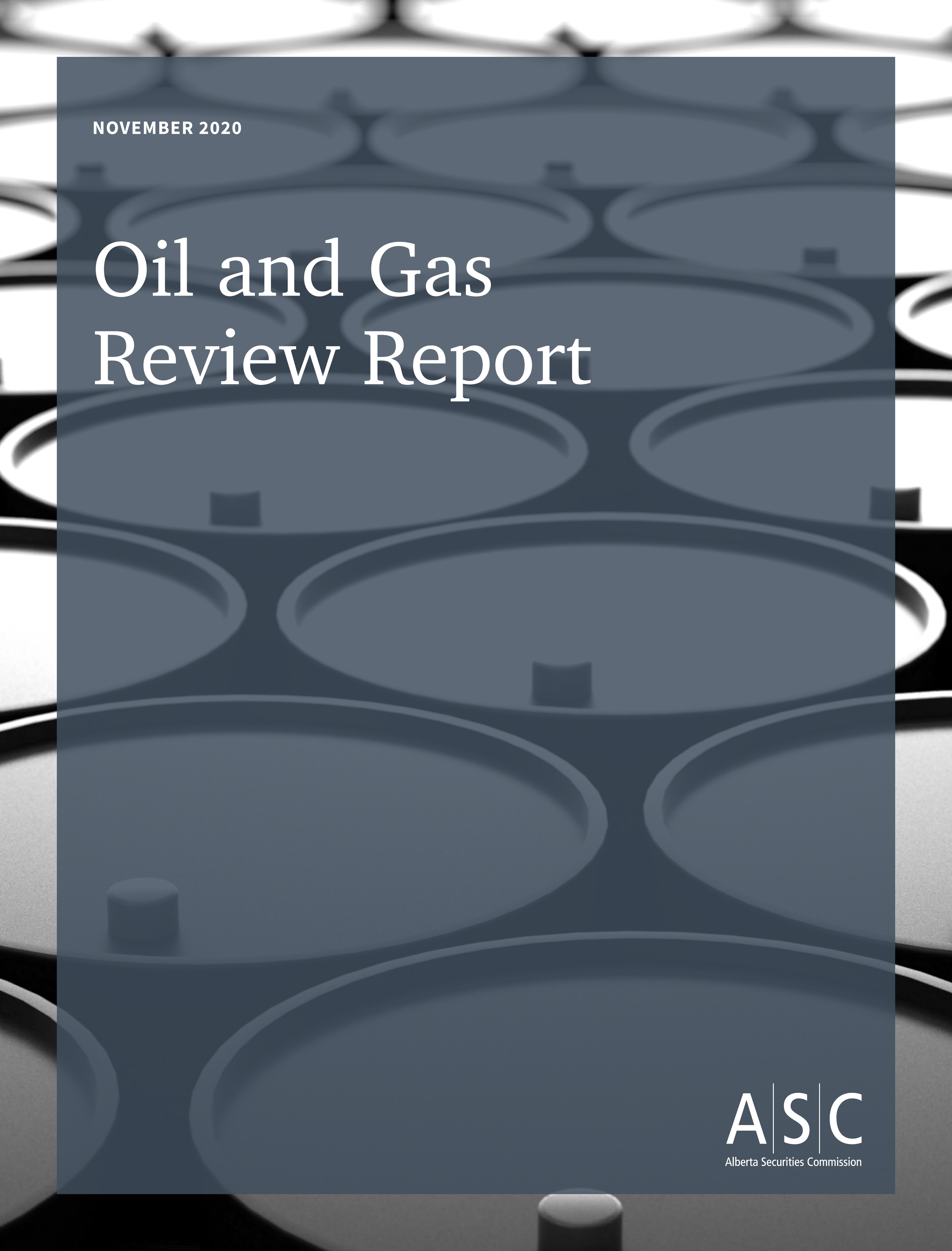
NOVEMBER 2020

Oil and Gas Review Report



ASC
Alberta Securities Commission

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It is critical that investors receive transparent, timely and accurate information.

The Alberta Securities Commission is proud to be the lead oil and gas regulator within the Canadian Securities Administrators. We enjoy and appreciate working with this innovative, responsible and valuable sector.

The oil and gas industry is an important economic driver for all of Canada, and it continues to experience significant market access, pricing, regulatory and policy challenges. It remains critical that investors receive transparent, timely and accurate information about the opportunities and risks facing corporate issuers. Effective disclosure builds investor confidence and enables them to make informed decisions.

With the unprecedented circumstances continuing in Alberta's capital markets, our objective with this report is to provide useful and straightforward information that makes it easier for reporting issuers to achieve effective disclosure.

The ASC's Energy group, within the Corporate Finance division, prepares this report annually. Our experienced and knowledgeable professionals understand the industry and its current challenges. They are committed to working with, and providing assistance to, reporting issuers in their efforts to meet securities law requirements and ultimately protect investors.

Our Corporate Finance division is here to assist you. Please feel free to contact me or my colleagues identified in this report with any feedback or questions. We welcome the opportunity to connect with you.

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Each year the ASC issues four reports: the annual report, the Alberta capital markets report, the oil and gas review report and the corporate finance disclosure report. These reports are created to provide timely and relevant information for market participants and reporting issuers. They can be found at albertasecurities.com.

1. Introduction

1.1 GENERAL

The Alberta Securities Commission (**ASC**) administers Alberta's securities laws and is the lead regulator on oil and gas matters within the Canadian Securities Administrators (**CSA**), the umbrella group of Canada's securities regulators. Alberta's securities laws are established under the *Securities Act* (Alberta), which is designed to ensure that the province's capital market operates fairly and efficiently. To achieve this, investors must have access to timely, effective and compliant disclosure that is balanced, authentic, relevant and reliable. The Energy group (previously the Petroleum group) of the Corporate Finance division oversees oil and gas matters within the ASC, with responsibilities that include:

- Review of oil and gas disclosure and associated evaluations from issuers that report under National Instrument 51-101 *Standards of Disclosure For Oil and Gas Activities* (**NI 51-101**)
- Development and maintenance of oil and gas disclosure requirements and policy
- Communication with capital market participants

Published annually, the Oil and Gas Review (**Report**) provides information about:

- Oil and gas disclosure from reporting issuers (**RIs**) engaged in oil and gas activities
- Alberta's capital market
- Quality of reserves estimates
- Select oil and gas regulatory topics
- Energy group activities

Under section 2.1 of NI 51-101, RIs are required to file the following with the securities regulatory authority on an annual basis:

- Form 51-101F1 *Statement of Reserves Data and Other Oil and Gas Information* (**Form 51-101F1**)
- Form 51-101F2 *Report on [Reserves Data][,] [Contingent Resources Data] [and] [Prospective Resources Data] by Independent Qualified Reserves Evaluator or Auditor* (**Form 51-101F2**)
- Form 51-101F3 *Report of Management and Directors on Oil and Gas Disclosure* (**Form 51-101F3**)

Specific circumstances may necessitate the filing of:

- Form 51-101F4 *Notice of Filing of 51-101F1 Information*
- Form 51-101F5 *Notice of Ceasing to Engage in Oil and Gas Activities*

NI 51-101 sets out the general disclosure standards and specific annual disclosure requirements for RIs engaged in oil and gas activities. Per NI 51-101, disclosure must be prepared in accordance with the Canadian Oil and Gas Evaluation Handbook (**COGE Handbook**), which is maintained and distributed by the Society of Petroleum Evaluation Engineers (**SPEE**) (Calgary Chapter) (www.speecanada.org). The COGE Handbook is amended from time to time and RIs must ensure that their disclosure complies with changes upon publication. An amended COGE Handbook was published in October 2019.

1.2 EXECUTIVE SUMMARY

The ASC's Corporate Finance division acknowledges the importance of the oil and gas industry to Canada and the world. This industry is recognized for its expertise, innovation, environmental and social responsibility and accountability, and outsized economic contributions. Our division also recognizes the importance of diversified energy sources and their similar capital requirements. As such, the mandate of the group responsible has been expanded to include oversight of all energy-related technical matters within Alberta's capital market. To reflect this mandate, what was formerly known as the Petroleum group has been re-named the Energy group. The Energy group remains engaged on oil and gas matters, while also applying its comprehensive expertise to other energy matters.

The Energy group continues to be tasked with reviewing general and required annual oil and gas disclosure for compliance with securities regulations, specifically NI 51-101 and its related forms. These efforts continued in 2020 in the face of the COVID-19 pandemic that introduced and exacerbated previously existing difficulties for the oil and gas industry. While the disclosure reviewed was generally compliant, the Report contains observations and analyses concerning key areas for improvement identified by staff. In addition, the Report contains general commentary and statistics about Alberta's capital market, remarks on the quality of reserves estimates, provides information regarding select regulatory topics, and discusses activities conducted by the Energy group.

Areas identified for improvement involve:

- **Abandonment and reclamation costs**
- **Production**
  - Disclosure is required by each product type, with measurement at the first point of sale
  - Proper disclosure of production rates
- **Reserves reconciliations**
  - Disclosure per item 4.1 of Form 51-101F1, which requires annual accounting of changes in reserves estimates

1.3 YEAR IN REVIEW

In 2020, the Energy group's principal activities with respect to oil and gas were:

- The review of oil and gas disclosure and evaluations of oil and gas reserves and resources other than reserves
- Ongoing maintenance of oil and gas policy
- Communication with capital market participants

Regarding reviews, staff conducted 155 screening reviews of the required annual oil and gas filings, including 123 for RIs principally regulated by the ASC and 32 for those principally regulated by other Canadian jurisdictions. To the end of September 2020, staff screened nearly 1,300 news releases and elevated 21 of these to news release reviews that resulted in the corresponding RI being contacted by staff. In addition, staff conducted 11 other review types to the end of September 2020. Further information on review types is contained in section 2 of this Report.

Regarding the ongoing maintenance of oil and gas policy, staff assisted the SPEE (Calgary Chapter) in its efforts regarding the COGE Handbook.

As part of its commitment to communicate with capital market participants, the ASC published the 2019 edition of the Oil and Gas Review Report in December 2019. It was also emailed to more than 1,606 subscribers. In February 2020, staff hosted the annual NI 51-101 Oil and Gas Review Information Session, consisting of an in-person seminar and simultaneous webinar. The seminar had 150 registered attendees, while the webinar had 213 registered participants. Participants received a copy of, or a link to the 2019 Oil and Gas Review Report. See https://asc.ca/news-and-publications/events for information concerning future seminars and webinars.

Between October 2019 and the end of September 2020, the Energy group responded to 34 inquiries pertaining to NI 51-101 matters. These included 11 from RIs, 11 from reserves evaluation firms, seven from legal firms, three from other Canadian regulators, and two from other sources.

In addition, the ASC's Petroleum Advisory Committee (**PAC**) met three times between October 2019 and the end of September 2020. Among other topics, these meetings addressed many of the current challenges faced by RIs, including those related to the COVID-19 pandemic.

We understand the difficult situation faced by capital market participants in recent years, particularly so in 2020. Please let us know how we can help. The Energy group can be reached at your convenience through the contact information in section 6 of the Report.

2. Disclosure commentary

This section discusses key areas of disclosure that staff have identified for improvement. It incorporates observations and analyses drawn primarily from the reviews of 2020 disclosure attributed to oil and gas activities conducted in 2019.

In its role as the lead regulator on oil and gas matters within the CSA, the ASC has a rigorous review process to assess compliance with oil and gas securities requirements. This process primarily focuses on RIs principally regulated by the ASC. However, staff review the required annual oil and gas filings from RIs principally regulated by other jurisdictions and upon request, participate in reviews initiated by these jurisdictions.

The type of review conducted will often determine specifically what will be reviewed. Reviews may incorporate disclosure required by section 2.1 of NI 51-101 (the statement of information specified in Form 51-101F1 and related reports), prospectuses, management discussion and analyses, news releases, investor presentations, and websites, along with material used to prepare disclosure, such as evaluations of oil and gas reserves and resources other than reserves.

The Energy group conducts or participates in reviews such as:

- **Screening**
  - incorporates annual filings, which includes the statement of information specified in Form 51-101F1, and reports in accordance with Form 51-101F2 and Form 51-101F3
  - may evolve into technical or continuous disclosure reviews (see below)
- **News release**
  - in addition to news releases, incorporate other disclosure, as required
  - may evolve into technical or continuous disclosure reviews
- **Technical**
  - incorporates evaluations of reserves and resources other than reserves and associated disclosure
  - may evolve into continuous disclosure reviews
- **Continuous disclosure**
  - incorporates all oil and gas disclosure
- **Prospectus (short-form, long-form (IPO) and shelf)**
  - incorporates other disclosure, as required

Specific circumstances help determine the outcome of each review. Outcomes include:

- no action taken
- advisory comment(s) intended to improve disclosure
- identification of deficiencies, including errors and omissions that may be misleading, with results that include:
  - requirement to correct
  - issuer placed in default
  - management cease trade order
  - cease trade order
  - referral to the ASC Enforcement division

RIs that are uncertain whether their disclosure is compliant with NI 51-101, the COGE Handbook or more generally, the *Securities Act* (Alberta), are encouraged to seek the advice of an appropriate professional advisor.

Please note that section 92(4.1) of the *Securities Act* (Alberta) prohibits misleading disclosure:

> No person or company shall make a statement that the person or company knows or reasonably ought to know
>
> (a) in any material respect and at the time and in the light of the circumstances in which it is made,
>
> (i) is misleading or untrue, or
>
> (ii) does not state a fact that is required to be stated or that is necessary to make the statement not misleading,
>
> and
>
> (b) would reasonably be expected to have a significant effect on the market price or value of a security, a derivative or an underlying interest of a derivative.

Section 1.4(2) of NI 51-101 states regarding materiality:

> [I]nformation is *material* in respect of a *reporting issuer* if it would be likely to influence a decision by a reasonable investor to buy, hold or sell a security of the *reporting issuer*.

General guidance and examples of misrepresentations and misleading statements are provided in section 2(a)(i)(A) of CSA Staff Notice 51-327 *Revised Guidance on Oil and Gas Disclosure*.

2.1 ABANDONMENT AND RECLAMATION COSTS

Concern: Disclosed abandonment and reclamation costs and associated future net revenue.

Specifically:

- abandonment and reclamation costs (**ARC**) and associated future net revenue (**FNR**) that are prepared or disclosed incorrectly
- **ARC** and associated **FNR** that exceeds minimum NI 51-101 requirements that is
  - prepared or disclosed incorrectly, or
  - prepared or disclosed correctly, but under the mistaken assumption that it is required

Staff concerns result from:

- Reviews of disclosure and associated evaluations of reserves and resources other than reserves
- Inquiries and discussions with capital market participants
- Public statements from and discussions with reserves evaluation firms

Disclosure requirements and guidance regarding ARC and associated FNR are reviewed first. This is followed by a discussion of the requirements and guidance with respect to disclosure of ARC and associated FNR that exceeds the minimum requirements of NI 51-101.

Section 1.1 of NI 51-101 defines FNR as:

> [A] forecast of revenue, estimated using *forecast prices and costs or constant prices and costs*, arising from the anticipated development and production of <u>*resources*</u>, net of the associated royalties, *operating costs, development costs,* and <u>*abandonment and reclamation costs*</u>; [Emphasis added]

Per CSA Staff Notice 51-324 *Revised Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities* (**CSA SN 51-324**), resources incorporates reserves, and resources other than reserves, including contingent resources and prospective resources.

Section 1.1 of NI 51-101 defines ARC as:

> [A]ll costs associated with the process of restoring a *reporting issuer's* <u>*property*</u> that has been disturbed by <u>*oil and gas activities*</u> to a standard imposed by applicable government or regulatory authorities; [Emphasis added]

There is some confusion regarding what is meant by "all costs" and its relationship to the defined terms property and oil and gas activities. Understanding these defined terms is key to the explanation.

Per CSA SN 51-324, property includes:

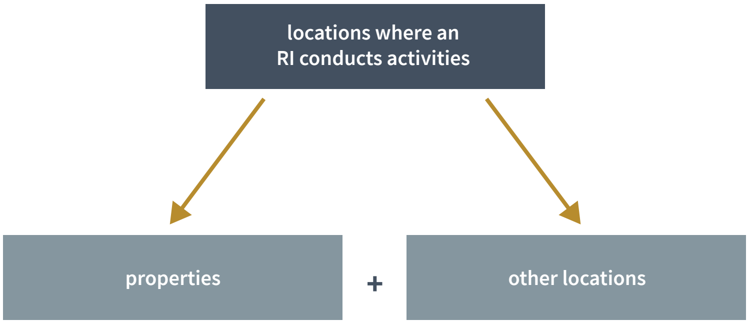
> (a) fee ownership or a *lease*, concession, agreement, permit, licence or other interest representing the right to extract *oil* or *gas* subject to such terms as may be imposed by the conveyance of that interest;
>
> (b) royalty interests, *production* payments payable in *oil* or *gas*, and other non-operating interests in *properties* operated by others; and
>
> (c) an agreement with a foreign government or authority under which a *reporting issuer* participates in the operation of *properties* or otherwise serves as "producer" of the underlying *reserves* (in contrast to being an *independent* purchaser, broker, dealer or importer).[…]

A lease is a type of property, defined in CSA SN 51-324 as:

> An agreement granting to the lessee rights to explore, develop and exploit a *property*.

Properties are a subset of all the locations where an RI conducts activities. However, not every location where an RI conducts activities is a property, per CSA SN 51-324.

Figure 1: Property differentiation



Section 1.3 of NI 51-101 states that NI 51-101 applies to RIs engaged directly or indirectly in oil and gas activities. Per section 1.1 of NI 51-101, oil and gas activities includes:

> (a) searching for a *product type* in its natural location;
>
> (b) acquiring *property* rights or a *property* for the purpose of exploring for or removing *product types* from their natural locations;
>
> (c) any activity necessary to remove *product types* from their natural locations, including construction, drilling, mining and production, and the acquisition, construction, installation and maintenance of *field* gathering and storage systems including treating, *field* processing and *field* storage;
>
> (d) producing or manufacturing of *synthetic crude oil* or *synthetic gas*;

but does not include any of the following:

> (e) any activity that occurs after the *first point of sale*;
>
> (f) any activity relating to the extraction of a substance other than a *product type* and their *by-products*;
>
> (g) extracting *hydrocarbons* as a consequence of the extraction of geothermal steam.

Note that field is discussed in section 5.8 of Companion Policy 51-101CP *Standards of Disclosure For Oil and Gas Activities* (**51-101CP**), which states:

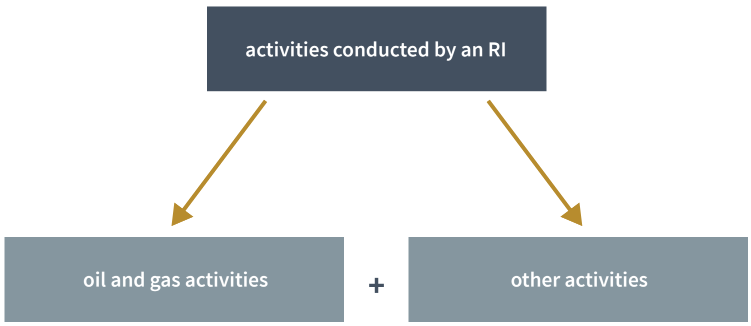
> For the purposes of *NI 51-101, CSA* staff interpret field to be limited to a single pool or grouping of several pools within the geographic area or administrative unit from which *product types* can reasonably be recovered.

Section 1.3 of 51-101CP provides guidance on what may constitute oil and gas activities and states in part:

> The definition of *oil and gas activities* is broad. For example, a *reporting issuer* with no *reserves*, but with *prospects*, unproved *properties* or *resources*, other than *reserves*, may be deemed to be engaged in *oil and gas activities* because such activities include exploration and development of unproved *properties*.
>
> *NI 51-101* will also apply to an issuer that is not yet a *reporting issuer* if it files a prospectus or other disclosure document that incorporates prospectus requirements.

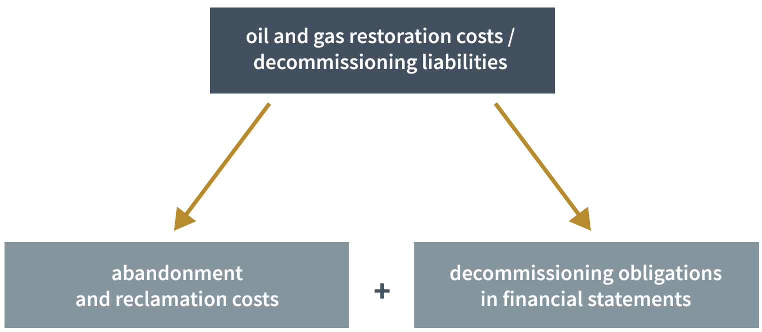
Oil and gas activities are a subset of the larger category of activities conducted by an RI. In other words, some activities conducted by an RI will not be oil and gas activities.

Figure 2: Oil and gas activities differentiation



Similarly, ARC are a subset of the usually larger category of oil and gas restoration costs/decommissioning liabilities. This category includes ARC <u>and</u> other costs accounted for as decommissioning obligations in an RI's financial statements. Due to financial reporting requirements, an RI's decommissioning obligations will typically include only some of its ARC, but will include other oil and gas restoration costs/decommissioning liabilities that <u>are not</u> ARC.

Figure 3: Abandonment and reclamation costs differentiation



In recent years, staff have observed an overall increase in the aggregated ARC disclosed by RIs in the statement of reserves data and other information. This increase has been dramatic for some RIs, and has frequently occurred in the absence of changes in reserves data, assets or business activities, or cost inflation, that would help support such changes.

Many RIs have explained in their disclosure that this increase is due to amendments to the COGE Handbook published in October 2019, which advised them to incorporate additional, previously excluded, costs into their ARC. Some of these RIs have explained that they are following the direction of their professional service providers, who have informed them that this is necessary to meet the requirements of NI 51-101.

While these additional costs are certainly oil and gas restoration costs/decommissioning liabilities, staff's view is that most of these are not ARC, as defined in NI 51-101, and would not typically be considered as such for the purposes of disclosure under NI 51-101. In actuality, many, if not all of these costs, are accounted for in an RI's financial statements.

The review of an RI's statement of reserves data and other information <u>and</u> its financial statements should provide a comprehensive picture of an RI's oil and gas restoration costs/decommissioning liabilities. An RI is not precluded from providing commentary in its disclosure to this effect, and in fact is encouraged to do so to help ensure that readers are aware of all of its ARC and its decommissioning liabilities and the impact these have on its financial position.

Staff remind RIs and their professional service providers that there have been no changes to NI 51-101 since 2015. While the COGE Handbook discusses the preparation of evaluations, disclosure requirements under NI 51-101 are strictly the purview of NI 51-101; the COGE Handbook does not supersede the requirements specified in NI 51-101. Staff stress the joint responsibility of those responsible for disclosure and those responsible for its preparation to be adequately informed.

Section 5.1 of the COGE Handbook addresses its flexibility in application:

> […] an evaluator should ensure an evaluation will meet the purpose for which it is being carried out, that it is fit for purpose.
>
> The COGEH provides general guidance on the content of a report, but the content depends on the purpose. Even if the general purpose is the same, there may be differences in content. For example, an evaluation carried out for regulatory reporting in one jurisdiction may not meet the requirements for a different jurisdiction.

RIs and their professional service providers are encouraged to contact staff if further clarification is necessary. RIs and their professional service providers must ensure that evaluations for disclosure under NI 51-101 are prepared in a manner that allows for compliant disclosure under NI 51-101. Reviews of recent ARC disclosure by staff has identified certain disclosure that may not meet the requirements of NI 51-101.

Later in this section, staff address how RIs can provide additional disclosure concerning their oil and gas restoration costs/decommissioning liabilities, while adhering to NI 51-101.

KEY POINTS

- A property is where an RI conducts or intends to conduct oil and gas activities involving the search for, acquisition of, or removal of product types and their by-products from their natural locations before the first point of sale, where the RI has the right or otherwise an agreement to do so.
- Only costs associated with restoring a RI's property that arise from the RI's oil and gas activities that have occurred or are expected to occur, <u>are</u> ARC.
- Activities that <u>are not</u> oil and gas activities can be conducted on an RI's property (and elsewhere), but the restoration costs <u>are not</u> ARC.
- The full picture of an RI's oil and gas restoration costs/decommissioning liabilities depends upon assessment of an RI's NI 51-101 disclosure and its financial statements; this assessment depends upon RIs and their professional service providers understanding and fulfilling their respective responsibilities.

SCENARIOS

- A producing oil well drilled by an RI on its property (or drilled by a company that it has an agreement with) that has reserves attributed by the RI, will have costs associated with its eventual abandonment and reclamation/decommissioning.

  NI 51-101: the RI's share of these and related costs before the first point of sale, are ARC

  Financial statements: the RI's share of these costs is accounted for as decommissioning obligations

- An oil well anticipated to be drilled by an RI (or drilled by a company that it has an agreement with) that has reserves attributed by the RI, will have costs associated with its eventual abandonment and reclamation/decommissioning.

  NI 51-101: the RI's share of these and related costs before the first point of sale, are ARC

  Financial statements: until drilling of the well commences, the RI's share of these costs is not accounted for as decommissioning obligations[1]

- If an RI acquires a property with a well situated on it that the RI attributes reserves to, the well will have costs associated with its eventual abandonment and reclamation/decommissioning.

  NI 51-101: the RI's share of these and related costs before the first point of sale, are ARC

  Financial statements: the RI's share of the costs assumed in the acquisition are accounted for as decommissioning obligations

- If an RI acquires a property with a well situated on it that the RI does not attribute reserves to, the well will have costs associated with its eventual abandonment and reclamation/decommissioning.

  NI 51-101: the RI's share of these and related costs before the first point of sale, are not ARC

  Financial statements: the RI's share of these costs is accounted for as decommissioning obligations

1 A decommissioning obligation is not recognized until there is a legal or constructive obligation.

The definition of FNR establishes that disclosure of FNR attributed to any category of reserves or resources other than reserves, is required to be net of ARC. This is necessary whether the disclosure occurs within or outside of the statement of the reserves data and other information specified in Form 51-101F1. Since FNR is determined by netting off ARC, correctly determined FNR requires correctly determined ARC. Let us review the disclosure requirements concerning FNR.

Section 2.1(1) of NI 51-101 requires an RI to file, no later than the date on which it is required to file audited financial statements for its most recent financial year:

> [A] statement of the *reserves data* and other information specified in *Form 51-101F1*, as at the last day of the *reporting issuer's* most recent financial year and for the financial year then ended;

Section 1.1 of NI 51-101 defines reserves data as:

> [A]n estimate of *proved reserves* and *probable reserves* and *future net revenue*, estimated using *forecast prices and costs*.

Item 2.1(2) of Form 51-101F1 requires disclosure by country and in the aggregate of the net present value of FNR attributed to the following reserves categories:

> (a) *proved developed producing reserves;*
> (b) *proved developed non-producing reserves;*
> (c) *proved undeveloped reserves;*
> (d) *proved reserves* (in total);
> (e) *probable reserves* (in total);
> (f) *proved* plus *probable reserves* (in total);[…]

Item 2.1(3)(b) requires disclosure by country and in the aggregate of ARC for the reserves categories specified in item 2.1(3)(a), which are:

> (i) *proved reserves* (in total)
> (ii) *proved* plus *probable reserves* (in total);[…]

As stated previously, staff has identified certain recent ARC disclosure that may not meet the requirements of NI 51-101. As ARC are netted from revenue to determine FNR, incorrectly determined ARC may result in disclosure of FNR that does not meet the requirements of NI 51-101.

Later in this section, staff discuss general instruction (5) of Form 51-101F1, which addresses how RIs can provide additional disclosure concerning their oil and gas restoration costs/decommissioning liabilities, while adhering to NI 51-101.

KEY POINTS

- Item 2.1 of Form 51-101F1 requires an RI engaged in oil and gas activities to disclose FNR for the specified reserves categories.
  - FNR is defined as being net of ARC.
- Item 2.1 requires an RI to disclose the associated ARC for the specified reserves categories.
- Since FNR is determined by netting off ARC, correctly determined FNR depends upon correctly determined ARC. Incorrectly determined ARC may lead to disclosure of incorrect FNR, which has the potential to be misleading.

ARC are also addressed in items 5.2 and 6.2.1 of Form 51-101F1. The former addresses significant economic factors or uncertainties affecting reserves data, and states:

> Identify and discuss significant economic factors or significant uncertainties that affect particular components of the *reserves data*.
>
> *INSTRUCTIONS*
>
> *(1)* A reporting issuer *must, under this Item, include a discussion of any significant* abandonment and reclamation costs, *unusually high expected* development costs *or* operating costs, *or contractual obligations to* produce *and sell a significant portion of* production *at prices substantially below those which could be realized but for those contractual obligations.*
>
> *(2) If the information required by this Item is presented in the* reporting issuer's *financial statements and notes thereto for the most recent financial year ended, the* reporting issuer *satisfies this Item by directing the reader to that presentation.*

Item 5.2 requires disclosure of significant ARC that affect particular components of the reserves data disclosed under item 2.1 of Form 51-101F1, unless the information is presented in the RI's financial statements and notes for its most recent financial year. These ARC may be attributed to wells, facilities, surface leases, pipelines, etc. that may or may not be situated on an RI's properties. The specific costs will generally be captured in the disclosure under item 2.1, if they are related to the reserves data and occur before the first point of sale. Disclosure under item 5.2 must include identification and discussion of these ARC.

Item 6.2.1 addresses significant economic factors or uncertainties relevant to properties with no attributed reserves, and states:

> Identify and discuss significant economic factors or significant uncertainties that have affected or are reasonably expected to affect the anticipated development or production activities on *properties* with no attributed *reserves*.
>
> *INSTRUCTIONS*
>
> *(1) A* reporting issuer *must, under this Item, include a discussion of any significant* abandonment and reclamation costs, *unusually high expected* development costs *or* operating costs, *or contractual obligations to* produce *and sell a significant portion of* production *at prices substantially below those which could be realized but for those contractual obligations.*
>
> *(2) If the information required by this Item is presented in the* reporting issuer's *financial statements and notes thereto for the most recent financial year ended, the* reporting issuer *satisfies this Item by directing the reader to that presentation.*

Item 6.2.1 requires disclosure of significant ARC that have affected or are expected to affect development or production on properties with no attributed reserves, unless the information is presented in the RI's financial statements and notes for its most recent financial year. These ARC may be attributed to wells, facilities, surface leases, pipelines, etc. Although these properties will not currently have reserves attributed, the RI may:

- have previously attributed reserves to the property
- currently attribute resources other than reserves to the property
- have previously attributed resources other than reserves to the property

Since these ARC are not currently attributed to reserves, they will likely not be captured in disclosure under item 2.1 of Form 51-101F1. It is also likely that they will not be captured in an evaluation prepared for the purposes of disclosure under item 2.1. However, RIs are responsible for ensuring that they are disclosed under item 6.2.1. This disclosure must include identification and discussion of these ARC.

If appropriately executed, staff likely would not object to the disclosure of other oil and gas restoration costs/decommissioning liabilities under item 6.2.1. This includes costs that are not considered ARC under NI 51-101, but are accounted for in an RI's financial statements, such as those for shut-in or suspended wells and associated equipment and leases, unused facilities and pipelines, etc.

With respect to disclosure exceeding minimum NI 51-101 requirements, general instruction (5) of Form 51-101F1 states:

> *This **Form 51-101F1** sets out minimum requirements. A **reporting issuer** may provide additional information not required in this **Form 51-101F1** provided that it is not misleading and not inconsistent with the requirements of **NI 51-101**, and provided that material information required to be disclosed is not omitted […].*

Staff encourage RIs to carefully consider the potential advantages and disadvantages of additional disclosure. If an RI decides to disclose information that exceeds minimum NI 51-101 requirements, it must not replace, confuse, obscure or diminish required information. Additional information can be provided for items 2.1, 5.2, 6.2.1 and others.

To help ensure that additional information is not misleading or inconsistent with the requirements of NI 51-101, RIs should provide additional information separate from required disclosure and ensure that it is not more prominent than the required disclosure. In addition, an explanation that supports the inclusion of the additional information should be provided. This explanation should include the basis and purpose of the information.

KEY POINTS

- Form 51-101F1 sets out minimum disclosure requirements for the statement of reserves data and other information.
- If minimum requirements are met, information that is not required to be disclosed, can be disclosed in the statement of reserves data and other information.
  - Additional information cannot be provided in place of required disclosure.
- Disclosure of additional information must not be:
  - Misleading.
  - Inconsistent with NI 51-101 requirements.
- To reduce the chance of misleading or inconsistent disclosure, additional information should be separate from required disclosure and accompanied by an explanation that supports the basis and purpose of the information.

2.2 PRODUCTION

Concern: Incorrect disclosure of production in news releases and investor presentations.

Specifically:

- fluid types disclosed instead of product types measured at the first point of sale, as required
- volumes not measured at the first point of sale, as required
- exclusion of certain product types and their respective volumes, contrary to requirements
- disclosure of product type ratios instead of the required volume of each product type
- percent of fluid types disclosed instead of product types measured at the first point of sale, as required
- barrels of oil equivalent (**BOE**) disclosure unaccompanied by the required constituent product types and respective volumes measured at the first point of sale

Incorrect disclosure of production is a frequent occurrence and is attributed to RIs of all sizes.

Items 6.8 and 6.9 of Form 51-101F1 discuss disclosure requirements for production estimates and production history, respectively. Production disclosure outside of Form 51-101F1 is addressed more generally in NI 51-101 and related documents.

CSA SN 51-324 defines production as:

> The cumulative quantity of *petroleum* that has been recovered at a given date. [*COGE Handbook*] Recovering, gathering, treating, field or plant processing (for example, processing *gas* to extract *natural gas liquids*) and field storage of *oil* and *gas*.
>
> The *oil* production function is usually regarded as terminating at the outlet valve on the *lease* or field production storage tank. The *gas* production function is usually regarded as terminating at the plant gate. In some circumstances, it may be more appropriate to regard the production function as terminating at the first point at which *oil, gas* or their by-products are delivered to a main pipeline, a common carrier, a refinery or a marine terminal.

Section 5.4 of NI 51-101 states:

> (1) Disclosure of resources or of sales of *product types* or associated *by-products* must be made with respect to the *first point of sale*. [Emphasis added]
>
> (2) Despite subsection (1), a *reporting issuer* may disclose *resources* or sales of *product types* or associated *by-products* with respect to an *alternate reference point* if, to a reasonable person, the *resources, product types* or associated *by-products* would be marketable at the *alternate reference point*. […]

Furthermore, section 5.5 states:

> Disclosure of *product types* or *by-products*, including *natural gas liquids* and sulphur must be made in respect only of volumes that have been or are to be recovered prior to the *first point of sale*, or an *alternate reference point*, as applicable.

Section 1.1 of NI 51-101 defines product type to mean any of the following:

> (a) *bitumen;*
> (b) *coal bed methane;*
> (c) *conventional natural gas;*
> (d) *gas hydrates;*
> (e) *heavy crude oil;*
> (f) *light crude oil* and *medium crude oil* combined;
> (g) *natural gas liquids;*
> (h) *shale gas;*
> (i) *synthetic crude oil;*
> (j) *synthetic gas;*
> (k) *tight oil;*

As defined in section 1.1, by-product means:

> [A] substance that is recovered as a consequence of *producing* a *product type*;

First point of sale is defined in section 1.1 as:

> [T]he first point after initial *production* at which there is a transfer of ownership of a *product type*;

Alternate reference point is defined in section 1.1 as:

> [A] location at which quantities and values of a *product type* are measured before the *first point of sale*;

CSA SN 51-324 defines marketable as:

> In respect of *reserves* or sales of *oil, gas* or associated *by-products*, the volume of *oil, gas* or associated *by-products* measured at the point of sale to a third party, or of transfer to another division of the issuer for treatment prior to sale to a third party. For *gas*, this may occur either before or after the removal of *natural gas liquids*. For *heavy crude oil* or *bitumen*, this is before the addition of diluent.

KEY POINTS

- Disclosed production must be by product type and include each product type and respective volume measured at the first point of sale, or an alternate reference point.
  - Material volumes of product types must not be excluded from disclosure.
- Disclosure can be supplemented with additional information, but particular care must be taken to ensure that the additional disclosure is not misleading.

SCENARIOS

- Shale gas containing natural gas liquids is produced by an RI.

  It would be inappropriate for the RI to disclose product type shale gas <u>and</u> product type natural gas liquids, if the natural gas liquids are not recovered prior to the first point of sale, or an alternate reference point. If they are not recovered prior thereto, the marketable volume is product type shale gas, albeit with a higher energy content due to the entrained natural gas liquids.

  If the minimum disclosure requirements are met and the disclosure is not misleading, staff would not object to an RI also disclosing estimated volumes of natural gas liquids or individual hydrocarbon components, such as butanes, pentanes plus and condensates expected to be recovered beyond the first point of sale.

- Conventional natural gas containing natural gas liquids is produced by an RI.

  It would be inappropriate for the RI to disclose only the volume of product type natural gas liquids if there are marketable volumes of product type conventional natural gas and product type natural gas liquids at the first point of sale, or alternate reference point.

  The fact that an RI may not want to draw attention to the potentially lower value conventional natural gas does not relieve the RI of its responsibility to ensure that it discloses each product type and respective volume measured at the first point of sale, or an alternate reference point, and that its disclosure not be misleading.

DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

The company's property averaged 50 MMcf/d of gas.

Gas is not a product type. Disclosure must be by product type. Per CSA SN 51-324, gas includes:

> *[N]atural gas, conventional natural gas, coal bed methane, gas hydrates, shale gas,* and *synthetic gas.*

Please note that natural gas itself is not a product type, either, while the others are.

DISCLOSURE THAT MET OUR EXPECTATIONS

The company's property averaged 50 MMcf/d of shale gas.

DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

The company's property averaged 4,000 bbl/d of oil.

Oil is not a product type. Disclosure must be by product type. Per CSA SN 51-324, oil includes:

> *[C]rude oil, bitumen, tight oil* and *synthetic crude oil.*

Please note that crude oil itself is not a product type, either, while the others are.

DISCLOSURE THAT MET OUR EXPECTATIONS

The company's property averaged 4,000 bbl/d of heavy crude oil.

DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

The company's property averaged 9,000 bbl/d of liquids.

Liquids is not a product type. Disclosure must be by product type.

DISCLOSURE THAT MET OUR EXPECTATIONS

The company's property averaged 5,000 bbl/d of natural gas liquids and 4,000 bbl/d of heavy crude oil.

DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

The company's property averaged 5,000 bbl/d of natural gas liquids.

This excludes information concerning the product type from which the natural gas liquids is recovered as a by-product.

✓ DISCLOSURE THAT MET OUR EXPECTATIONS

The company's property averaged 5,000 bbl/d of natural gas liquids and 50 MMcf/d of shale gas.

✗ DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

Recent production from the property averaged 100 barrels of natural gas liquids per MMcf of shale gas.

If an RI discloses a ratio of produced product types, such as barrels of product type natural gas liquids per MMcf of product type shale gas, the volume of each product type must also be disclosed in the same document.

✓ DISCLOSURE THAT MET OUR EXPECTATIONS

Recent production from the property averaged 100 barrels of natural gas liquids per MMcf of shale gas. The property produced an average of 5,000 bbl/d of natural gas liquids and 50 MMcf/d of shale gas.

✗ DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

Recent production from the property averaged 29 per cent natural gas liquids.

If an RI discloses a percentage of a produced product type, the volume of that and the other product types must also be disclosed in the same document.

✓ DISCLOSURE THAT MET OUR EXPECTATIONS

Recent production from the property averaged 29 per cent natural gas liquids using a conversion of six mcf of gas to one barrel of oil. Production consisted of 50 MMcf/d of shale gas, 5,000 bbl/d of natural gas liquids, 4,000 bbl/d of heavy crude oil and 1,000 mcf/d of conventional natural gas.

✗ DISCLOSURE THAT DID NOT MEET OUR EXPECTATIONS

Q3 production averaged 17,500 BOE/d from the company's Canadian properties, up five per cent from Q2 using a conversion of six mcf of gas to one barrel of oil.

If an RI chooses to disclose a quantity of production using BOE, it must also disclose the constituent product types and their individual volumes within the same document.

✓ DISCLOSURE THAT MET OUR EXPECTATIONS

Q3 production averaged 17,500 BOE/d from the company's Canadian properties, up five per cent from Q2 using a conversion of six mcf of gas to one barrel of oil. Production consisted of 50 MMcf/d of shale gas, 5,000 bbl/d of natural gas liquids, 4,000 bbl/d of heavy crude oil and 1,000 mcf/d of conventional natural gas.

2.3 RESERVES RECONCILIATIONS

Concern: Incorrect disclosure regarding item 4.1 of Form 51-101F1, which requires disclosure of an annual reserves reconciliation.

Specifically:

- mismatched opening and closing balances
- negative volumes where they should not occur
- erroneous and potentially misleading technical revisions
- erroneous reserves additions and reductions due to the use of incorrect dates with respect to acquisitions and dispositions
- incorrect production volumes
- missing or inconsistent units of measure
- incorrect reserve change categories
- an absence of explanations regarding disclosure in each reserve change category

Incorrect reserves reconciliation disclosure is of ongoing concern to staff, with deficiencies attributed to RIs of all sizes. Some deficiencies are readily identifiable, while others require detailed analyses of the disclosure and associated reserves evaluations. Some deficiencies, particularly with respect to technical revisions, are potentially misleading.

Item 4.1 of Form 51-101F1 requires disclosure of an annual reconciliation of changes in estimates of gross proved reserves (in total), gross probable reserves (in total) and gross proved plus probable reserves (in total). This disclosure is required by country, product type specified in item 4.1(2)(b) and reserve change category specified in item 4.1(2)(c). In addition, item 4.1(2)(c) requires an explanation concerning disclosure that occurs in each reserve change category.

Product types specified in item 4.1(2)(b) are:

(i) *bitumen;*
(ii) *coal bed methane;*
(iii) *conventional natural gas;*
(iv) *gas hydrates;*
(v) *heavy crude oil;*
(vi) *light crude oil* and *medium crude oil* combined;
(vii) *natural gas liquids;*
(viii) *shale gas;*
(ix) *synthetic crude oil;*
(x) *synthetic gas;*
(xi) *tight oil;*

Reserve change categories specified in item 4.1(2)(c) are:

> (i) extensions and improved recovery;
> (ii) technical revisions;
> (iii) discoveries;
> (iv) acquisitions;
> (v) dispositions;
> (vi) economic factors;
> (vii) *production*.

Instruction (4) requires reserves attributed to infill drilling to either be included in extensions and improved recovery or in a separate reserve change category labelled "infill drilling."

Substances such as condensate, liquids, solution gas, associated gas and non-associated gas are not product types.

The reconciliation compares reserves data at the effective date for the current financial year with the corresponding estimates at the last day of the preceding financial year, which is the "opening balance" of the reconciliation. This comparison results in the "closing balance."

Effective date is defined in section 1.1 of NI 51-101 as:

> [T]he date as at which, or for the period ended on which, the information is provided;

Guidance regarding reserves reconciliations is provided in section 4.6.2 of the COGE Handbook. Please note that regardless of this guidance, the disclosure must meet the requirements of NI 51-101 and item 4.1 of Form 51-101F1. Additional information concerning reserves reconciliations is contained in section 2.7(6) of 51-101CP, which sets out the views of the CSA as to the interpretation and application of NI 51-101 and related forms.

Staff note the following common disclosure deficiencies with respect to the reserves reconciliation required by item 4.1:

- **Opening balance -** Volumes for the current year do not match the closing balance for the same country, product type and reserves category. These should match.
- **Extensions and improved recovery, infill drilling and discoveries -** The erroneous recording of negative volumes. Once a volume has been assigned to these reserve change categories, subsequent changes to the estimate should be identified as technical revisions or economic factors, except as noted in section 4.6.2.4 of the COGE Handbook.
- **Technical revisions -** The erroneous recording of negative volumes that exceed 100 per cent of the opening balance and the misattribution of reserves changes as technical revisions. Section 2.7(6)(c) of 51-101CP states:

  > Technical revisions show changes in existing *reserves* estimates, in respect of carried-forward *properties*, over the period of the reconciliation […] and are the result of new technical information, not the result of capital expenditure.

  It is impossible to remove a volume in excess of the opening balance through a technical revision. Therefore, negative technical revisions that exceed 100 per cent of the opening balance are erroneous.

It is not appropriate to account for changes in reserves estimates resulting from capital expenditures as technical revisions. Doing so may result in misleading disclosure. Supplementing disclosure with the acknowledgement that technical revisions have not been correctly attributed does not absolve an RI of their responsibility to ensure that their disclosure is not misleading. The ASC will continue its efforts to identify misattributed technical revisions.

- **Acquisitions -** The use of incorrect dates to account for reserves additions through acquisitions. As stated previously, reserves are reconciled at the effective date for the current financial year. Consistent with this, section 2.7(6)(c) of 51-101CP states that the date to reconcile changes in acquired reserves is the effective date, which is the effective date of the RI's most recent financial year:

> [T]he *reserves* estimate to be used in the reconciliation is the estimate of *reserves* at the *effective date*, not at the acquisition date, plus any *production* since the acquisition date. This *production* must be included as *production* in the reconciliation. If there has been a change in the *reserves* estimate between the acquisition date and the *effective date* other than that due to *production*, the *reporting issuer* should explain this as part of the reconciliation in a footnote to the reconciliation table.

The term "acquisition date" is not defined nor clarified in NI 51-101 and related forms, 51-101CP or staff notices. Staff consider it to mean the date at which the RI has attained a direct or indirect ownership, working or royalty interest in reserves. Ownership is discussed in section 1.4.4.2 of the COGE Handbook.

Reserves estimates that originate from oil and gas activities occurring on an acquired property subsequent to the acquisition date of the reserves and prior to the effective date of the RI's most recent financial year, other than due to production, are to be accounted for in the appropriate reserve change category. Such oil and gas activities would typically involve the drilling or recompletion of a well and related pursuits. The results would be reflected in reserve change categories extensions and improved recovery, discoveries or infill drilling, not reserve change category "acquisitions." The reasons for the disclosure in these categories are to be provided in a footnote. Staff suggest that these explanations be considered alongside the previously noted explanations required by item 4.1(2)(c).

In summary, the reserves estimates to be used in the reserve change category "acquisitions" are the sum of:

- The estimates of the reserves data by product type attributed to the acquisition at the effective date of the current financial year; and
- The production by product type that has occurred from the acquisition, accrued from the date ownership was attained to the effective date for the current financial year.

Although reserves estimates may be determined at any point during a particular financial year, reserves are only reconciled for the purposes of item 4.1 at the last day of the most recent financial year.

The individual steps to prepare the required reconciliation are:

1. Evaluate all of the RI's reserves at the effective date of the RI's most recent financial year. This evaluation will include properties acquired <u>during</u> the most recent financial year.
2. Determine the RI's share of the gross production volume, by product type, derived from acquired properties. This includes production that has occurred from the date that ownership of the properties was attained to the effective date of the most recent financial year.
3. Add the results from step 2 to the acquired properties evaluated in step 1. This exercise is mechanical and is not impacted by estimates from an evaluation of the acquired reserves at or around the date that ownership of the reserves was attained, if such an evaluation was prepared.

4. Enter the results from step 3 into the reconciliation table under reserve change category "acquisitions," adjacent to the appropriate product type.

5. Reserves estimates originating from oil and gas activities occurring on the acquired property (typically the drilling or recompletion of a well or related activities) subsequent to attainment of ownership and prior to the effective date of the most recent financial year, are not accounted for under reserve change category "acquisitions." They are instead assigned to the appropriate reserve change category.

- **Dispositions -** The use of incorrect dates to account for reserves reductions through dispositions. As discussed in section 4.6.2 of the COGE Handbook, disposed reserves are recorded at the disposition date, which is the date at which ownership by the RI has ceased. Production that has occurred subsequent to the last day of the preceding financial year to the disposition date is accounted for under reserve change category "production."

- **Production -** Volumes do not match those disclosed under item 6.9(1)(a) of Form 51-101F1 for the same country and product type. Unless production from entities that do not have reserves assigned is included, these volumes are expected to match. If they do not match, an explanation as to why must be provided.

- **Closing balance -** Volumes do not match those disclosed for the same country, product type and reserves category under item 2.1(1) of Form 51-101F1. These should match.

- **Units of measure -** These are missing or inconsistent. Although no particular unit of measure is specified in Form 51-101F1, consistency of units is addressed in general instruction (8), which advises against switching between Imperial units and Système International (SI) units without a compelling reason. If switching does occur, staff encourages disclosure of the reason.

- **Reserve change categories -** The use of categories not specified in item 4.1(2)(c) or instruction (4) of item 4.1. An RI must use the specified categories and, if necessary, explain unusual circumstances. Please note that although section 4.6.2.2 of the COGE Handbook provides recommended "change categories" (equivalent to "reserve change categories"), not all change categories have equivalent reserve change categories.

- **Explanations -** The absence of explanations accompanying disclosure in individual reserve change categories that provide details concerning the disclosure. Item 4.1(2)(c) of Form 51-101F1 requires separate identification and explanation of disclosure in each reserve change category. Without explanations, changes may occur that cannot be easily understood. Examples of this include scenarios in which a large technical revision, an acquisition, or a re-categorization of reserves occurs (for example, probable reserves to proved reserves). In the absence of an explanation, the re-categorization could go unnoticed if the proved plus probable reserves (in total) otherwise remains unchanged.

Instruction (5) of item 4.1 of Form 51-101F1 discusses reconciliation requirements for RIs that become engaged in oil and gas activities after the last day of their preceding financial year. Remember, the opening balance of the reserves reconciliation is equivalent to the associated estimates at the last day of the preceding financial year, known as the closing balance. If an RI had reserves at the effective date of the preceding financial year, but a reserves evaluation is unavailable, reserves estimates will not be available for the opening balance. As a zero opening balance is not appropriate in such a situation, a reconciliation cannot be undertaken. Instead, the RI must disclose the reason for the absence of the reconciliation.

Additional information concerning preparation of the reserves reconciliation is provided in 51-101CP. Section 2.7(6)(a) discusses a scenario in which an RI has reserves at the effective date for its current financial year, but had no reserves at the start of the financial year (at which time the RI was presumably engaged in oil and gas activities). If the added reserves are material to the RI, a reconciliation must be disclosed. In these situations, the opening balance is zero because the RI did not have reserves at the start of the financial year, not because the RI had reserves but no available evaluation, as discussed previously. Section 5.10(4) of 51-101CP discusses reserves reconciliations with respect to initial public offerings.

3. Insight into reserves estimates

Analysis of an RI's reserves estimates and their variability can provide insight into the activities undertaken by the RI, and the quality of their initial and current reserves estimates. The annual reserves reconciliation required to be disclosed per item 4.1 of Form 51-101F1 is instrumental in this effort.

For example, an RI's pursuit of new reservoirs or its efforts to expand or increase recoveries from existing reservoirs, can be assessed through disclosure in the reserve change categories discoveries and extensions and improved recovery, respectively. The quality of reserves estimates can be judged through a review of disclosure in reserve change category technical revisions. This can determine if estimates have been meeting the certainty levels for the associated reserves categories and have therefore been assigned in accordance with the COGE Handbook. This process of "reserves validation" is described in section 4.6.1 of the COGE Handbook.

With appropriate sampling and analysis, insights into activities and reserves quality can also be determined for groups of issuers that report under NI 51-101. Figure 4 (below) presents a series of aggregated reserves reconciliations consisting of changes in grouped and summed gross proved plus probable reserves (in total), disclosed by reserve change category, by the constituent RIs. The RIs are principally regulated by the ASC and their disclosure reflects oil and gas activities primarily conducted in 2019. An RI's contribution to its respective group reconciliation is based solely on the reserves volumes it has disclosed in each reserve change category.

While generalized, these reconciliations inform an assessment of the quality of reserves data disclosed by RIs of similar size through an understanding of the changes between the opening and closing balances of 2019, for each group of RIs. The following steps were taken to generate these reconciliations:

1. All oil and gas RIs principally regulated by the ASC were ranked by their annual average gross daily production volumes. These were obtained from each RI's disclosure under item 6.9 of Form 51-101F1, which requires disclosure by quarter, country and product type, for the most recent financial year. These quarterly average gross daily production volumes were summed to obtain an annual production volume for each RI.
2. The ranked RIs were then grouped as follows:
    a. seniors >100,000 BOE per day (based on a conversion ratio of six thousand cubic feet of gas for one barrel of oil)
    b. intermediates 10,000 to 100,000 BOE per day
    c. juniors <10,000 BOE per day
3. The highest ranked RIs were selected from each group, incorporating 10 senior, 20 intermediate and 50 junior RIs.
4. Within each group of selected RIs, volumes disclosed by each RI in each applicable reserve change category specified in item 4.1(2)(c) of Form 51-101F1 for gross proved plus probable reserves (in total), were summed. No weighting or adjustment was performed.
5. The per cent change between the opening balance of 2019 (the closing balance of 2018) and the closing balance of 2019 was calculated. Figure 4 illustrates these results. Positive and negative changes fall to the right and left of the opening balance (denoted as 0 per cent), respectively.

Figure 4: 2019 reconciliations of summed gross proved plus probable reserves (in total) by RIs principally regulated by the ASC by RI group

Figure 4a: Seniors

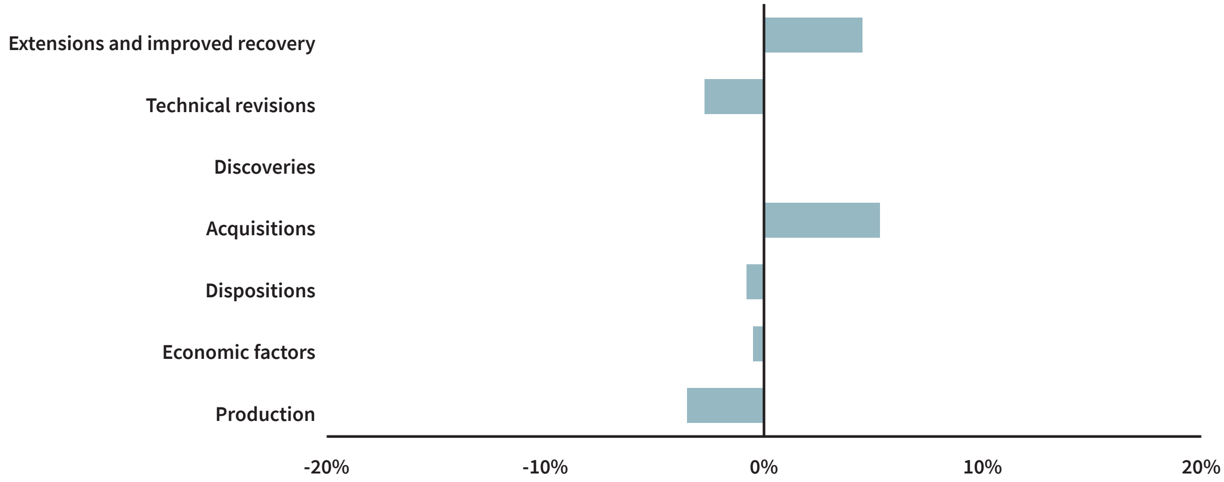


Figure 4b: Intermediates

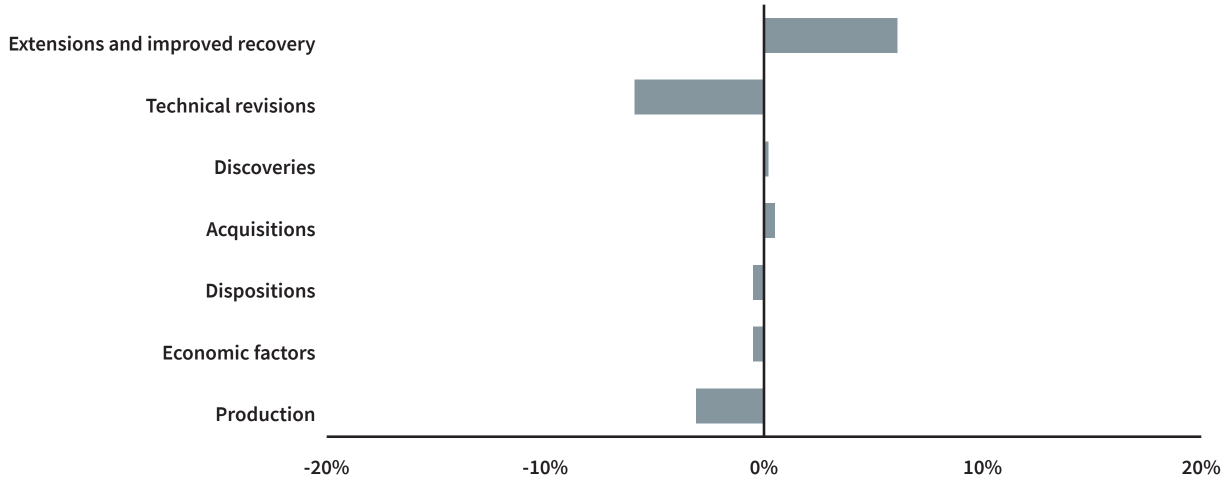
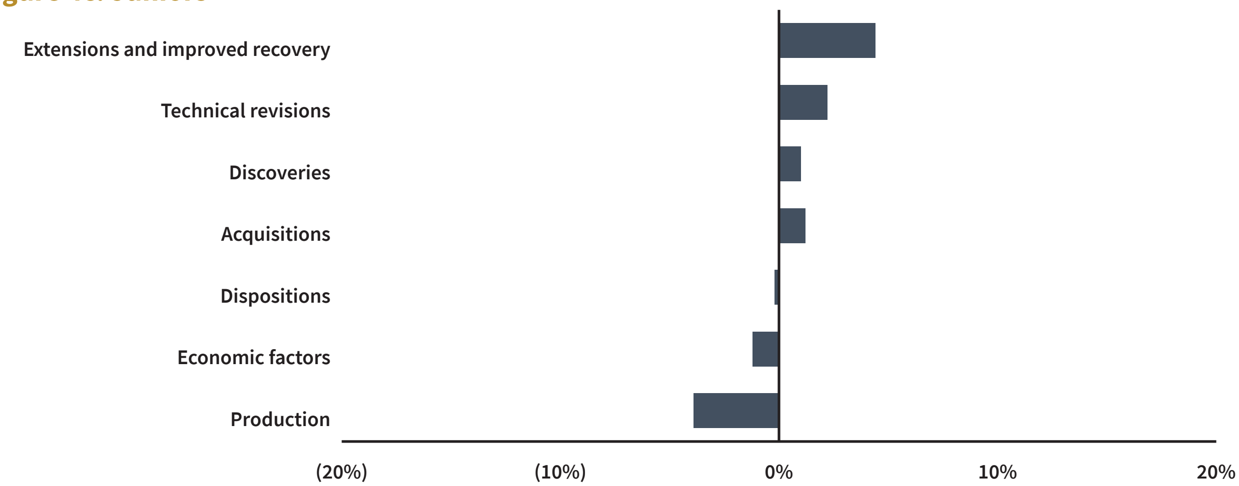


Figure 4c: Juniors



As illustrated in Figure 4, changes in extensions and improved recovery range from five per cent for the seniors and juniors, to six per cent for the intermediates. All seniors recorded extensions and improved recovery, with three accounting for 71 per cent of the group change. All but three of the intermediates recorded extensions and improved recoveries, with three accounting for 49 per cent of the total for the group. Only 20 of the juniors recorded extensions and improved recovery, with three accounting for 60 per cent of the group total.

Regarding technical revisions, positive and negative revisions are generally attributed to better or poorer reservoir performance, respectively, than initially forecast. For a given entity, proved reserves should be adjusted positively over time, while proved plus probable reserves should remain relatively constant. Technical revisions in Figure 4 are negative three per cent for the seniors, negative six per cent for the intermediates and three per cent for the juniors. All but three of the seniors recorded negative technical revisions, with one of these accounting for 46 per cent of the group total. Eleven intermediates recorded negative technical revisions, with one of these accounting for 76 per cent of the group total, while 23 juniors recorded negative technical revisions, with four RIs accounting for 66 per cent of the change for the group.

Discoveries are negligible for all groups, which is expected, due to the continuing shift away from exploration in recent years and an increasing emphasis on other activities. As a result, the change in discoveries is limited to a small group in each category: Two RIs account for all of the senior group's discoveries, with one of these accounting for 86 per cent of the change, three RIs account for all of the intermediate group's discoveries, including one that accounts for 64 per cent, while seven RIs account for all of the junior group's discoveries, including one that accounts for 59 per cent of the group change.

Changes in acquisitions are five per cent for the seniors and one per cent for both the intermediates and juniors. Five seniors, nine intermediates and eight juniors recorded acquisitions. Two senior RIs account for 97 per cent of the total for the seniors, while one accounts for 74 per cent for the intermediates and three for 86 per cent of the total for the juniors.

Changes in dispositions are negligible for all of the groups. Three seniors, 11 intermediates and nine juniors recorded dispositions.

All three groups show small negative adjustments for economic factors.

Figures 5 through 7 illustrate changes in the reserve change categories extensions and improved recovery, discoveries and technical revisions, respectively, for each group of RIs from 2014 to 2019, inclusive. While generalized, the purpose is to illustrate the multi-year changes in each reserve change category.

Figure 5: Summed extensions and improved recovery for gross proved plus probable reserves (in total) by RIs principally regulated by the ASC, by RI group

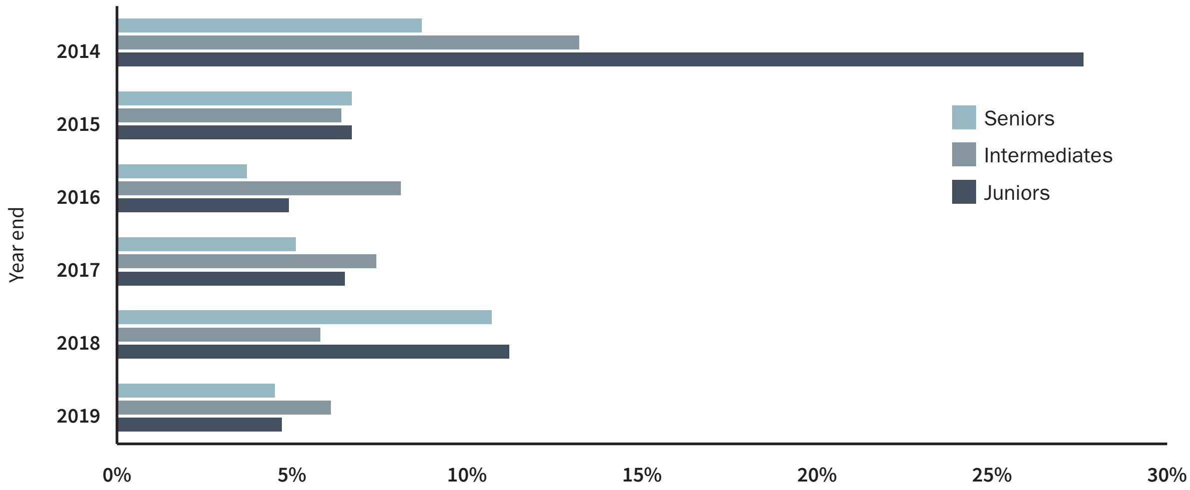


Figure 6 illustrates the continuing small percentage of proved plus probable reserves added within each group through discoveries. Note the decreasing and increasing amounts attributed to the seniors group and juniors group, respectively.

Figure 6: Summed discoveries for gross proved plus probable reserves (in total) by RIs principally regulated by the ASC, by RI group

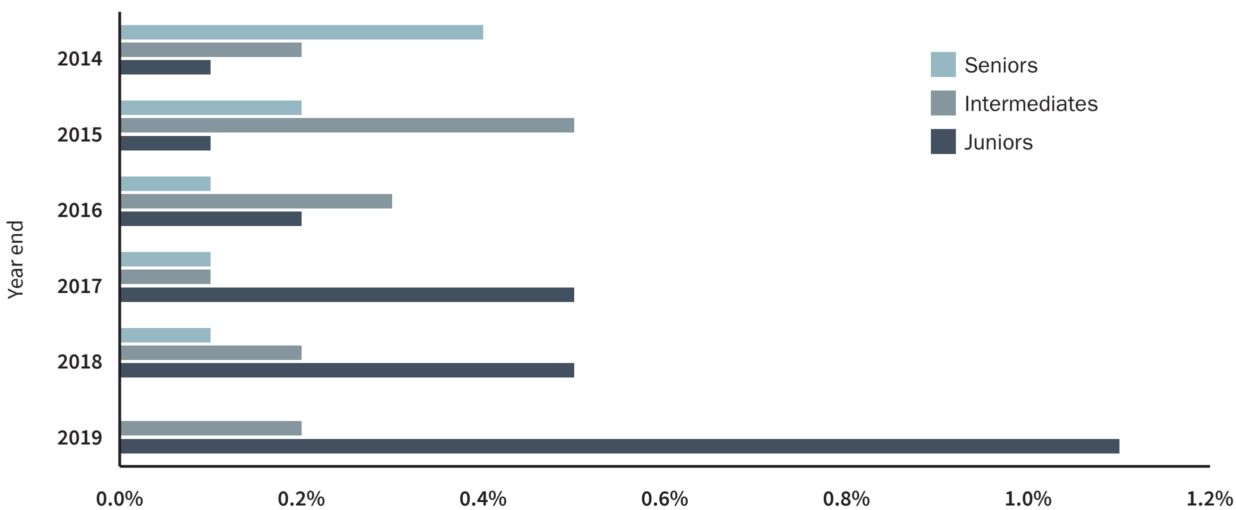
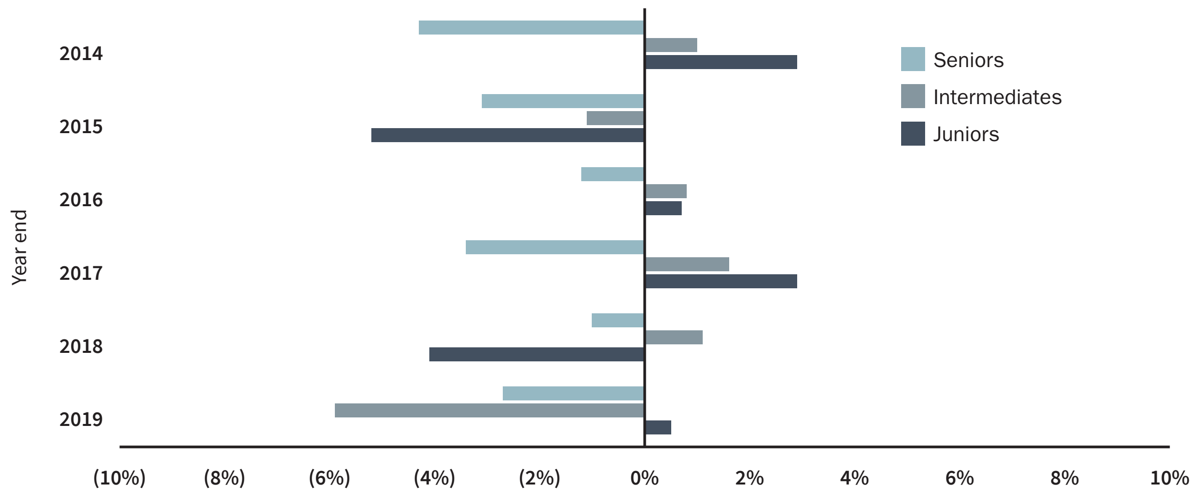


Figure 7 illustrates the multi-year average of the aggregated technical revisions for each group of RIs. Although the reserves quality varies for individual RIs within each group, the gross proved plus probable reserves (in total) have remained relatively constant for the juniors and intermediates and appear to approximate the associated certainty levels described in the COGE Handbook. The gross proved plus probable reserves (in total) for the seniors have been slightly negative for each of the years. This suggests that the certainty levels for proved plus probable reserves are not being met. The ASC will continue to pay particular attention to negative technical revisions in its future reviews of disclosure.

Figure 7: Summed technical revisions for gross proved plus probable reserves (in total) by RIs principally regulated by the ASC, by RI group



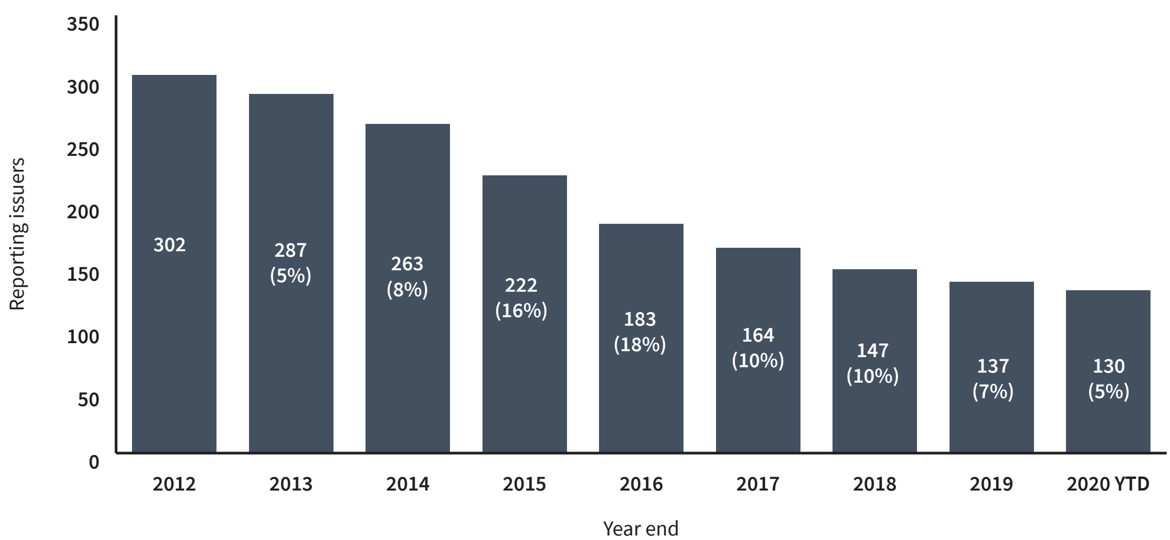
4. Oil and gas and the Canadian capital market

In addition to the challenges resulting from or exacerbated by the COVID-19 pandemic, the Canadian oil and gas industry has experienced increased regulatory, political, environmental and social scrutiny in recent years. This scrutiny has resulted in:

- protracted development schedules for oil and gas reserves
- delays and cancellations of transportation and other infrastructure development
- reduced investor interest
- scarce investment capital

Consequently, there has been a steady decrease in the number of RIs engaged in oil and gas activities. As illustrated in Figure 8, there were 137 principally regulated by the ASC at the end of 2019, down from 302 at the end of 2012. By the end of September 2020, there were 130, representing an almost 57 per cent decrease since 2012.

Figure 8: Number of oil and gas RIs principally regulated by the ASC



As shown in Figure 9, this reduction in RIs has disproportionately affected junior RIs, although intermediate RIs have experienced a modest decline since 2015, and a notable percentage decrease in 2020 YTD. To construct this figure, RIs were grouped using production disclosure per item 6.9 of Form 51-101F1 as follows:

- seniors >100,000 BOE per day
- intermediates 10,000 to 100,000 BOE per day
- juniors <10,000 BOE per day

Figure 9: Number of oil and gas RIs principally regulated by the ASC by RI group

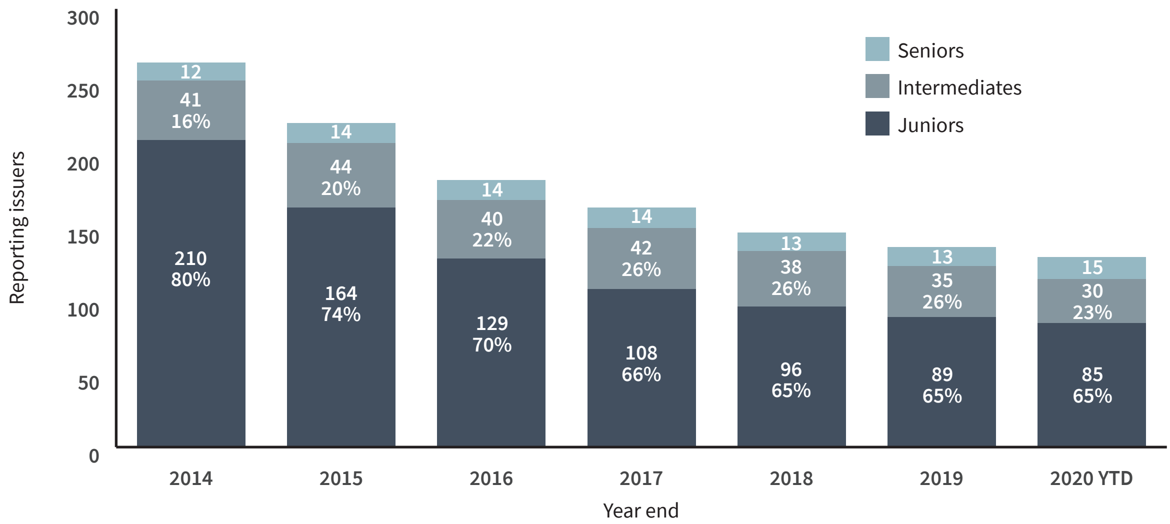


Figure 10 categorizes the reasons for the decrease in RIs from the end of 2019 to the end of September 2020, by RI group. As shown, the majority of changes in RI count are attributed to junior RIs.

Figure 10: Net change in oil and gas RIs principally regulated by the ASC, by RI group

NUMBER OF REPORTING ISSUERS[1]				REASON FOR CHANGE
Seniors	Intermediates	Juniors	TOTAL	
–	–	–	**–**	receivership/bankruptcy[2]
–	–	–	**–**	change in industry/acquired by a company in another industry
–	(2)	(1)	**(3)**	privatized/acquired by a company not principally regulated by the ASC/ceased to be RI principally regulated by the ASC
–	–	(1)	**(1)**	acquired by an RI principally regulated by the ASC
–	–	(6)	**(6)**	Cease Trade Order
–	1	2	**3**	new RI principally regulated by the ASC
TOTAL	**(1)**	**(6)**	**(7)**	

1 Does not capture changes due to movement between RI groups.
2 While several processes are underway, none have been completed YTD.
3 "-" = no occurences.

Figure 11 shows the amount of capital raised through prospectus offerings by oil and gas RIs principally regulated by the ASC from 2016 through the end of September 2020. The offerings include various equity and debt instruments, such as common shares, units, debentures, convertible debentures, rights, subscription receipts and notes. The 2020 year to date activity consists of three offerings by two senior RIs. Note that in Canada, the general requirement for any RI raising capital through the issuance of securities is via prospectus.

Figure 11: Capital raised through prospectus offerings and the number of these offerings, by oil and gas RIs principally regulated by the ASC

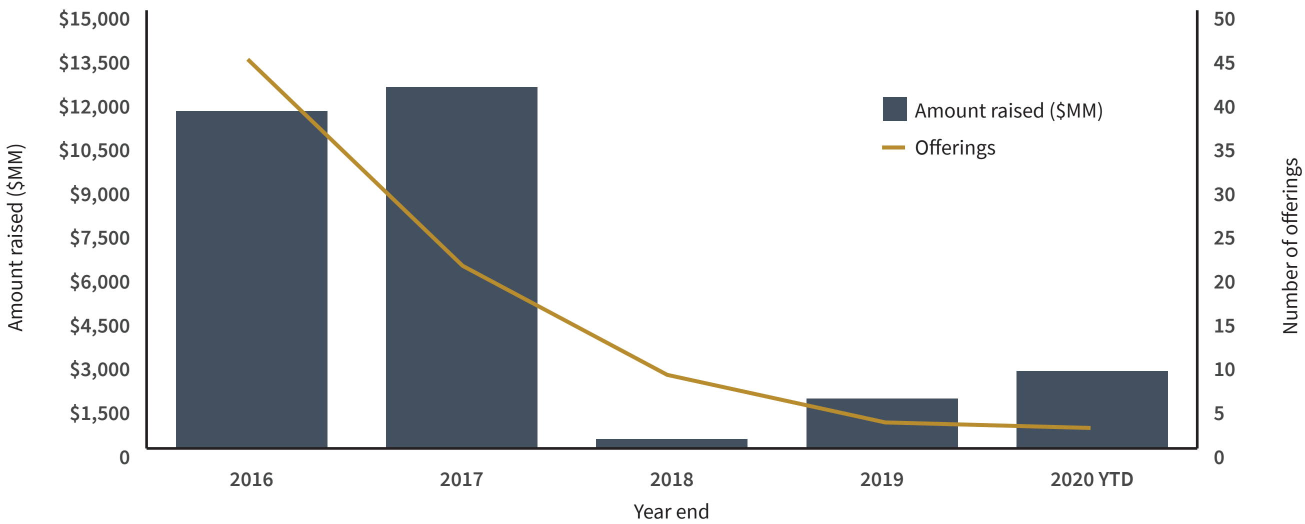


Figure 12 attributes the amount of raised capital from Figure 11 to RI group.

Figure 12: Capital raised through prospectus offerings and the number of these offerings, by oil and gas RIs principally regulated by the ASC, by RI group

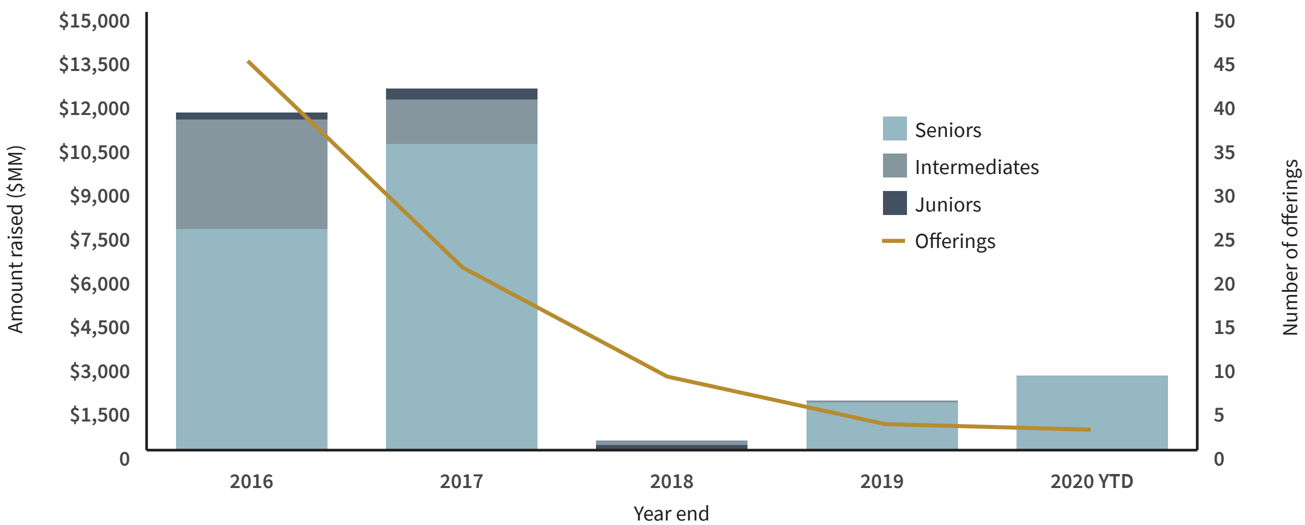


Figure 13 attributes the amount of capital raised from Figure 11 to offering type.

Figure 13: Capital raised through prospectus offerings and the number of these offerings, by oil and gas RIs principally regulated by the ASC, by offering type

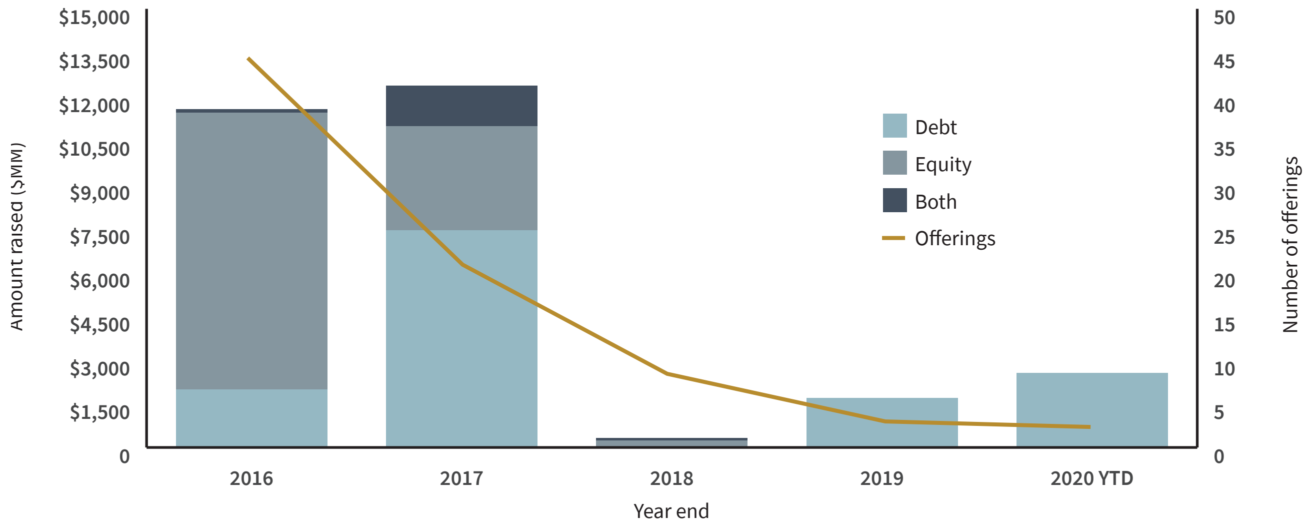
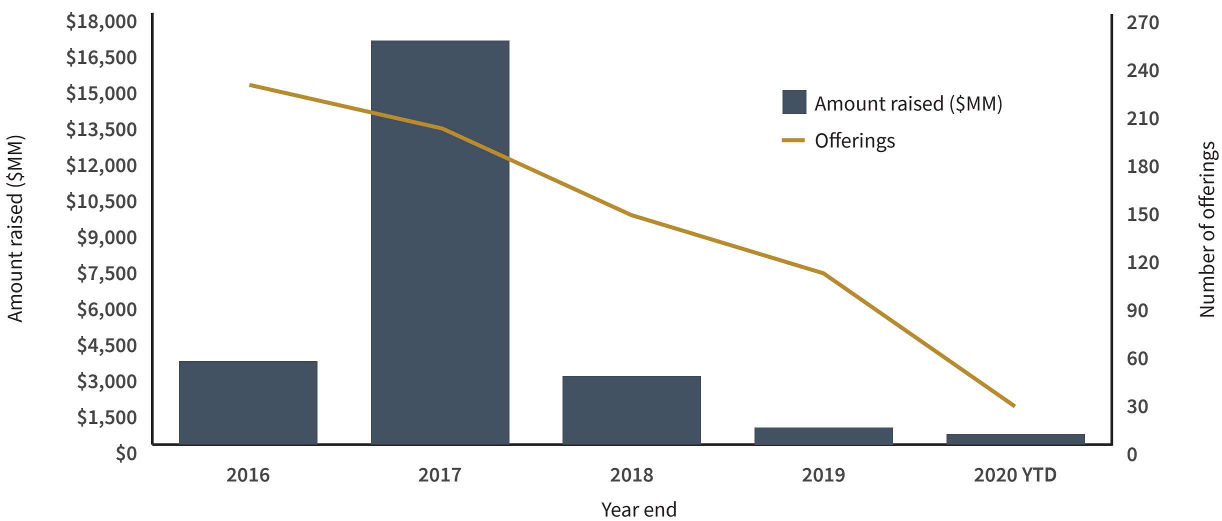


Figure 14 shows the amount of capital raised in the exempt market (not raised via prospectus) by oil and gas RIs principally regulated by the ASC, from 2016 through the end of September 2020. The offerings include various equity and debt instruments.

Figure 14: Capital raised in the exempt market and the number of these financings, by oil and gas RIs principally regulated by the ASC



There are a number of prospectus exemptions available in National Instrument 45-106 *Prospectus Exemptions*. Some of these exemptions require the distributions to be reported to a securities regulator using National Instrument 45-106F1 *Report of Exempt Distribution*.

Figure 15 attributes the amount of raised capital from Figure 14 to RI group.

Figure 15: Capital raised in the exempt market and the number of these financings, by oil and gas RIs principally regulated by the ASC, by RI group

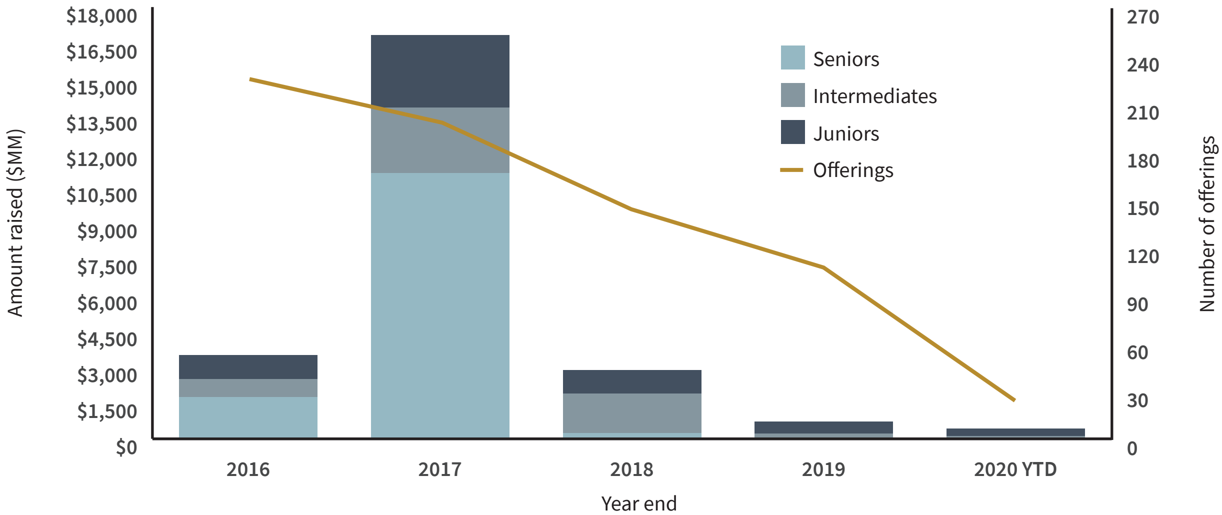


Figure 16 includes information from figures 13 and 15, for comparison purposes.

Figure 16: Capital raised through prospectus offerings and in the exempt market, and the number of these financings from each, by oil and gas RIs principally regulated by the ASC

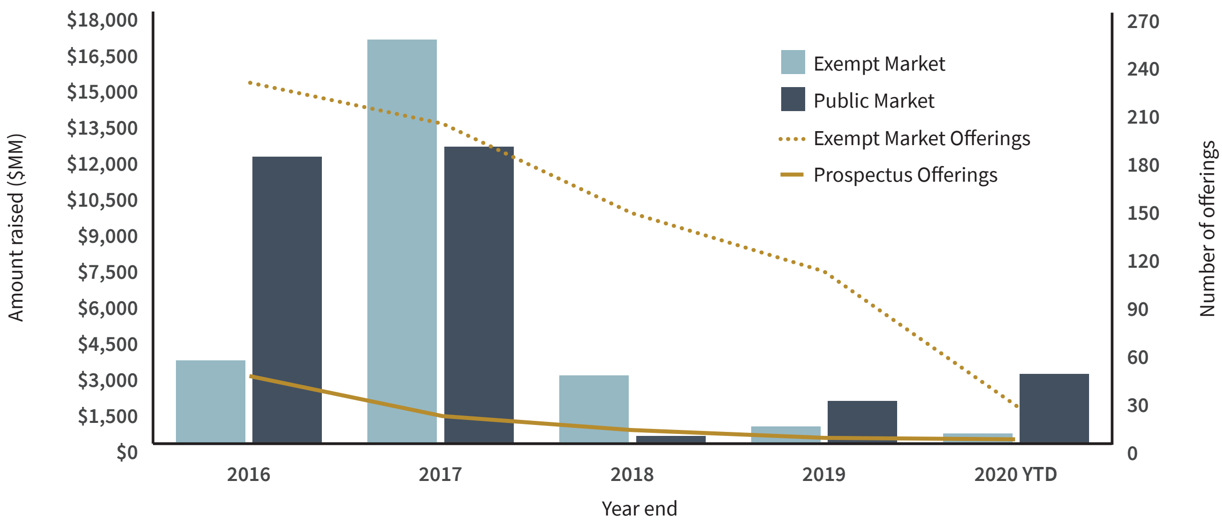


Figure 17 illustrates the amount of capital raised and the number of financings conducted in Alberta, by oil and gas issuers that are not RIs. This is based on distributions reported to the ASC. However, this data is incomplete, as various financings (e.g. by issuers relying on the private issuer prospectus exemption) are not required to be reported.

Figure 17: Capital raised in the exempt market and the number of these financings, by oil and gas issuers based in Alberta, that are not RIs

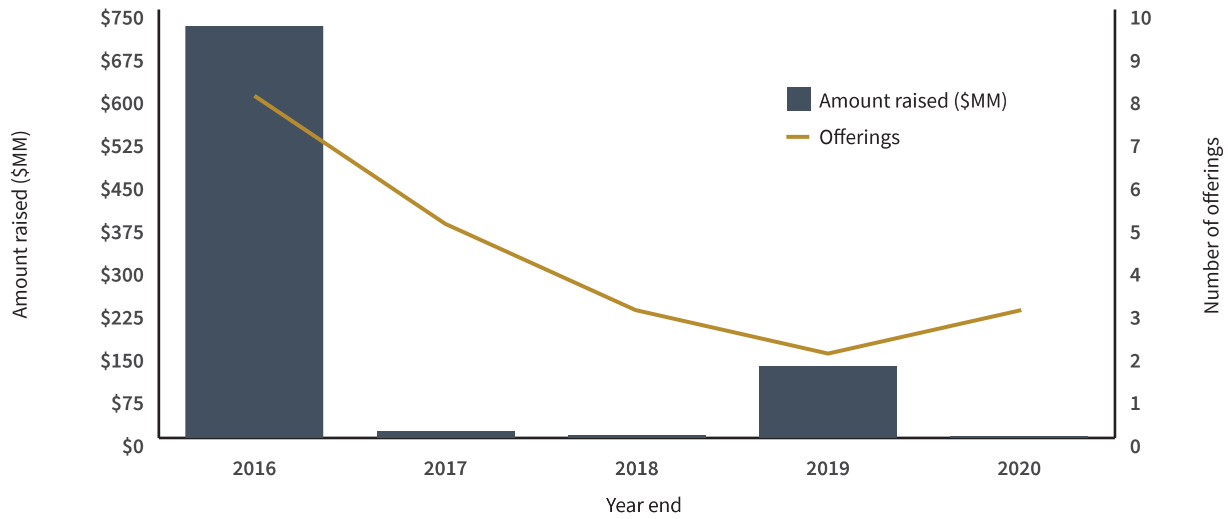


Figure 18 illustrates the number of occurrences of disclosure of contingent resources data and prospective resources data in the statement of reserves data and other information specified in Form 51-101F1, from 2014 to 2019, inclusive. Disclosure occurrences decreased substantially for both in 2019, following a relatively flat number of occurrences during the preceding three years. Disclosure of resources other than reserves is generally optional and tends to fluctuate in frequency with investor interest in the information.

Figure 18: Disclosure occurrences of contingent resources data, prospective resources data or both by RIs principally regulated by the ASC

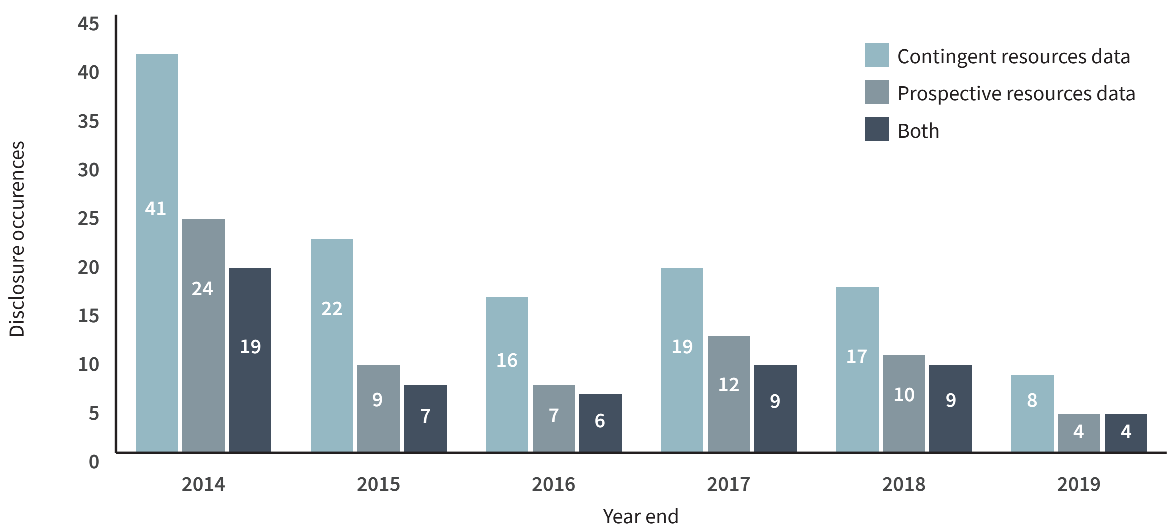


Figure 19 illustrates the information shown in Figure 18 by RI group.

Figure 19: Disclosure occurrences of contingent resources data, prospective resources data or both by RIs principally regulated by the ASC, by RI group

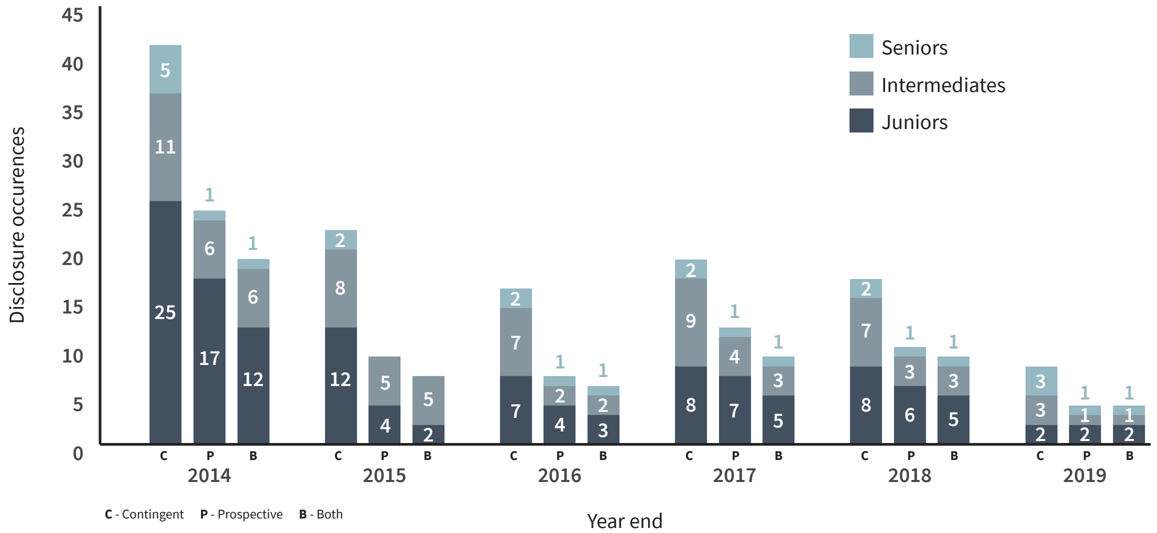
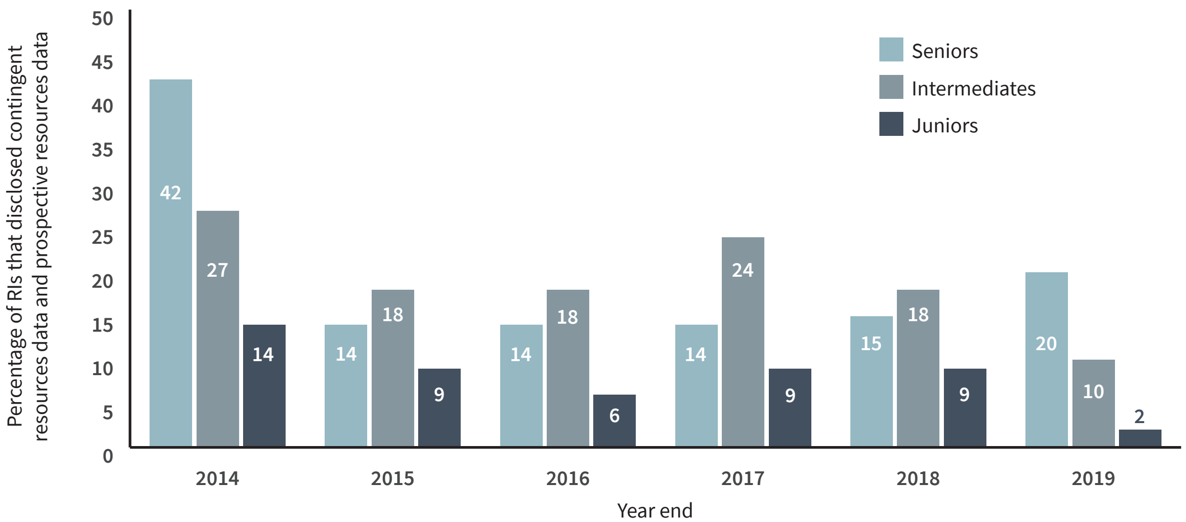


Figure 20 illustrates the percentage of RIs principally regulated by the ASC that disclosed contingent resources data, prospective resources data or both in the statement of reserves data and other information specified in Form 51-101F1, from 2014 to 2019, inclusive. As shown, the disclosure percentage has typically been highest for the intermediates, and lowest from the juniors. In 2019, the percentage for both the intermediates and juniors reached the lowest levels recorded to date, while that for the seniors increased to the highest level since 2014.

Figure 20: Percentage of RIs principally regulated by the ASC that disclosed contingent resources data, prospective resources data or both, by RI group



5. Petroleum Advisory Committee

PAC is an important source of information and advice for the ASC. PAC is comprised of volunteer members (**Members**) drawn from oil and gas and related industries and appointed to three-year terms. Meetings are normally held three times per year and attended by Members, observers and select ASC staff.

PAC's mandate is to:

- Review and provide feedback on issues and current developments regarding the evaluation of oil and gas reserves and resources other than reserves, and disclosure related to oil and gas activities.
- Comment on related current and proposed Alberta securities laws and regulatory policies.
- Provide informal advice to staff.

Topics discussed in the last year include current challenges faced by RIs, including those related to the COVID-19 pandemic, and the impact of these on RI's activities and disclosure, and current resource evaluation and disclosure considerations.

The ASC thanks the Members for their contributions.

Current Members:

Caralyn P. Bennett, P.Eng.
GLJ Ltd.

David P. Carey, P.Eng., MBA
Retired

Harry Helwerda, P.Eng., FEC
Retired

Nicole Labrecque, P.Eng
Husky Energy Inc.

Dr. John Lacey, P.Eng.
Enjay Holdings Alberta Ltd.

Keith McCandlish, P.Geol., P.Geo., FGC, FEC (Hon.)
DMT Geosciences Ltd.

Ian McDonald, P.Eng.
CNOOC International

Rob Morgan, P.Eng.
Strathcona Resources Ltd.

James Surbey, B.Eng., LLB
Birchcliff Energy Ltd.

Michael Verney, P.Eng.
McDaniel & Associates Consultants Ltd.

John Zahary, P.Eng.
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GLOSSARY OF TERMS

The following terms and their definitions are sourced from section 1.1 of NI 51-101 *Standards of Disclosure For Oil and Gas Activities* and CSA Staff Notice 51-324 *Revised Glossary to NI 51-101 Standards of Disclosure for Oil and Gas Activities*.

"**abandonment and reclamation costs**" means all costs associated with the process of restoring a reporting issuer's property that has been disturbed by oil and gas activities to a standard imposed by applicable government or regulatory authorities.

"**anticipated results**" means information that may, in the opinion of a reasonable person, indicate the potential value or quantities of resources in respect of the reporting issuer's resources or a portion of its resources and includes:

(a) estimates of volume;

(b) estimates of value;

(c) areal extent;

(d) pay thickness;

(e) flow rates; or

(f) hydrocarbon content.

"**commercial**" means when a project is commercial this implies that the essential social, environmental, and economic conditions are met, including political, legal, regulatory, and contractual conditions. Considerations with regard to determining commerciality include:

- economic viability of the related development project;
- a reasonable expectation that there will be a market for the expected sales quantities of production required to justify development;
- evidence that the necessary production and transportation facilities are available or can be made available;
- evidence that legal, contractual, environmental, governmental, and other social and economic concerns will allow for the actual implementation of the recovery project being evaluated;
- a reasonable expectation that all required internal and external approvals will be forthcoming. Evidence of this may include items such as signed contracts, budget approvals, and approvals for expenditures, etc.;
- evidence to support a reasonable timetable for development. A reasonable time frame for the initiation of development depends on the specific circumstances and varies according to the scope of the project. Although five years is recommended as a maximum time frame for classification of a project as commercial, a longer time frame could be applied, where, for example, development of economic projects are deferred at the option of the producer for, among other things, market-related reasons or to meet contractual or strategic objectives.

"**contingent resources data**" means:

(a) an estimate of the volume of contingent resources, and

(b) the risked net present value of future net revenue of contingent resources.

"**effective date**" in respect of information, means the date as at which, or for the period ended on which, the information is provided.

"**evaluation**" means, in relation to reserves data or resources other than reserves, the process whereby an economic analysis is made of a property to arrive at an estimate of a range of net present values of the estimated future net revenue resulting from the production of the reserves or resources other than reserves associated with the property.

"**first point of sale**" means the first point after initial production at which there is a transfer of ownership of a product type.

"**forecast prices and costs**" means future prices and costs that are:

(a) generally accepted as being a reasonable outlook of the future;

(b) if, and only to the extent that, there are fixed or presently determinable future prices or costs to which the reporting issuer is legally bound by a contractual or other obligation to supply a physical product, including those for an extension period of a contract that is likely to be extended, those prices or costs rather than the prices and costs referred to in subparagraph (a).

"**future net revenue**" means a forecast of revenue, estimated using forecast prices and costs or constant prices and costs, arising from the anticipated development and production of resources, net of the associated royalties, operating costs, development costs, and abandonment and reclamation costs.

"**gas**" includes natural gas, conventional natural gas, coal bed methane, gas hydrates, shale gas, and synthetic gas.

"**gross**"

(a) In relation to a reporting issuer's interest in production or reserves, its "company gross reserves", which are the reporting issuer's working interest (operating or non-operating) share before deduction of royalties and without including any royalty interests of the reporting issuer.

(b) In relation to wells, the total number of wells in which a reporting issuer has an interest.

(c) In relation to properties, the total area of properties in which a reporting issuer has an interest.

"**net**"

(a) In relation to a reporting issuer's interest in production or reserves, the reporting issuer's working interest (operating or non-operating) share after deduction of royalty obligations, plus the reporting issuer's royalty interests in production or reserves.

(b) In relation to a reporting issuer's interest in wells, the number of wells obtained by aggregating the reporting issuer's working interest in each of its gross wells.

(c) In relation to a reporting issuer's interest in a property, the total area in which the reporting issuer has an interest multiplied by the working interest owned by the reporting issuer.

"**oil**" includes crude oil, bitumen, tight oil and synthetic crude oil.

"**oil and gas activities**" includes the following:

(a) searching for a product type in its natural location;

(b) acquiring property rights or a property for the purpose of exploring for or removing product types from their natural locations;

(c) any activity necessary to remove product types from their natural locations, including construction, drilling, mining and production, and the acquisition, construction, installation and maintenance of field gathering and storage systems including treating, field processing and field storage;

(d) producing or manufacturing of synthetic crude oil or synthetic gas;

but does not include any of the following:

(e) any activity that occurs after the first point of sale;

(f) any activity relating to the extraction of a substance other than a product type and their by-products;

(g) extracting hydrocarbons as a consequence of the extraction of geothermal steam.

"**property**" includes:

(a) fee ownership or a lease, concession, agreement, permit, licence or other interest representing the right to extract oil or gas subject to such terms as may be imposed by the conveyance of that interest;

(b) royalty interests, production payments payable in oil or gas, and other non-operating interests in properties operated by others; and

(c) an agreement with a foreign government or authority under which a reporting issuer participates in the operation of properties or otherwise serves as "producer" of the underlying reserves (in contrast to being an independent purchaser, broker, dealer or importer).

A property does not include supply agreements, or contracts that represent a right to purchase, rather than extract, oil or gas.

"**prospective resources data**" means:

(a) an estimate of the volume of prospective resources, and

(b) the risked net present value of future net revenue of prospective resources.

"**qualified reserves auditor**" means an individual who:

(a) in respect of particular reserves data, resources or related information, possesses professional qualifications and experience appropriate for the estimation, evaluation, review and audit of the reserves data, resources and related information; and

(b) is a member in good standing of a professional organization.

"**qualified reserves evaluator**" means an individual who:

(a) in respect of particular reserves data, resources or related information, possesses professional qualifications and experience appropriate for the estimation, evaluation and review of the reserves data, resources and related information; and

(b) is a member in good standing of a professional organization.

"**qualified reserves evaluator or auditor**" means a qualified reserves auditor or a qualified reserves evaluator.

"**reserves**" means proved, probable or possible reserves.

"**reserves data**" means an estimate of proved reserves and probable reserves and related future net revenue, estimated using forecast prices and costs.

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