

# **Upstream Petroleum Industry Flaring and Venting Report**

**Industry Performance for Year  
Ending December 31, 2017**

September 2018

**Alberta Energy Regulator**

ST60B-2018: Upstream Petroleum Industry Flaring and Venting Report, 2017

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## Executive Summary

The Alberta Energy Regulator (AER) annually publishes *ST60B: Upstream Petroleum Industry Flaring and Venting Report* to fulfil the commitment it made in *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting* to make flaring and venting data accessible.

The report's primary focus is on solution gas flaring and venting from crude oil and crude bitumen production operations. The report includes flared and vented volumes from in situ bitumen facilities, gas batteries, well testing, gas plants, gas gathering systems, and natural gas transmission lines. Also included are emission statistics for glycol dehydrators, surface casing vent flow (SCVF), and gas migration (GM). The report does not include flared and vented volumes from bitumen upgraders and oil sands mine operations, nor does it include emissions in the upstream petroleum industry that do not have to be reported to the AER.

The data used to compile the report are obtained from Canada's Petroleum Information Network (Petrinex) and the AER.

Key statistics from 2017:\*

- Crude bitumen production increased by 10.9 per cent to 90 million cubic metres ( $10^6 \text{ m}^3$ ).
- Crude oil production increased by 0.3 per cent to  $26 \times 10^6 \text{ m}^3$ .
- Solution gas produced from crude bitumen batteries increased by 14.0 per cent to  $2984 \times 10^6 \text{ m}^3$ .
- Solution gas produced from crude oil batteries decreased by 1.8 per cent to  $16\,584 \times 10^6 \text{ m}^3$ .
- Solution gas conservation increased to 97.1 per cent from 96.8 per cent in 2016.
- Solution gas flared from crude bitumen and crude oil batteries was  $382 \times 10^6 \text{ m}^3$ , up from  $376 \times 10^6 \text{ m}^3$  in 2016, a 1.7 per cent increase.
  - Total solution gas flared represented 1.1 million tonnes of carbon dioxide equivalent ( $10^6 \text{ tCO}_2\text{e}$ ) of greenhouse gas (GHG) emissions.
  - Flaring from crude bitumen batteries was  $130 \times 10^6 \text{ m}^3$ , up from  $112 \times 10^6 \text{ m}^3$  in 2016, a 16.3 per cent increase.
  - Flaring from crude oil batteries was  $252 \times 10^6 \text{ m}^3$ , down from  $264 \times 10^6 \text{ m}^3$  in 2016, a 4.5 per cent decrease.
- Solution gas vented from crude bitumen and crude oil batteries was  $186 \times 10^6 \text{ m}^3$ , down from  $241 \times 10^6 \text{ m}^3$  in 2016, a 22.7 per cent decrease.
  - Total solution gas vented represented  $2.6 \times 10^6 \text{ tCO}_2\text{e}$  of GHG emissions.

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\* Some totals and per cent changes may not be exact due to rounding.

- Venting from crude bitumen batteries was  $81 \times 10^6 \text{ m}^3$ , down from  $108 \times 10^6 \text{ m}^3$  in 2016, a 25.2 per cent decrease.
- Venting from crude oil batteries was  $106 \times 10^6 \text{ m}^3$ , down from  $133 \times 10^6 \text{ m}^3$  in 2016, a 20.7 per cent decrease.
- Flaring and venting from other sources
  - Gas batteries
    - Flaring –  $57 \times 10^6 \text{ m}^3$ , up from  $47 \times 10^6 \text{ m}^3$  in 2016, a 23.0 per cent increase
    - Venting –  $9 \times 10^6 \text{ m}^3$ , down from  $10 \times 10^6 \text{ m}^3$  in 2016, a 5.4 per cent decrease
  - Well testing
    - Flaring –  $93 \times 10^6 \text{ m}^3$ , up from  $61 \times 10^6 \text{ m}^3$  in 2016, a 51.3 per cent increase
    - Venting –  $9 \times 10^6 \text{ m}^3$ , the same as in 2016
  - Gas plants
    - Flaring –  $137 \times 10^6 \text{ m}^3$ , up from  $122 \times 10^6 \text{ m}^3$  in 2016, a 12.4 per cent increase
    - Venting –  $3 \times 10^6 \text{ m}^3$ , down from  $4 \times 10^6 \text{ m}^3$  in 2016, a 12.9 per cent decrease
  - Gas gathering systems
    - Flaring –  $64 \times 10^6 \text{ m}^3$ , up from  $54 \times 10^6 \text{ m}^3$  in 2016, a 19.9 per cent increase
    - Venting –  $6 \times 10^6 \text{ m}^3$ , down from  $7 \times 10^6 \text{ m}^3$  in 2016, a 17.5 per cent decrease
  - Transmission lines
    - Flaring –  $6 \times 10^6 \text{ m}^3$ , up from  $2 \times 10^6 \text{ m}^3$  in 2016, a 135.2 per cent increase
    - Venting –  $11 \times 10^6 \text{ m}^3$ , the same as in 2016
- Emissions from glycol dehydrators
  - 1528 glycol dehydrators were operating in 2017, down from 1646 in 2016, a 7.2 per cent decrease.
  - Total benzene emissions was 399 tonnes in 2017, down from 501 tonnes in 2016, a 20.3 per cent decrease.
- Emissions from SCVF and GM
  - There were 10 291 wells with either SCVF or GM in 2017, up from 9972 wells in 2016, a 3.2 per cent increase.
  - Total natural gas emissions from SCVF and GM wells was  $83 \times 10^6 \text{ m}^3$  in 2017, up from  $81 \times 10^6 \text{ m}^3$  in 2016, a 2.5 per cent increase.

For questions about this report, email the AER Environment and Operational Performance Branch, Resource Compliance Team, at [ResourceCompliance@aer.ca](mailto:ResourceCompliance@aer.ca), or call the Customer Contact Centre at 403-297-8311 or toll free at 1-855-297-8311.

## 1 Introduction

The Alberta Energy Regulator (AER) is the province's single energy regulator whose core functions include conserving Alberta's energy resource, protecting public safety and the environment, and disseminating energy-related information. The AER's activities on reducing flaring and venting, including its partnership work, address conservation, public safety, and information dissemination.

The AER worked with the consensus-based, multistakeholder Flaring and Venting Project Team of the Clean Air Strategic Alliance (CASA) to develop flaring and venting management recommendations for the Province of Alberta. The recommendations included determining flaring and venting baselines, flaring reduction targets, and operational requirements for the upstream oil and gas industry. The AER adopted the recommendations put forward by CASA and incorporated them into the 1999 edition of *Guide 60: Upstream Petroleum Industry Flaring Guide* (subsequently known as *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*). The AER will continue to work with CASA, industry, and other stakeholders to reduce the volume of solution gas flared and vented in Alberta.

*ST60B: Upstream Petroleum Industry Flaring and Venting Report*, published annually, fulfils the AER's commitment to report flaring and venting volumes, as set out in *Directive 060*.

The report's primary focus is on solution gas flaring and venting from crude oil and crude bitumen production operations. The report includes flared and vented volumes from in situ bitumen facilities, gas batteries, well testing, gas plants, gas gathering systems, and natural gas transmission lines. Also included are emissions data for glycol dehydrators and for surface casing vent flow (SCVF) and gas migration (GM). The report does not include flared and vented volumes from bitumen upgraders and oil sands mine operations, nor does it include emissions in the upstream petroleum industry that do not have to be reported to the AER.

The data used to compile the report are obtained from Canada's Petroleum Information Network (Petrinex) and the AER.

For this report:

- Crude bitumen is oil that is produced within the AER-designated oil sands areas<sup>1</sup> and that has a density of 920 kilograms per cubic metre (kg/m<sup>3</sup>) or more.
- Crude oil is all other crude oil production in the province, including oil with a density of 920 kg/m<sup>3</sup> or more produced outside the designated oil sands areas.
- All reported flared volumes include gas that was incinerated, unless otherwise stated.
- Venting is the noncombusted release of gas to the atmosphere.

<sup>1</sup> See *ST98-2018: Alberta's Energy Reserves 2017 and Supply/Demand Outlook*, figure R3.1, available on the AER website, [www.aer.ca](http://www.aer.ca).

- Gas conservation is the recovery of solution gas to use as fuel for production facilities, to sell, to inject for enhanced recovery from oil or condensate pools, or to generate power, among other uses. It is calculated as follows:

$$\text{Conservation} = \frac{[\text{Volume of gas produced} - (\text{Volume of gas flared} + \text{Volume of gas vented})]}{\text{Volume of gas produced}}$$

- Greenhouse gas (GHG) emissions are expressed in tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e).<sup>2</sup> The GHG emission factors used to quantify emissions from flaring and venting vary depending on the type of production as set out below:<sup>3</sup>
  - Crude oil<sup>4</sup>
    - Vented gas GHG emission factor = 12.5 tCO<sub>2</sub>e per thousand cubic metres (10<sup>3</sup> m<sup>3</sup>) of gas
    - Flared gas GHG emission factor = 2.9 tCO<sub>2</sub>e per 10<sup>3</sup> m<sup>3</sup> of gas
  - Crude bitumen within the Peace River area<sup>5</sup>
    - Vented gas GHG emission factor = 15.9 tCO<sub>2</sub>e per 10<sup>3</sup> m<sup>3</sup> of gas
    - Flared gas GHG emission factor = 2.5 tCO<sub>2</sub>e per 10<sup>3</sup> m<sup>3</sup> of gas
  - Crude bitumen outside the Peace River area<sup>6</sup>
    - Vented gas GHG emission factor = 16.2 tCO<sub>2</sub>e per 10<sup>3</sup> m<sup>3</sup> of gas
    - Flared gas GHG emission factor = 2.5 tCO<sub>2</sub>e per 10<sup>3</sup> m<sup>3</sup> of gas

For information on flaring, incinerating, and venting requirements, see *Directive 060*. For questions about this report, email the AER Environment and Operational Performance Branch, Resource Compliance Team, at [ResourceCompliance@aer.ca](mailto:ResourceCompliance@aer.ca) or call the Customer Contact Centre at 403-297-8311 or toll free at 1-855-297-8311.

<sup>2</sup> tCO<sub>2</sub>e is a way of expressing the global warming potential (GWP) of a greenhouse gas relative to carbon dioxide. Since every greenhouse gas has a different capacity to absorb and trap heat in the atmosphere, carbon dioxide is used as a frame of reference for easy comparison. The GWP of other gases can be calculated and converted into the equivalent amount of carbon dioxide. For example, one tonne of methane, which is a major component in venting, has 25 times more GWP than carbon dioxide over 100 years (Government of Alberta, *Carbon Offset Emission Factors Handbook* [2015], <https://open.alberta.ca/publications/2368-9528>, table 1).

<sup>3</sup> Flaring is assumed to have a 95 per cent conversion efficiency.

<sup>4</sup> Solution gas from crude oil production is assumed to have a methane content of 53 per cent by mass.

<sup>5</sup> For a map of the Peace River area, see *Directive 060: Upstream Petroleum Industry Flaring, Incinerating, and Venting*, figure 10, available on the AER website, [www.aer.ca](http://www.aer.ca). Solution gas from crude bitumen production within the Peace River area is assumed to have a methane content of 89 per cent by mass.

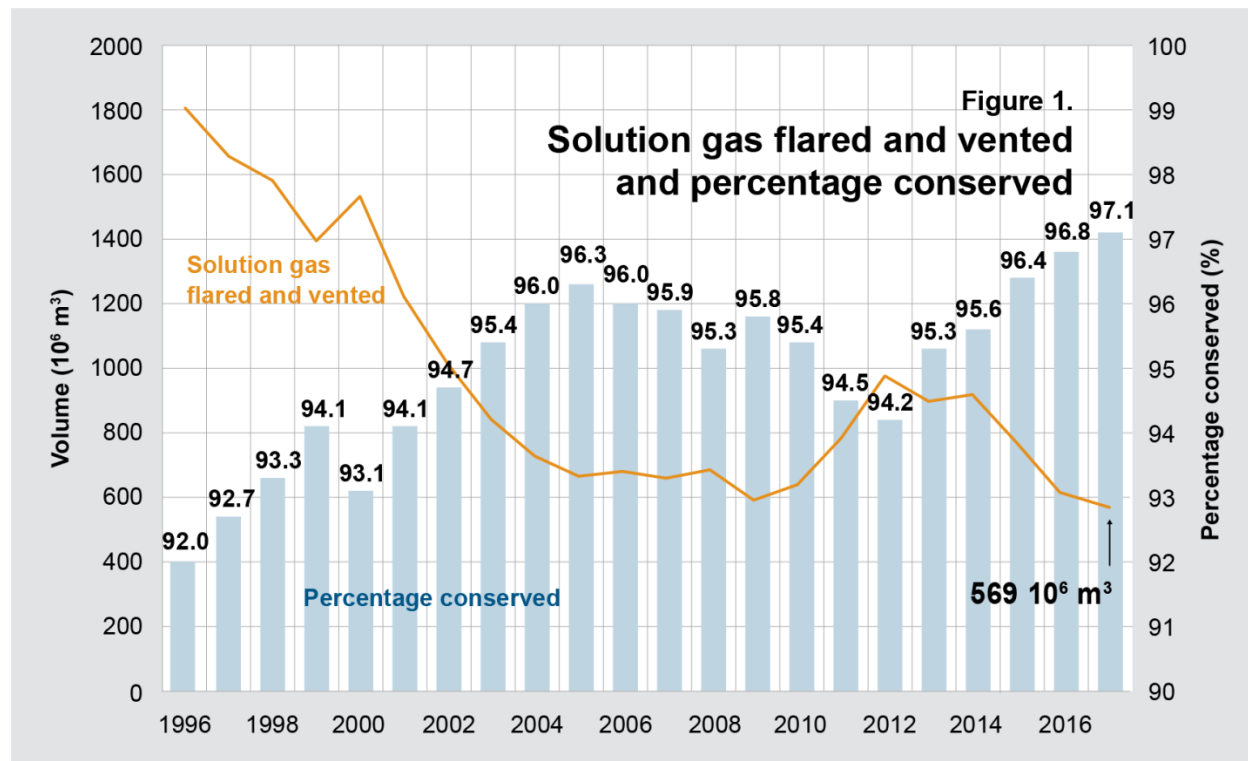
<sup>6</sup> Solution gas from crude bitumen production outside the Peace River area is assumed to have a methane content of 94 per cent by mass.



## 2 Solution Gas Conserved, Flared, and Vented, 1996–2017

Industry achieved a 97.1 per cent solution gas conservation rate in 2017, compared with 96.8 per cent in 2016 (see figure 1). Data from all crude oil and crude bitumen batteries were used in calculating the percentage of solution gas conserved.

The combined volume of flared and vented solution gas decreased 7.8 per cent to 569 million cubic metres ( $10^6 \text{ m}^3$ ) in 2017 from 617  $10^6 \text{ m}^3$  in 2016.<sup>7</sup> The total volume of gas flared and vented at crude oil and crude bitumen batteries represented 3.7  $10^6 \text{ tCO}_2\text{e}$ .

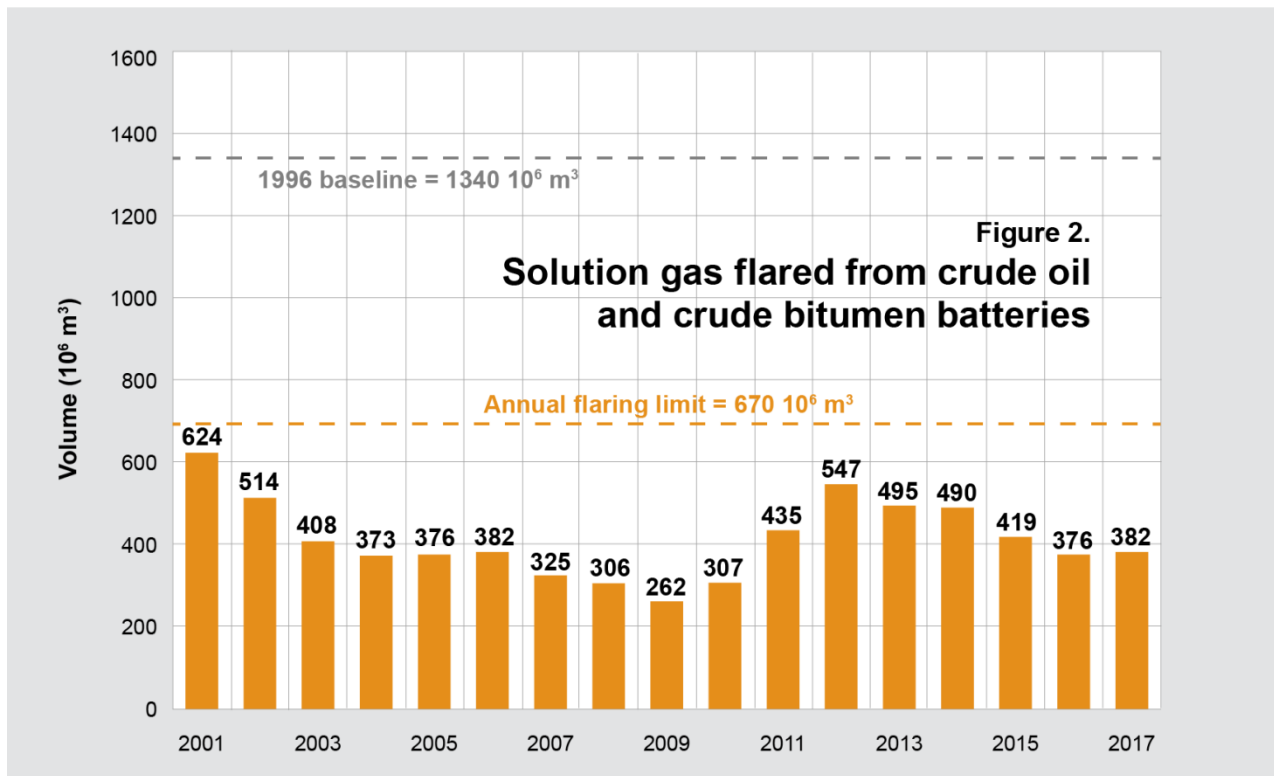


<sup>7</sup> Gas volumes in this report have been rounded to the nearest  $10^6 \text{ m}^3$ .

### 3 Solution Gas Flaring and Venting Performance

In 2017,  $382 \times 10^6 \text{ m}^3$ , or  $1.1 \times 10^6 \text{ tCO}_2\text{e}$ , of gas was flared and  $186 \times 10^6 \text{ m}^3$ , or  $2.6 \times 10^6 \text{ tCO}_2\text{e}$ , was vented. The flared volumes were 71.5 per cent less than the 1996 flaring baseline of  $1340 \times 10^6 \text{ m}^3$  and 1.7 per cent higher than 2016 volumes (see figure 2). Flaring was also below the provincial annual flaring limit of  $670 \times 10^6 \text{ m}^3$  set out in *Directive 060*. The vented volumes were 73.6 per cent less than the 2000 venting baseline of  $704 \times 10^6 \text{ m}^3$  and 22.7 per cent less than the 2016 volumes (see figure 3).

The years 1996 and 2000 were selected as the baseline years for solution gas flaring and venting, respectively, since data from these years were the most recent available to the CASA Flaring and Venting Project Team.



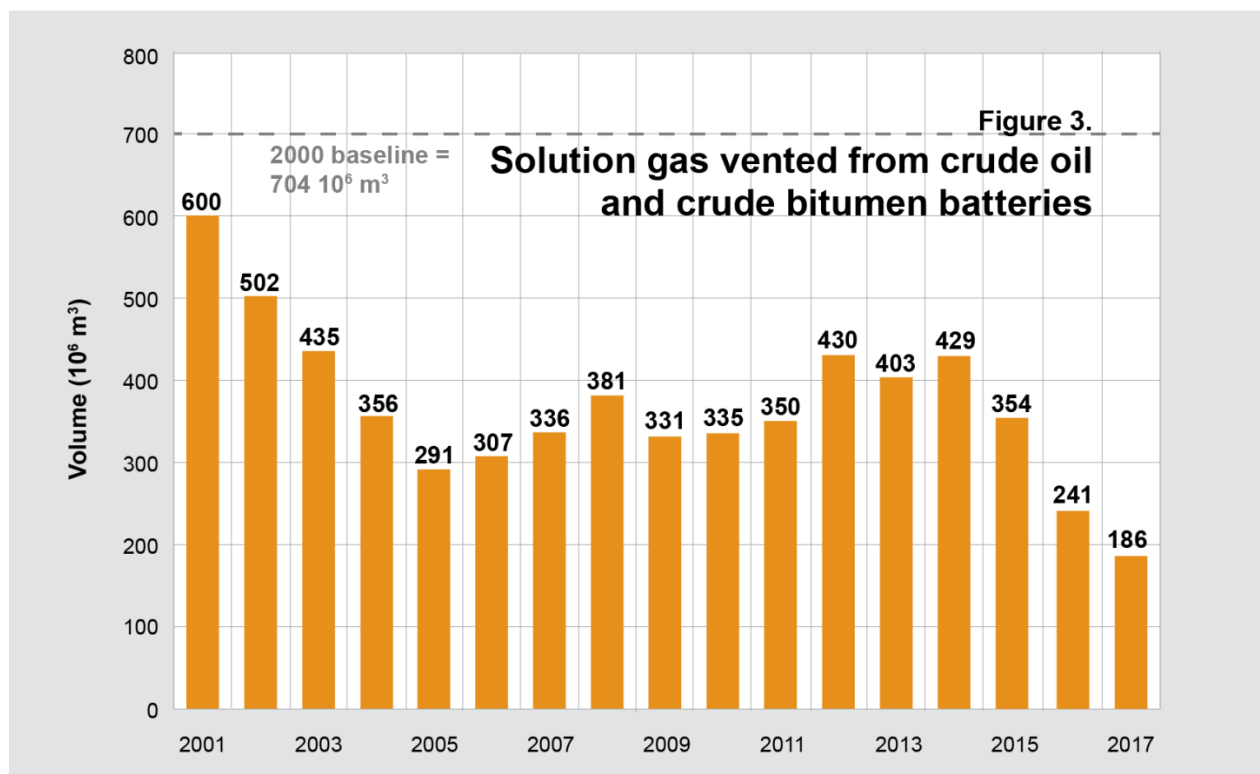


Table 1 shows oil and bitumen production and solution gas flaring, venting, production, and conservation for crude oil and crude bitumen batteries. Comparing the 2016 and 2017 data, it can be seen that in 2017

- crude oil production and crude bitumen production increased;
- total solution gas flared and vented decreased while total gas production increased;
- solution gas conservation increased for both crude oil and crude bitumen production; and
- for crude bitumen batteries, venting decreased while flaring increased, which is more desirable since flaring contributes less to GHG emissions than venting.

**Table 1. Flaring and venting from crude oil and crude bitumen batteries, 2016–2017**

	Crude bitumen batteries ( $10^6 \text{ m}^3$ )			Crude oil batteries ( $10^6 \text{ m}^3$ )			Crude oil & crude bitumen batteries ( $10^6 \text{ m}^3$ )		
	2016	2017	% change	2016	2017	% change	2016	2017	% change
Crude oil or bitumen production	81	90	10.9	26	26	0.3	107	116	8.4
Solution gas production	2617	2984	14.0	16 890	16 584	-1.8	19 507	19 567	0.3
Solution gas flaring	112	130	16.3	264	252	-4.5	376	382	1.7
Solution gas venting	108	81	-25.2	133	106	-20.7	241	186	-22.7
Solution gas conservation	91.6%	92.9%	1.3	97.6%	97.8%	0.2	96.8%	97.1%	0.3

Table 2 shows the total number of batteries operating in 2017 and the number of batteries flaring, venting, or conserving gas. The number of batteries operating in 2017 decreased compared with 2016.

**Table 2. Number of crude oil and crude bitumen batteries flaring or venting, 2016–2017**

	Crude bitumen batteries (10 <sup>6</sup> m <sup>3</sup> )			Crude oil batteries (10 <sup>6</sup> m <sup>3</sup> )			Crude oil & crude bitumen batteries (10 <sup>6</sup> m <sup>3</sup> )		
	2016	2017	% change	2016	2017	% change	2016	2017	% change
Number of batteries flaring gas <sup>a</sup>	160	166	3.8	1588	1641	3.3	1 748	1 807	3.4
Number of batteries venting gas <sup>a</sup>	2465	2350	-4.7	4586	4583	-0.1	7 051	6 933	-1.7
Number of batteries with gas conservation <sup>a, b</sup>	1310	1408	7.5	4746	4719	-0.6	6 056	6 127	1.2
<b>Total number of batteries</b>	<b>3361</b>	<b>3299</b>	<b>-1.8</b>	<b>9611</b>	<b>9421</b>	<b>-2.0</b>	<b>12 972</b>	<b>12 720</b>	<b>-1.9</b>

<sup>a</sup> A battery can flare, vent, or conserve or engage in one, two, or all three of these activities.

<sup>b</sup> Batteries with an annual gas conservation of at least 90.0 per cent.

## Discussion

*Directive 060*, starting with the edition that went into effect on January 31, 2007, requires that all solution gas flares or vents releasing more than 900 m<sup>3</sup>/day must be economically evaluated to see if gas conservation is viable. If the net present value (NPV) of gas conservation at a crude oil battery is found to be greater than negative \$55 000, the well or battery must not be produced until the gas is conserved. At crude bitumen batteries, as soon as gas flow rates exceed an average of 900 m<sup>3</sup>/day for any consecutive three-month period within a rolling six-month window, operators have up to six months to conserve the solution gas if the NPV of gas conservation is greater than negative \$55 000. Before 2007, *Directive 060* required at least a neutral NPV (i.e., \$0.00) before solution gas conservation was necessary.

Despite the change in the NPV threshold for solution gas conservation, low natural gas prices and higher pipeline and compression capital costs in 2017 continued to challenge the economic viability of conservation.

The decrease in flaring from crude oil batteries in 2017 compared with 2016 can be attributed to a decrease in the number of crude oil batteries operating. For crude bitumen batteries, the increase in flaring and simultaneous decrease in venting in 2017 compared with 2016 suggests that an increasing portion of gas is being flared rather than vented.

Crude bitumen batteries accounted for 211 10<sup>6</sup> m<sup>3</sup>, or 37.1 per cent, of the total solution gas flared and vented in 2017, with 38.2 per cent of this volume being vented. Crude bitumen generally has lower gas-to-oil ratios and solution gas production volumes than crude oil, which means that solution gas is less likely to be combusted.

The reduction in the vented gas volumes in 2017 compared with 2016 can be mainly attributed to the AER working with operators to enhance compliance with venting requirements.

This report covers two types of crude bitumen operations: nonthermal operations (e.g., cold heavy oil production) and thermal operations (e.g., steam-assisted gravity drainage or cyclical steam stimulation). Thermal operations generally have less flaring and venting than nonthermal operations because the produced gas is more economical to conserve. Table 3 shows the volume of flaring and venting for nonthermal operations (3256 batteries) and thermal operations (43 batteries) in 2017.

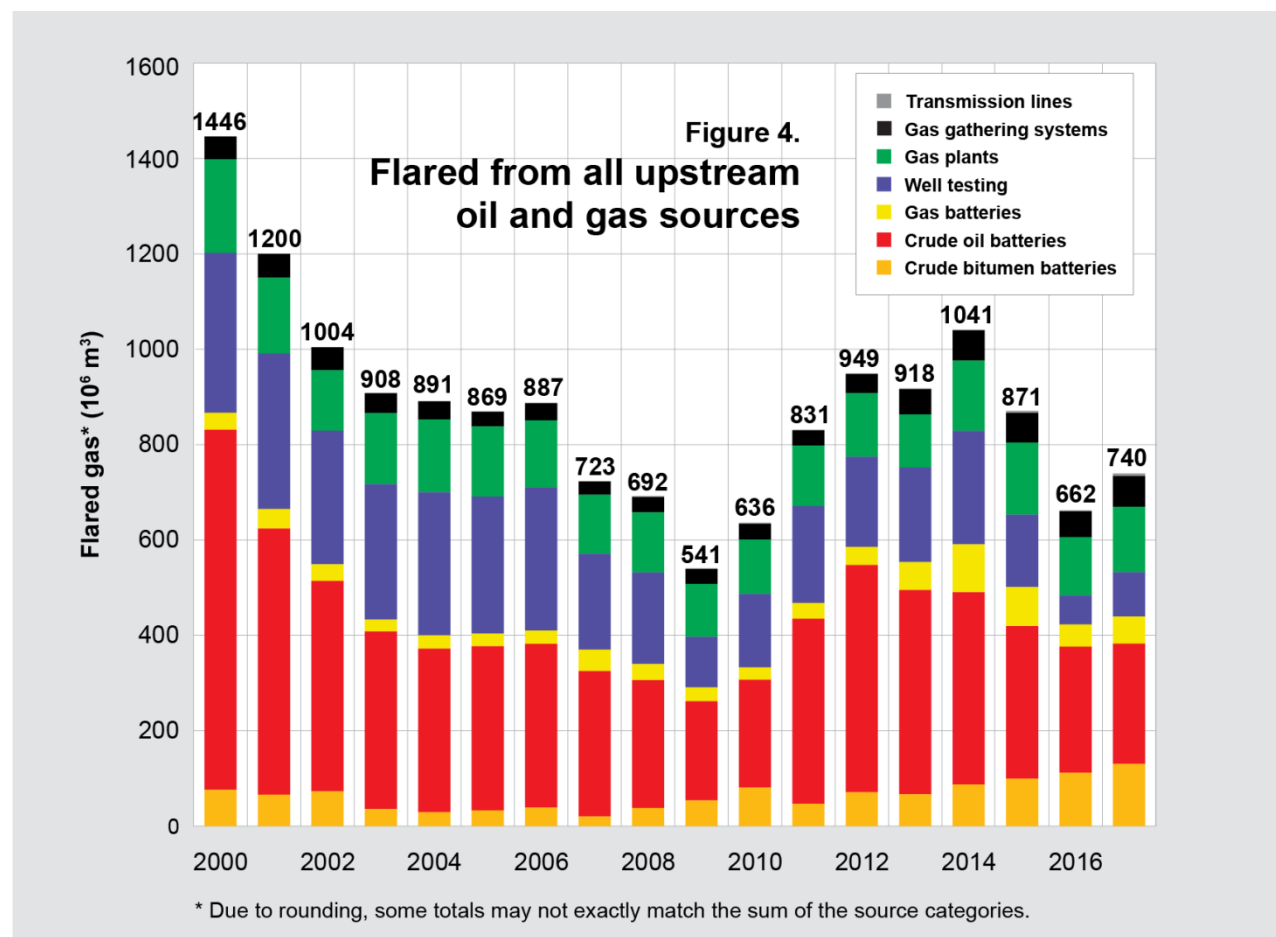
**Table 3. Flaring and venting at nonthermal and thermal operations ( $10^6 \text{ m}^3$ ), 2017**

	<b>Nonthermal operations</b>	<b>Thermal operations</b>	<b>Total</b>
Crude bitumen production ( $10^6 \text{ m}^3$ )	12	78	90
Solution gas production ( $10^6 \text{ m}^3$ )	1240	1743	2984
Solution gas flaring ( $10^6 \text{ m}^3$ )	116	14	130
Solution gas venting ( $10^6 \text{ m}^3$ )	79	1	81
<b>% of solution gas conserved</b>	<b>84.2%</b>	<b>99.1%</b>	<b>92.9%</b>

Conserving gas is more challenging for nonthermal operations than for thermal operations. Nevertheless, the oil and gas industry is constructively using a large portion of produced solution gas from nonthermal crude bitumen operations as fuel to run pump motors and tank heaters. Unfortunately, conserving the remaining small volume of gas is more economically challenging.

#### 4 Flaring from All Upstream Oil and Gas Sources, 2000–2017

The total flared volume from all upstream oil and gas sources in 2017 was  $740 \times 10^6 \text{ m}^3$ , an increase of 11.7 per cent from 2016 (see figure 4). The data in table 4 were used to prepare figure 4.



**Table 4. Flaring from all upstream oil and gas sources ( $10^6 \text{ m}^3$ )<sup>a</sup>**

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants <sup>b</sup>	Gas gathering systems <sup>b</sup>	Transmission lines <sup>c</sup>	Total flared ( $10^6 \text{ m}^3$ )
2000	76	755	36	335	196	48	-	1446
2001	66	558	41	326	159	50	-	1200
2002	73	441	35	280	127	48	-	1004
2003	36	372	25	284	149	42	-	908
2004	29	343	28	300	153	38	-	891
2005	33	344	27	287	147	31	-	869
2006	39	343	28	301	140	36	-	887
2007	20	305	45	201	124	28	-	723
2008	38	268	34	192	126	32	2	692
2009	54	208	29	106	111	31	2	541
2010	81	226	26	154	114	33	2	636

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants <sup>b</sup>	Gas gathering systems <sup>b</sup>	Transmission lines <sup>c</sup>	Total flared (10 <sup>6</sup> m <sup>3</sup> )
2011	47	388	33	203	127	32	1	831
2012	70.8	476.7	37.9	189.0	133.6	40.1	1.1	949
2013	66.6	428.6	58.5	198.4	111.1	52.9	2.0	918
2014	87.4	403.0	100.5	237.7	147.8	63.5	0.6	1041
2015	99.3	320.0	82.0	151.7	151.4	62.1	4.2	871
2016	112.2	264.0	46.6	61.2	122.2	53.6	2.4	662
2017	130.4	252.0	57.3	92.7	137.3	64.3	5.7	740
2017 vs 2016 change	16.3%	-4.5%	23.0%	51.3%	12.4%	19.9%	135.1%	11.7%

<sup>a</sup> Due to rounding, some totals may not exactly match the sum of the source categories. An additional decimal place has been added to the volumes for 2012 onwards to more accurately reflect the percentage changes.

<sup>b</sup> The figures for gas plants and gas gathering systems include both flared *and* vented volumes for the years 2000 to 2006.

<sup>c</sup> Transmission line data are voluntarily reported to the AER. The AER does not regulate these lines. Flaring from transmission lines was not tracked by the AER until 2008.

Table 4 shows that flaring from crude bitumen batteries, gas batteries, well testing, gas plants, gas gathering systems, and transmission lines increased in 2017 compared with 2016, while flaring from crude oil batteries decreased in 2017.

## Discussion

### *Gas Batteries*

In 2017, flared gas volumes from gas batteries was 57 10<sup>6</sup> m<sup>3</sup>, an increase of 23.0 per cent from 2016. The flaring increase is mainly attributed to the increase in the number of horizontal multistage hydraulically fractured gas wells drilled in 2017 compared with 2016 (table 5). It takes longer to clean out the wells in these operations to meet pipeline specifications before transmission, so flare volumes are higher and flaring duration is longer than for vertical wells that are not hydraulically fractured. The flared volume during this cleanup period is reported as gas battery flaring, not as well test flaring. An increase in the number of horizontal multistage hydraulically fractured gas wells drilled results in higher flaring volumes for gas batteries.

### *Well Testing*

In 2017, 1046 well tests were conducted, compared with 613 tests in 2016. There were 867 well tests conducted that flared or vented compared with 507 tests in 2016. The increase in the number of well tests is due to an increase in the number of wells drilled in 2017 compared with 2016.

An AER review of 37 well tests done in 2017 showed that 37 per cent of the flared gas was reported incorrectly. The reported flare volumes during well testing may have included some nonhydrocarbon gas, such as carbon dioxide and nitrogen from fracturing operations. In other situations, gas that was pipelined (i.e., conserved) by testing in line was incorrectly included in the flared gas volumes. The AER subtracted

these gas volumes from the reported flared volumes to get the actual hydrocarbon gas that was flared during these well tests. This adjustment was only made for the 37 well tests reviewed, and the volumes were not prorated for the entire well test dataset.

The average volume of gas flared per test in 2017 was  $88.6 \times 10^3 \text{ m}^3$ , compared with  $99.9 \times 10^3 \text{ m}^3$  per test in 2016, a decrease of 11.3 per cent (see table 5) despite 346 more horizontal multistage fractured gas wells drilled in 2017 compared with 2016.

**Table 5. Average volume of gas flared per well test and number of wells drilled by type**

Year	Volume flared per well test ( $10^3 \text{ m}^3$ )	Number of horizontal multistage fractured gas wells	Number of horizontal multistage fractured oil wells	Total number of wells drilled
2005	34.6	-	-	20 189
2006	40.8	-	-	18 878
2007	40.1	-	-	14 723
2008	45.6	93	53	12 914
2009	39.3	160	120	6 392
2010	63.5	350	778	8 946
2011	83.2	645	1645	9 303
2012	102.3	530	1839	8 143
2013	109.8	626	1612	7 812
2014	140.6	846	1506	7 543
2015	125.2	662	573	3 411
2016	99.9	512	419	2 638
2017	88.6	858	910	4 895

*Directive 060* requires that operators seek alternatives to well test flaring. Operators are required to test in line when it is both economically viable and safe to do so. Testing in line can mean either connecting to an existing gas gathering system directly or laying a temporary surface pipeline to connect a well to a remote gas gathering system. By either method, the gas from the well test is conserved.

Table 6 shows the gas flared from well tests for the 25 companies with the most well tests in 2017 and the average volume of gas flared per test.



**Table 6. Well test flaring, 2017; ranked by number of well tests conducted**

<b>Company</b>	<b>Number of well tests</b>	<b>Gas flared (10<sup>6</sup> m<sup>3</sup>)</b>	<b>Average gas flared per test (10<sup>3</sup> m<sup>3</sup>)</b>
Tourmaline Oil Corp.	159	9.2	57.8
Seven Generations Energy Ltd.	148	4.0	27.2
Birchcliff Energy Ltd.	59	0.7	12.3
Shell Canada Limited	56	4.3	76.5
Encana Corporation	54	1.4	25.8
Vermilion Energy Inc.	33	4.1	125.7
Bonavista Energy Corporation	33	2.7	82.0
Advantage Oil & Gas Ltd.	28	2.5	90.7
Paramount Resources Ltd.	27	3.7	135.2
Velvet Energy Ltd.	26	3.0	113.5
Bellatrix Exploration Ltd.	25	2.8	113.4
NuVista Energy Ltd.	25	0.4	14.1
Repsol Oil & Gas Canada Inc.	21	2.5	117.6
Canadian Natural Resources Limited	20	0.9	47.2
Athabasca Oil Corporation	19	5.8	305.4
Cenovus Energy Inc.	16	3.8	239.0
Boulder Energy Ltd.	16	2.9	180.7
Delphi Energy Corp.	16	4.5	281.4
Modern Resources Inc.	16	1.1	69.8
Petrus Resources Corp.	13	1.0	76.8
Torxen Energy Ltd.	13	0.2	13.9
Murphy Oil Company Ltd.	13	1.0	79.6
ORLEN Upstream Canada Ltd.	12	1.5	127.4
Hammerhead Resources Inc.	12	0.5	44.5
TAQA North Ltd.	11	3.6	324.9
<b>Total</b>	<b>871</b>	<b>68.2</b>	
<b>% of total well tests</b>	<b>83.3%</b>	<b>73.6%</b>	

### *Gas Plants*

Of the 1141 gas plants operating in 2017, only 368 gas plants reported flared gas volumes. The total volume of gas flared was 137 10<sup>6</sup> m<sup>3</sup>, which is a 12.4 per cent increase from 2016. All gas plant subtypes contribute to this report, including sweet gas, acid gas flare, acid gas injection, sulphur recovery, straddle, and fractionation. Table 7 shows the top 30 gas plants that flared in 2017 by volume, representing 66.6 per cent of flaring from all gas plants. The gas flared as a percentage of gas plant receipts shows the magnitude of the flared gas volumes in relation to the size of the gas plant.

**Table 7. Top 30 flaring gas plants in 2017**

Gas plant	Location	Operator name	Gas flared (10 <sup>6</sup> m <sup>3</sup> )	Gas flared as a percentage of plant gas receipts (%)
ABGP0001901	10-11-020-01W4	Plains Midstream Canada ULC	17.2	0.13
ABGP0001129	13-26-067-05W6	Canadian Natural Resources Limited	6.4	0.87
ABGP0001060	09-27-031-04W5	AltaGas Ltd.	5.2	0.16
ABGP0107835	05-02-076-12W6	Advantage Oil & Gas Ltd.	4.6	0.19
ABGP0094954	08-11-060-03W6	Pembina Gas Services Ltd.	4.3	0.22
ABGP0001056	02-20-004-30W4	Shell Canada Energy	3.9	0.36
ABGP0118855	08-13-063-05W6	Pembina Gas Services Ltd.	3.8	0.26
ABGP0001058	08-09-064-19W5	Paramount Resources Ltd.	3.6	0.44
ABGP0001147	11-18-074-12W6	Veresen Midstream General Partner Inc.	3.5	0.09
ABGP0001113	09-06-063-25W5	Keyera Energy Ltd.	3.4	0.19
ABGP0001892	04-08-075-07W6	Encana Corporation	2.8	0.15
ABGP0001740	04-25-062-06W6	Pembina Gas Services Ltd.	2.8	0.14
ABGP0001004	02-05-044-01W5	Keyera Energy Ltd.	2.8	0.10
ABGP0001506	01-01-078-10W6	Canadian Natural Resources Limited	2.5	0.20
ABGP0001107	01-12-062-20W5	SemCAMS ULC	2.3	0.14
ABGP0001350	01-08-070-11W6	Cenovus Energy Inc.	2.3	0.11
ABGP0001133	11-35-037-09W5	Keyera Energy Ltd.	2.2	0.13
ABGP0001903	16-16-026-04W5	Inter Pipeline Extraction Ltd.	1.9	0.01
ABGP0134673	03-26-069-05W6	Inception Exploration Ltd.	1.7	7.25
ABGP0134628	09-26-062-06W6	Pembina Gas Services Ltd.	1.7	0.20
ABGP0140439	10-29-063-23W5	Encana Corporation	1.7	0.33
ABGP0001105	10-10-109-08W6	Husky Oil Operations Limited	1.5	0.15
ABGP0001520	06-19-073-08W6	Cenovus Energy Inc.	1.3	0.15
ABGP0001013	15-22-040-03W5	Keyera Energy Ltd.	1.3	0.46
ABGP0130964	15-07-060-18W5	XTO Energy Canada	1.2	0.27
ABGP0133259	15-31-062-21W5	Encana Corporation	1.2	0.16
ABGP0001047	10-05-046-06W5	Keyera Energy Ltd.	1.2	0.24
ABGP0001169	15-03-081-04W6	Canadian Natural Resources Limited	1.1	0.23
ABGP0001482	04-31-048-12W5	Tidewater Midstream and Infrastructure Ltd.	1.1	0.09
ABGP0140267	10-10-065-05W6	Seven Generations Energy Ltd.	1.0	0.05
<b>Total</b>			<b>91.5</b>	
<b>% of total gas plant flaring</b>			<b>66.6%</b>	

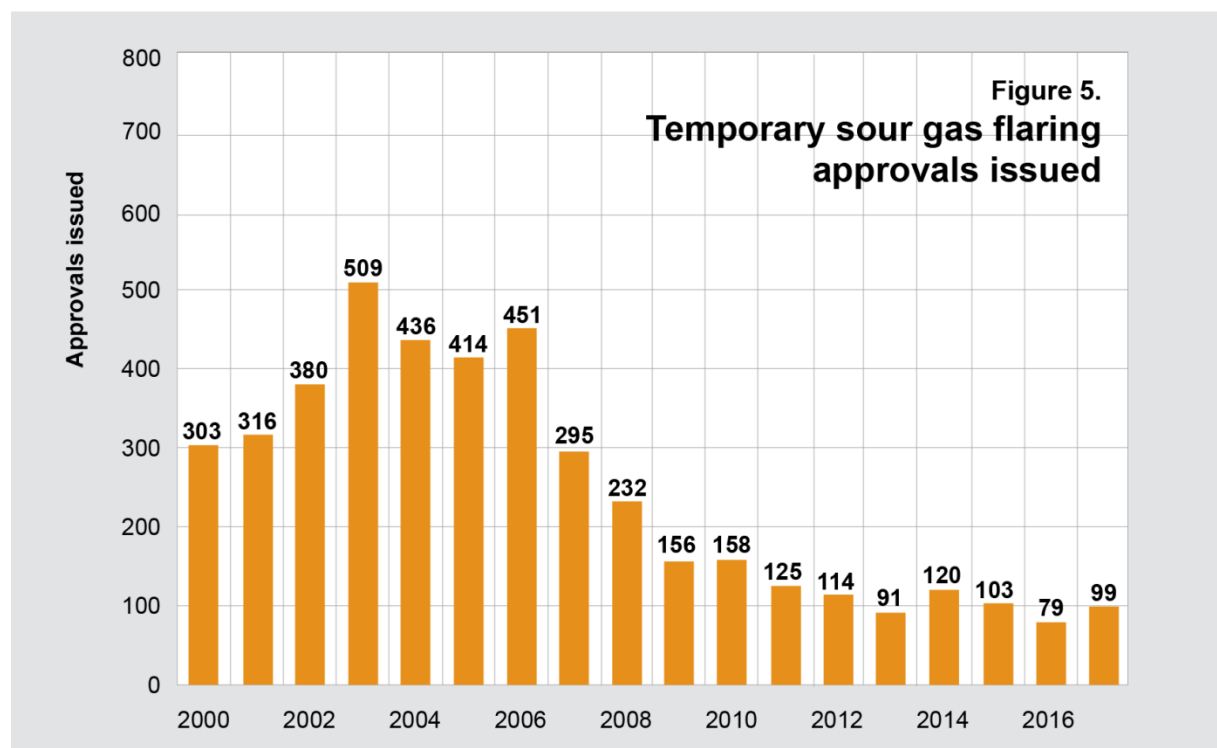
### *Gas Gathering Systems*

In 2017, 50 per cent of the total volume flared from gas gathering systems came from 4 of the 5805 systems.

### *Sour Gas or Sour Oil Well Testing*

In cases of sour gas or sour oil well testing, if the gas to be flared contains more than 5 per cent hydrogen sulphide ( $H_2S$ ), a sour gas flaring approval is required. The temporary sour gas approval process involves a detailed review of air quality dispersion modelling and is conducted to ensure that the Alberta Ambient Air Quality Objectives (AAAQO) set by Alberta Environment and Parks will not be exceeded. The application for a sour gas flaring approval may also include plans that document how any predicted exceedances of the AAAQO will be mitigated. When the AER is satisfied that the AAAQO will be met, and that levels of all other parameters (such as flared volumes and sulphur emissions) are justified and minimized, a temporary sour gas flaring approval may be issued.

In 2017, the AER issued 99 temporary sour gas flaring approvals, an increase from the 79 issued in 2016 (see figure 5).

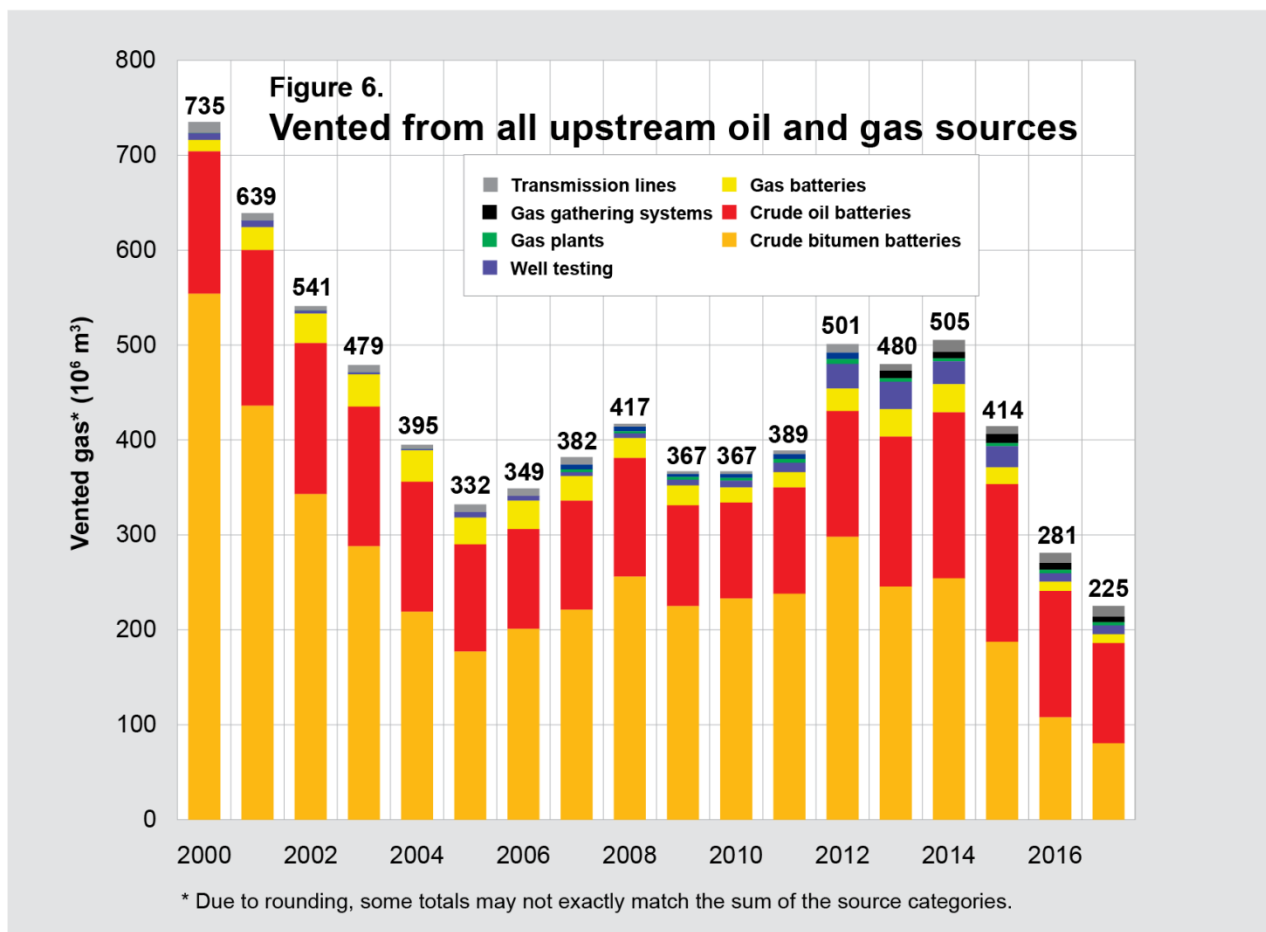


The reason for the decreasing trend in sour gas flaring approvals since 2006 may be twofold. First, market conditions for natural gas have not been as favourable in recent years, which may have resulted in upstream oil and gas licensees rebalancing their capital and operating budgets.

Second, with the release of the revised *Directive 060* at the end of January 2007, a new allowance to flare small volumes of gas containing  $H_2S$  volumes in excess of 5 per cent without a sour gas flaring approval was introduced. With this new allowance, companies are still required to conduct dispersion modelling if the  $H_2S$  concentration of the gas to be flared is in excess of 1 per cent, and proper notification to the AER and public at least 24 hours in advance of flaring operations is still required.

## 5 Venting from All Upstream Oil and Gas Sources, 2000–2017

Figure 6 shows vented volumes broken down by source for 2000 to 2017. The data in table 8 were used to prepare figure 6. As indicated in the table, the total volume vented from all upstream oil and gas sources in 2017 was  $225 \times 10^6 \text{ m}^3$ , a decrease of 19.9 per cent from 2016.



**Table 8. Venting from upstream oil and gas sources ( $10^6 \text{ m}^3$ )<sup>a</sup>**

Year	Crude bitumen batteries	Crude oil batteries	Gas batteries	Well testing	Gas plants	Gas gathering systems	Transmission lines <sup>b</sup>	Total vented ( $10^6 \text{ m}^3$ )
2000	554	150	12	7	0	0	12	735
2001	436	164	24	7	0	0	8	639
2002	343	159	31	3	0	0	5	541
2003	288	147	34	2	0	0	8	479
2004	219	137	33	1	0	0	5	395
2005	177	113	28	6	0	0	8	332
2006	201	105	30	5	0	0	8	349
2007	221	115	26	4	3	5	8	382
2008	256	125	21	5	2	5	3	417
2009	225	106	21	6	3	3	3	367
2010	233	101	16	7	3	4	3	367
2011	238	112	16	10	4	5	4	389
2012	298.0	132.4	23.7	26.0	5.1	6.8	9.0	501
2013	245.5	157.9	29.0	28.8	3.7	8.0	7.0	480
2014	254.2	174.8	29.7	24.1	3.1	6.8	12.7	505
2015	187.3	166.2	17.6	22.2	3.4	9.4	8.4	414
2016	107.7	133.1	9.8	8.9	3.7	7.2	10.6	281
2017	80.5	105.5	9.3	9.3	3.2	6.0	11.3	225
2017 vs 2016 change	-25.2%	-20.7%	-5.4%	4.4%	-12.9%	-17.5%	6.4%	-19.9%

<sup>a</sup> Due to rounding, some totals may not exactly match the sum of the source categories. An additional decimal place has been added to the volumes for 2012 onwards to more accurately reflect the percentage changes.

<sup>b</sup> Transmission line data are voluntarily reported to the AER. The AER does not regulate these lines.

Table 8 shows a decrease in 2017 compared with 2016 in venting from crude bitumen batteries, crude oil batteries, gas batteries, gas plants, and gas gathering systems while venting from well testing and transmission lines increased in 2017.

## Discussion

Although the AER currently does not collect data on greenhouse gas emissions, it is concerned about the impact that these gases can have on the environment. Accordingly, *Directive 060* requires that vented gas that can sustain continuous combustion and that is uneconomic to conserve must be burned.

The most significant source of venting in terms of highest volume per well is crude bitumen batteries, where solution gas is vented from the production casing annulus at a large number of individual wells. However, in 2016 and 2017, crude oil batteries exceeded crude bitumen batteries for the highest total venting volumes from all upstream oil and gas sources. Small volumes of solution gas are also vented from treaters and stock tanks at crude oil and crude bitumen batteries. Venting during well testing is primarily from shallow, sweet, low-deliverability gas wells, including coalbed methane wells.

In *ST60B-2004: Upstream Petroleum Industry Flaring and Venting Report, 2003*, the AER made commitments to identify and set out conservation measures aimed at reducing the volumes of solution gas vented from crude bitumen operations. As a result of industry implementing these measures, there was a net decrease in venting from crude bitumen batteries between 2004 and 2007. However, in 2008 this trend was reversed and there was an increase of 16.9 per cent compared with 2004, which was mainly attributed to the increase in crude bitumen operations in the province. In 2017, venting from crude bitumen batteries was 63.2 per cent lower than the venting baseline from 2004.

In 2017, venting from crude bitumen batteries decreased by 25.2 per cent, to  $81 \times 10^6 \text{ m}^3$ , compared with 2016. Crude bitumen production grew by 10.9 per cent, to  $90 \times 10^6 \text{ m}^3$ , in 2017 compared with 2016 despite a decrease of 62 crude bitumen batteries operating. Gas conservation from crude bitumen batteries increased to 92.9 per cent in 2017 from 91.6 per cent in 2016. Since 2014, there has been a substantial decrease in venting from crude bitumen operations mainly due to increased gas conservation. Enhanced compliance with venting requirements in 2016 and 2017 also contributed to decreased venting.

In 2017, venting from crude oil batteries decreased by 20.7 per cent, to  $106 \times 10^6 \text{ m}^3$ , compared with 2016. Crude oil production grew by 0.3 per cent, to  $26 \times 10^6 \text{ m}^3$ , with 190 fewer crude oil batteries operating. Gas conservation from crude oil batteries increased to 97.8 per cent in 2017, from 97.6 per cent in 2016.

## 6 Emissions from Glycol Dehydrators

Companies are required to meet the benzene emission requirements for glycol dehydrators (dehydration and refrigeration) set out in *Directive 039: Revised Program to Reduce Benzene Emissions from Glycol Dehydrators*. Under *Directive 039*, licensees must complete and submit to the AER an annual dehydrator inventory list that details the emissions from all their glycol dehydrators.

In 2017, 1528 glycol dehydrators processed 152.4 billion cubic metres of gas. Table 9 shows the number of glycol dehydrators, the volume of gas processed, the amount of benzene that would have been emitted without engineering controls,<sup>8</sup> the amount of benzene emitted with engineering controls in place, and the overall control efficiency each year since 2008.

**Table 9. Benzene emissions from operating glycol dehydrators<sup>a</sup>**

Year	Number of dehydrators <sup>b</sup>	Volume of gas processed (10 <sup>6</sup> m <sup>3</sup> )	Benzene emissions before controls (tonnes)	Benzene emissions after controls (tonnes)	Overall control efficiency (%) <sup>c</sup>
2008	2396	159 417	3011	1248	58.6
2009	2236	153 323	2750	1093	60.3
2010	2107	134 681	2365	989	58.2
2011	2006	137 790	2286	849	62.9
2012	1985	148 334	2228	794	64.4
2013	1905	142 110	2757	777	71.8
2014	1886	146 036	2640	746	71.7
2015	1778	153 486	2376	609	74.4
2016	1646	151 825	2307	501	78.3
2017	1528	152 397	2008	399	80.1

<sup>a</sup> Benzene amounts have been rounded to the nearest tonne.

<sup>b</sup> Benzene occurs in varying concentrations in natural gas streams throughout the province, and some locations may not have any benzene. All operating dehydrators are included, regardless of the concentration of benzene in the gas stream.

<sup>c</sup> The control efficiency is the total benzene emissions before controls minus the total benzene emissions after controls divided by the total benzene emissions before controls.

In 2017, 399 tonnes of benzene were emitted after controls compared with 1248 tonnes in 2008—a 68.0 per cent reduction. This can mainly be attributed to a decrease in the number of glycol dehydrators operating and to licensees complying with the emission reduction requirements in *Directive 039*. The overall effectiveness of controls in reducing emissions has also increased since 2008, indicating that controls were used more often and were more efficient at reducing emissions.

Table 10 lists the top 30 companies by the number of glycol dehydrators in 2017. The data in the table represent 71.4 per cent of the total number of operating glycol dehydrators and 65.9 per cent of the benzene emissions after controls.

<sup>8</sup> Controls are methods for reducing benzene emissions. Condenser systems, incinerators, flare stacks, and burners are examples of engineering controls.

**Table 10. Top 30 companies in terms of the number of operating glycol dehydrators in 2017**

<b>Company</b>	<b>Number of dehydrators</b>	<b>Benzene emissions before controls (tonnes)</b>	<b>Benzene emissions after controls (tonnes)</b>
Canadian Natural Resources Limited	280	261	67
Cenovus Energy Inc.	101	99	25
Ember Resources Inc.	54	4	4
TAQA North Ltd.	46	64	12
Tourmaline Oil Corp.	44	159	10
Paramount Resources Ltd.	42	163	16
Husky Oil Operations Limited	40	41	6
Canlin Energy Corporation	36	56	9
Bonavista Energy Corporation	35	117	19
Long Run Exploration Ltd.	33	33	4
Obsidian Energy Ltd.	26	10	4
Tidewater Midstream and Infrastructure Ltd.	25	14	7
Keyera Energy Ltd.	25	52	7
Seven Generations Energy Ltd.	23	114	11
Bellatrix Exploration Ltd.	23	59	9
Encana Corporation	22	4	4
Peyto Exploration & Development Corp.	22	21	3
Repsol Oil & Gas Canada Inc.	21	109	7
Sequoia Operating Corp.	21	12	6
AltaGas Ltd.	19	4	3
NAL Resources Ltd.	19	18	8
Pine Cliff Energy Ltd.	18	5	3
Harvest Operations Corp.	16	45	6
Trident Exploration Corp.	15	2	2
Baytex Energy Ltd.	15	25	2
Lynx Energy ULC	15	1	1
ATCO Energy Solutions Ltd.	14	2	0
Rockpoint Gas Storage Canada Ltd.	14	7	0
ARC Resources Ltd.	14	8	8
City of Medicine Hat	13	1	1
<b>Total</b>	<b>1091</b>		<b>263</b>
<b>% of total glycol dehydrators</b>	<b>71.4%</b>		<b>65.9%</b>

Glycol is the most commonly used desiccant for the dehydration process, but it has a high affinity for water and benzene. Benzene emissions mainly result from the glycol regeneration process, where the water is separated from the glycol through boiling. The AER requires that benzene emissions are managed to ensure that AAAQO are not exceeded.



## 7 Emissions from Surface Casing Vent Flow and Gas Migration

Surface casing vent flow (SCVF) is the flow of gas or liquid, or both, out of the surface casing or casing annulus of a well. Gas migration (GM) is a flow of gas that is detectable at the surface outside of the outermost casing string.

In 2003, the AER issued *Interim Directive 2003-01: 1) Isolation Packer Testing, Reporting, and Repair Requirements; 2) Surface Casing Venting Flow/Gas Migration Testing, Reporting, and Repair Requirements; 3) Casing Failure Reporting and Repair Requirements*, which requires companies to electronically report emissions from SCVF and GM. Over the years, the AER has worked with licensees to ensure proper reporting of SCVF and GM.

Table 11 shows the number of wells with SCVF, GM, or both and the estimated natural gas emissions each year since 2000. In 2017, 10 291 wells with SCVF or GM emitted a total of  $83 \times 10^6 \text{ m}^3$  of natural gas.

**Table 11. Emissions from SCVF and GM**

Year	Number of wells with SCVF, GM, or both <sup>a,b</sup>	Annual natural gas emission ( $10^6 \text{ m}^3$ ) <sup>c,d,e</sup>
2000	4 404	53
2001	4 557	55
2002	5 197	70
2003	5 663	84
2004	6 052	86
2005	6 479	94
2006	7 337	95
2007	7 880	100
2008	8 495	104
2009	8 762	98
2010	8 926	95
2011	9 318	92
2012	9 563	88
2013	9 624	89
2014	9 982	84
2015	10 247	86
2016	9 972	81
2017	10 291	83

<sup>a</sup> The natural gas emissions are calculated for wells that have not been repaired.

<sup>b</sup> There are wells that have SCVF flow rates that are too small to measure and wells where a GM flow rate cannot be determined. For these cases, a flow rate of  $1 \text{ m}^3/\text{day}$  was used.

<sup>c</sup> The flow rates reported are from a single point in time and are extrapolated to determine annual emissions. Flow rates for SCVF and GM can fluctuate significantly over a period of time.

<sup>d</sup> Typically, the methane content of natural gas in SCVF and GM is between 95 and 99 per cent.

<sup>e</sup> If no emissions type (e.g. natural gas, saline water, or nonsaline water) is reported, SCVF or GM is assumed to be natural gas and have a flow rate equal to the average of all other reported natural gas SCVFs.

The age, construction, and operation of a well affect the rates of SCVF or GM. As a result, these SCVF or GM rates differ throughout the well's life cycle. Table 12 shows the percentage of wells with SCVF or GM in 2017, both repaired and unrepaired, based on the status of the well. For all wells that were not abandoned, 7.2 per cent had a reported SCVF or GM.

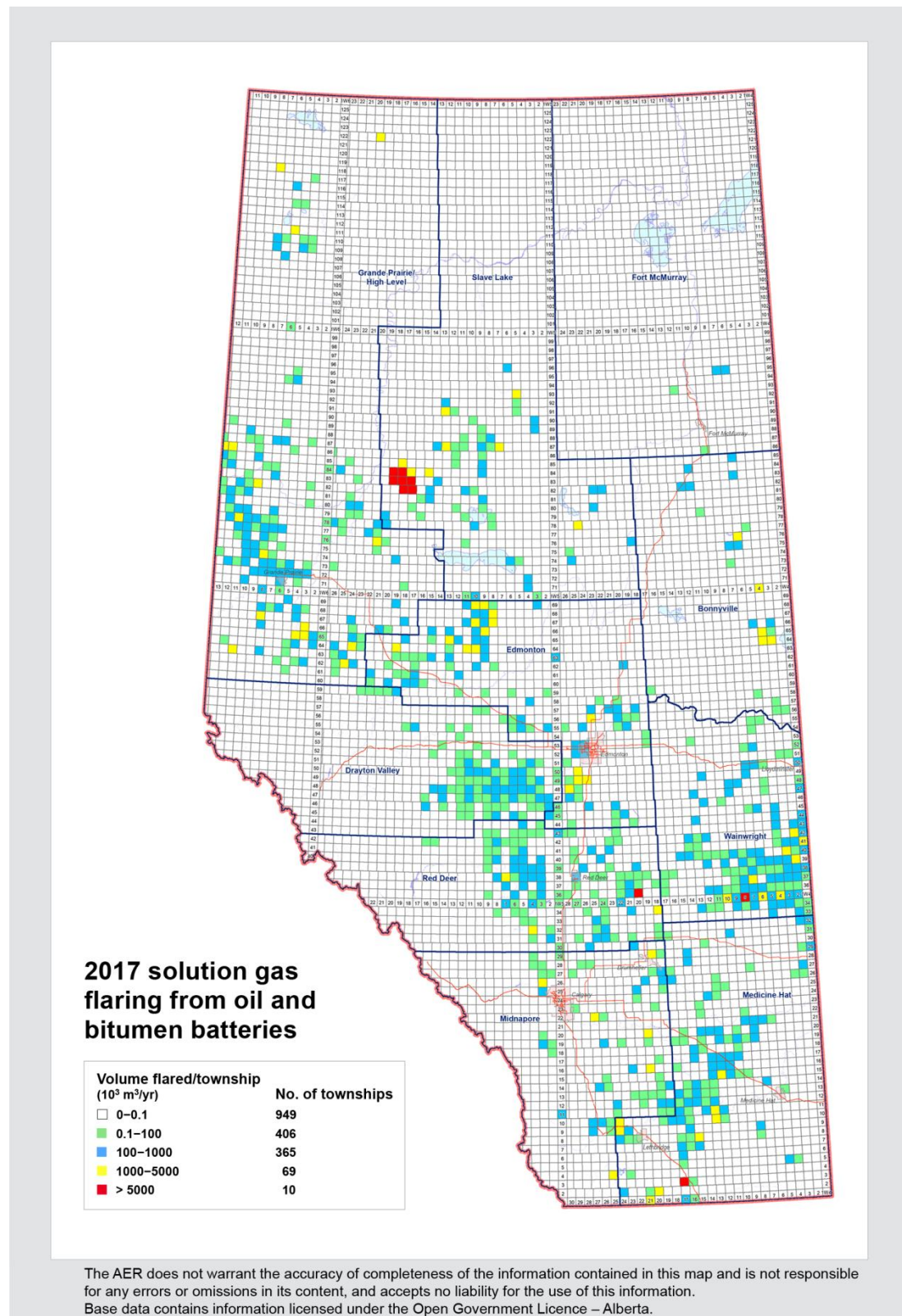
**Table 12. Percentage of wells with SCVF, GM, or both by well status in 2017**

<b>Well status</b>	<b>Number of wells</b>	<b>Number of wells that reported SCVF or GM</b>	<b>Percentage of wells with SCVF, GM, or both</b>
New drills	1 362	28	2.1
Active	175 508	9 325	5.3
Inactive	89 053	9 736	10.9
<b>Total</b>	<b>265 923</b>	<b>19 089</b>	<b>7.2</b>

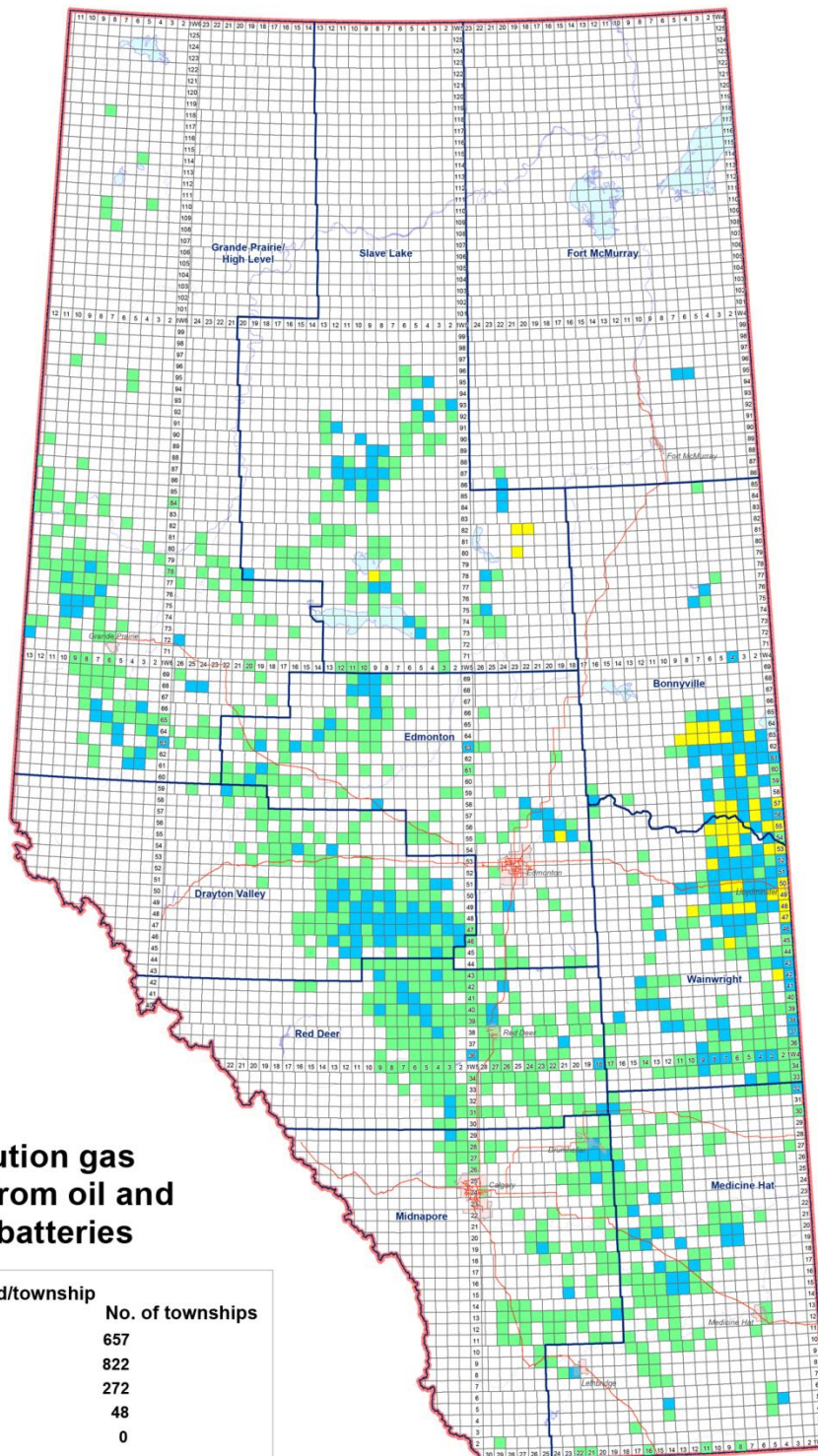
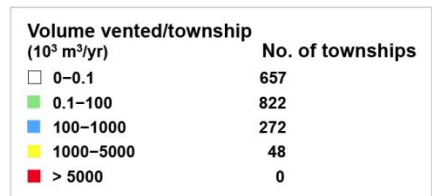
New drills are wells that have been recently drilled and for which licensees are required to test and report any SCVF or GM. Active wells are those that are currently producing or injecting and reporting volumetric activity on Petrinex. Under *Directive 013: Suspension Requirements for Wells*, inactive wells are those that have not reported any volumetric activity for either 6 or 12 months, depending on the well's risk classification. However, the number of inactive wells shown in the table also includes wells that are not covered by *Directive 013*, such as observation wells and training wells.

## 8 Provincial Solution Gas Flaring and Venting Maps

The following maps of the province depict solution gas flaring and venting by township.



## 2017 solution gas venting from oil and bitumen batteries



The AER does not warrant the accuracy or completeness of the information contained in this map and is not responsible for any errors or omissions in its content, and accepts no liability for the use of this information.  
Base data contains information licensed under the Open Government Licence – Alberta.



## 9 Solution Gas Emissions Ranking of Operators for 2017

The AER has ranked companies based on volumes from operated crude oil and crude bitumen batteries of (1) solution gas production, (2) vented solution gas, and (3) flared plus vented solution gas. The tables that follow provide information on individual companies. The second column in the tables shows the percentage of solution gas conserved by an operator. The operator's performance can be compared with the provincial average of 97.1 per cent solution gas conservation.

In this section, all crude oil and crude bitumen batteries have been included except for batteries that had an experimental well reporting fluid production in a month. The information on experimental wells remains confidential. This exclusion of data from experimental wells is the reason for variances between the values in the preceding sections of this report and the values contained in the ranking tables in this section.

Note that it is possible for an operator to flare or vent a significant volume of solution gas due to the magnitude of the company's operations and still have a high percentage of gas conserved.

Companies are ranked province-wide and within each AER field centre area<sup>9</sup> based on the solution gas flared plus vented from their operating facilities in 2017. The following describes the fields that appear in the ranking tables:

**Company:** Name of company operating crude oil and crude bitumen batteries.

**Gas cons:** Percentage of solution gas conserved.

**Gas cons change:** Percentage change in gas conservation from the previous year. Blanks represent companies that did not report in 2016 due to mergers, name changes, acquisitions, etc.

**Gas flared + vented (1000 m<sup>3</sup>):** Solution gas flared plus vented from operated crude oil and crude bitumen batteries.

**Gas flared + vented rank:** The company's ranking compared with other companies based on the operated volume of solution gas flared plus vented.

**Gas flared (1000 m<sup>3</sup>):** Solution gas flared from operated crude oil and crude bitumen batteries.

**Flare rank:** The company's ranking compared with other companies based on the volume of solution gas flared.

**Gas vented (1000 m<sup>3</sup>):** Solution gas vented from operated crude oil and crude bitumen batteries.

**Vent rank:** The company's ranking compared with other companies based on the volume of solution gas vented.

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<sup>9</sup> As of ST60B-2018, the field centre areas reflect the AER field centre / regional office boundaries. For a map of the AER field centre / regional office boundaries, visit [www.aer.ca](http://www.aer.ca).

**Oil prod ( $\text{m}^3$ ):** Volume of crude oil and crude bitumen produced from operated crude oil and crude bitumen batteries.

**Sol'n gas prod ( $1000 \text{ m}^3$ ):** Volume of solution gas produced from operated crude oil and crude bitumen batteries.

**Sol'n gas rank:** The company's ranking compared with other companies based on the volume of solution gas produced.

**GHG emissions ( $\text{tCO}_2\text{e}$ ):** The total GHG emissions based on flared and vented gas volumes.

**GHG emissions rank:** The company's ranking compared with other companies based on the GHG emissions.

# Operators with the Largest Solution Gas Produced Volumes in 2017<sup>1</sup>

## Crude Oil and Crude Bitumen Batteries for Alberta

Run Date: Apr 7, 2018

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	Sol'n gas rank
Canadian Natural Resources Limited	96.2%	1.1%	89,415	1	26,254	3	63,161	1	18,270,934	2,378,116	1
Husky Oil Operations Limited	98.0%	1.3%	28,622	4	3,508	25	25,114	2	5,275,977	1,421,414	2
ARC Resources Ltd.	99.1%	0.2%	6,608	15	4,939	14	1,668	18	1,009,957	700,663	3
Birchcliff Energy Ltd.	99.8%	-0.1%	1,446	62	1,434	54	12	180	259,048	682,422	4
Hammerhead Resources Inc.	98.7%	N/A	7,855	11	7,810	6	45	134	294,409	589,903	5
NAL Resources Limited	99.7%	0.1%	1,904	53	1,290	58	615	33	372,328	587,201	6
Whitecap Resources Inc.	99.0%	0.0%	5,655	18	4,539	17	1,116	21	973,557	547,485	7
Obsidian Energy Ltd.	85.0%	N/A	71,032	2	68,795	1	2,238	14	1,204,501	472,148	8
Imperial Oil Resources Limited	99.2%	N/A	3,713	35	3,443	26	270	59	9,436,474	459,049	9
Exshaw Oil Corp.	100.0%	0.1%	60	220	60	184	0	270	402,903	446,845	10
Cenovus Energy Inc.	98.6%	0.7%	5,592	19	3,060	29	2,532	12	723,987	388,161	11
Sequoia Operating Corp.	99.9%	N/A	565	104	81	176	484	42	57,896	381,661	12
Cenovus FCCL Ltd.	98.4%	2.0%	5,971	17	5,435	11	536	38	20,822,061	365,406	13
Kelt Exploration Ltd.	99.7%	0.4%	1,024	72	1,008	63	16	167	265,426	330,226	14
Tamarack Acquisition Corp.	97.0%	-0.7%	9,436	10	5,326	12	4,109	6	509,186	318,142	15
Torxen Energy Ltd.	98.9%	N/A	3,459	36	912	71	2,548	10	672,599	314,892	16
Long Run Exploration Ltd.	98.5%	-0.1%	4,429	28	3,362	27	1,067	22	411,631	298,518	17
MEG Energy Corp.	100.0%	0.0%	56	225	56	187	1	245	4,541,466	294,952	18
Baytex Energy Ltd.	84.7%	-1.7%	43,440	3	42,900	2	540	37	1,036,034	283,680	19
Devon Canada Corporation	93.6%	N/A	17,805	5	828	74	16,977	3	7,872,245	279,460	20
Paramount Resources (TEC) Ltd.	99.2%	N/A	2,172	48	2,076	43	96	106	351,668	278,277	21
Bonterra Energy Corp.	98.9%	0.4%	2,658	40	1,529	53	1,128	19	450,303	252,408	22
Bellatrix Exploration Ltd.	99.9%	0.1%	273	145	219	128	55	124	35,632	250,685	23
TAQA North Ltd.	98.2%	0.1%	4,474	27	2,191	39	2,282	13	224,222	247,801	24
Paramount Resources (ACL) Ltd.	97.8%	N/A	5,350	22	5,171	13	179	75	118,492	246,142	25
<b>Subtotal</b>			<b>323,014</b>		<b>196,226</b>		<b>126,789</b>		<b>75,592,936</b>	<b>12,815,657</b>	
<b>% of provincial total</b>			<b>56.8%</b>		<b>51.3%</b>		<b>68.2%</b>		<b>65.5%</b>	<b>65.5%</b>	

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.





**Operators with the Largest Solution Gas Vented Volumes in 2017<sup>1</sup>**

**Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

<b>Company</b>	<b>Gas cons</b>	<b>Gas cons change</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Canadian Natural Resources Limited	96.2%	1.1%	89,415	1	26,254	3	63,161	1	18,270,934	2,378,116
Husky Oil Operations Limited	98.0%	1.3%	28,622	4	3,508	25	25,114	2	5,275,977	1,421,414
Devon Canada Corporation	93.6%	N/A	17,805	5	828	74	16,977	3	7,872,245	279,460
Gear Energy Ltd.	90.2%	1.4%	7,143	14	51	191	7,091	4	231,355	72,687
Cardinal Energy Ltd.	94.8%	3.6%	11,244	8	4,734	15	6,509	5	905,487	215,203
Tamarack Acquisition Corp.	97.0%	-0.7%	9,436	10	5,326	12	4,109	6	509,186	318,142
West Lake Energy Corp.	83.2%	N/A	9,566	9	6,253	8	3,313	7	453,435	57,064
Surge Energy Inc.	96.8%	0.1%	7,306	13	4,614	16	2,692	8	551,760	230,507
Prairie Provident Resources Canada Ltd.	96.1%	-2.0%	4,580	25	1,960	44	2,620	9	216,273	118,621
Torxen Energy Ltd.	98.9%	N/A	3,459	36	912	71	2,548	10	672,599	314,892
Repsol Oil & Gas Canada Inc.	82.5%	-1.4%	5,149	24	2,604	33	2,545	11	472,301	29,345
Cenovus Energy Inc.	98.6%	0.7%	5,592	19	3,060	29	2,532	12	723,987	388,161
TAQA North Ltd.	98.2%	0.1%	4,474	27	2,191	39	2,282	13	224,222	247,801
Obsidian Energy Ltd.	85.0%	N/A	71,032	2	68,795	1	2,238	14	1,204,501	472,148
Karve Energy Inc.	74.8%	-9.3%	16,743	6	14,814	4	1,929	15	255,573	66,522
Harvest Operations Corp.	95.7%	-0.2%	5,313	23	3,521	24	1,793	16	452,187	123,641
InPlay Oil Corp.	94.2%	1.8%	4,287	30	2,589	34	1,698	17	130,828	73,859
ARC Resources Ltd.	99.1%	0.2%	6,608	15	4,939	14	1,668	18	1,009,957	700,663
Bonterra Energy Corp.	98.9%	0.4%	2,658	40	1,529	53	1,128	19	450,303	252,408
Journey Energy Inc.	99.0%	-0.1%	2,313	45	1,191	61	1,122	20	236,662	241,369
Whitecap Resources Inc.	99.0%	0.0%	5,655	18	4,539	17	1,116	21	973,557	547,485
Long Run Exploration Ltd.	98.5%	-0.1%	4,429	28	3,362	27	1,067	22	411,631	298,518
TORC Oil & Gas Ltd.	94.9%	1.5%	5,391	21	4,347	18	1,044	23	203,480	105,634
Crew Energy Inc.	84.9%	-7.1%	937	77	25	209	913	24	52,886	6,227
Blackpearl Resources Inc.	72.8%	-17.3%	1,238	67	352	100	886	25	139,001	4,551
<b>Subtotal</b>			<b>330,395</b>		<b>172,298</b>		<b>158,095</b>		<b>41,900,327</b>	<b>8,964,438</b>
<b>% of provincial total</b>			<b>58.1%</b>		<b>45.1%</b>		<b>85.1%</b>		<b>36.3%</b>	<b>45.8%</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.



**Provincial Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Canadian Natural Resources Limited	96.2%	1.1%	89,415	1	26,254	3	63,161	1	18,270,934	2,378,116	1,056,534	1
Obsidian Energy Ltd.	85.0%	N/A	71,032	2	68,795	1	2,238	14	1,204,501	472,148	202,847	4
Baytex Energy Ltd.	84.7%	-1.7%	43,440	3	42,900	2	540	37	1,036,034	283,680	117,224	5
Husky Oil Operations Limited	98.0%	1.3%	28,622	4	3,508	25	25,114	2	5,275,977	1,421,414	348,290	2
Devon Canada Corporation	93.6%	N/A	17,805	5	828	74	16,977	3	7,872,245	279,460	262,333	3
Karve Energy Inc.	74.8%	-9.3%	16,743	6	14,814	4	1,929	15	255,573	66,522	66,935	9
Crescent Point Energy Corp.	92.8%	4.7%	13,578	7	12,737	5	841	26	520,656	188,299	47,313	11
Cardinal Energy Ltd.	94.8%	3.6%	11,244	8	4,734	15	6,509	5	905,487	215,203	95,146	6
West Lake Energy Corp.	83.2%	N/A	9,566	9	6,253	8	3,313	7	453,435	57,064	68,104	8
Tamarack Acquisition Corp.	97.0%	-0.7%	9,436	10	5,326	12	4,109	6	509,186	318,142	66,815	10
Hammerhead Resources Inc.	98.7%	N/A	7,855	11	7,810	6	45	134	294,409	589,903	23,123	24
SanLing Energy Ltd.	80.5%	-2.5%	7,429	12	6,688	7	740	30	99,281	38,144	28,583	21
Surge Energy Inc.	96.8%	0.1%	7,306	13	4,614	16	2,692	8	551,760	230,507	47,017	12
Gear Energy Ltd.	90.2%	1.4%	7,143	14	51	191	7,091	4	231,355	72,687	94,160	7
ARC Resources Ltd.	99.1%	0.2%	6,608	15	4,939	14	1,668	18	1,009,957	700,663	35,145	16
Granite Oil Corp.	96.7%	1.2%	6,168	16	6,168	9	-	270	150,709	184,780	17,815	29
Cenovus FCCL Ltd.	98.4%	2.0%	5,971	17	5,435	11	536	38	20,822,061	365,406	22,519	26
Whitecap Resources Inc.	99.0%	0.0%	5,655	18	4,539	17	1,116	21	973,557	547,485	27,080	22
Cenovus Energy Inc.	98.6%	0.7%	5,592	19	3,060	29	2,532	12	723,987	388,161	40,580	13
Bearspaw Petroleum Ltd.	30.1%	-5.1%	5,544	20	5,538	10	6	207	44,231	7,927	16,070	32
TORC Oil & Gas Ltd.	94.9%	1.5%	5,391	21	4,347	18	1,044	23	203,480	105,634	25,624	23
Paramount Resources (ACL) Ltd.	97.8%	N/A	5,350	22	5,171	13	179	75	118,492	246,142	17,178	31
Harvest Operations Corp.	95.7%	-0.2%	5,313	23	3,521	24	1,793	16	452,187	123,641	32,691	19
Repsol Oil & Gas Canada Inc.	82.5%	-1.4%	5,149	24	2,604	33	2,545	11	472,301	29,345	39,377	14
Prairie Provident Resources Canada Ltd.	96.1%	-2.0%	4,580	25	1,960	44	2,620	9	216,273	118,621	38,599	15
Aspenleaf Energy Limited	85.1%	14.8%	4,481	26	4,287	19	193	71	224,422	29,978	14,802	34
TAQA North Ltd.	98.2%	0.1%	4,474	27	2,191	39	2,282	13	224,222	247,801	34,936	17
Long Run Exploration Ltd.	98.5%	-0.1%	4,429	28	3,362	27	1,067	22	411,631	298,518	23,063	25
Mancal Energy Inc.	93.0%	-1.0%	4,309	29	4,117	20	192	72	126,543	61,673	14,291	36
InPlay Oil Corp.	94.2%	1.8%	4,287	30	2,589	34	1,698	17	130,828	73,859	28,726	20
Ridgeback Resources Inc.	98.4%	N/A	4,005	31	3,254	28	751	28	270,869	244,111	18,802	27
Executive Adventures 2008 Inc.	0.7%	-26.9%	3,902	32	3,860	21	43	137	19,370	3,928	11,682	41
Pengrowth Energy Corporation	62.3%	-36.7%	3,795	33	3,795	22	-	270	819,194	10,071	10,927	43
NEP Canada ULC	96.7%	-2.4%	3,727	34	3,727	23	-	270	326,299	112,884	10,764	45
Imperial Oil Resources Limited	99.2%	N/A	3,713	35	3,443	26	270	59	9,436,474	459,049	13,136	37
Torxen Energy Ltd.	98.9%	N/A	3,459	36	912	71	2,548	10	672,599	314,892	34,518	18
Rifle Shot Oil Corp.	68.7%	-7.2%	3,133	37	2,763	32	370	52	168,078	10,016	12,611	40
Raging River Exploration Inc.	95.8%	-0.4%	3,013	38	2,791	31	222	69	83,434	72,010	10,842	44
Rockeast Energy Corp.	1.6%	-0.4%	2,883	39	2,883	30	-	270	49,070	2,929	8,326	53
Bonterra Energy Corp.	98.9%	0.4%	2,658	40	1,529	53	1,128	19	450,303	252,408	18,539	28

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Little Rock Resources Ltd.	64.1%	-11.4%	2,459	41	2,414	35	44	135	30,483	6,849	7,525	56
ORLEN Upstream Canada Ltd.	98.6%	-0.5%	2,458	42	2,298	37	161	78	62,021	177,181	8,645	50
Predator Oil Ltd.	28.8%	-3.0%	2,450	43	1,670	48	780	27	68,046	3,441	14,583	35
Cleo Energy Corp.	62.5%	-12.3%	2,347	44	2,333	36	15	169	65,477	6,261	6,919	60
Journey Energy Inc.	99.0%	-0.1%	2,313	45	1,191	61	1,122	20	236,662	241,369	17,477	30
Cuda Energy Inc.	0.0%	0.0%	2,266	46	2,266	38	-	251	3,482	2,266	6,549	63
Cabot Energy Inc.	14.4%	N/A	2,190	47	2,190	40	-	256	24,370	2,557	6,328	67
Paramount Resources (TEC) Ltd.	99.2%	N/A	2,172	48	2,076	43	96	106	351,668	278,277	7,198	57
Strategic Oil & Gas Ltd.	96.0%	-0.9%	2,156	49	2,146	41	11	186	100,484	54,578	6,330	66
Ikkuma Resources Corp.	3.6%	2.3%	2,136	50	2,136	42	-	270	2,647	2,215	6,169	70
Mount Bastion Oil & Gas Corp.	87.1%	-7.2%	2,031	51	1,281	59	750	29	249,147	15,712	13,089	38
Cor4 Oil Corp.	95.6%	N/A	1,967	52	1,953	45	14	172	200,679	44,750	5,817	72
NAL Resources Limited	99.7%	0.1%	1,904	53	1,290	58	615	33	372,328	587,201	11,417	42
Yangarra Resources Corp.	98.7%	-0.7%	1,834	54	1,420	55	414	47	120,335	139,462	9,282	47
Rising Star Resources Ltd.	96.1%	-3.4%	1,811	55	1,773	47	38	141	62,737	46,535	5,598	75
Summerland Energy Inc.	86.6%	-2.7%	1,798	56	1,798	46	-	270	117,066	13,399	5,194	78
Razor Energy Corp.	95.6%	N/A	1,738	57	1,390	57	348	55	130,266	39,880	8,373	52
Gain Energy Ltd.	97.5%	N/A	1,727	58	1,652	50	75	112	44,029	68,814	5,709	73
Venturion Oil Limited	92.2%	3.4%	1,703	59	1,552	52	150	83	177,131	21,925	6,365	65
Gryphon Petroleum Corp.	1.0%	0.8%	1,671	60	1,665	49	6	206	19,537	1,687	4,884	82
Altura Energy Inc.	88.6%	-10.9%	1,585	61	1,579	51	6	204	51,928	13,963	4,514	86
Birchcliff Energy Ltd.	99.8%	-0.1%	1,446	62	1,434	54	12	180	259,048	682,422	4,293	87
Enercapita Energy Ltd.	98.6%	2.7%	1,429	63	997	65	432	45	205,538	104,309	8,287	54
Drakkar Energy Ltd.	19.4%	19.4%	1,395	64	1,395	56	-	270	5,251	1,731	4,028	89
Strath Resources Ltd.	97.6%	N/A	1,275	65	556	87	719	31	18,883	53,251	10,607	46
Toro Oil & Gas Ltd.	81.1%	17.4%	1,256	66	1,131	62	125	92	19,227	6,635	4,829	83
Blackpearl Resources Inc.	72.8%	-17.3%	1,238	67	352	100	886	25	139,001	4,551	15,251	33
Canamax Energy Ltd.	96.4%	-2.5%	1,201	68	1,201	60	-	264	92,454	33,438	3,469	96
Caltex Resources Ltd.	87.9%	-4.7%	1,165	69	784	77	381	51	200,302	9,655	7,036	59
Canuck North Resources Ltd.	0.0%	0.0%	1,137	70	999	64	138	87	3,087	1,137	4,607	85
Boulder Energy Ltd.	99.0%	0.5%	1,074	71	959	67	114	97	175,762	107,929	4,200	88
Kelt Exploration Ltd.	99.7%	0.4%	1,024	72	1,008	63	16	167	265,426	330,226	3,111	101
Longshore Resources Ltd.	97.0%	-2.1%	1,003	73	955	68	49	131	56,880	33,390	3,367	97
Tangle Creek Energy Ltd.	99.3%	0.2%	983	74	540	90	443	44	201,605	145,915	7,108	58
Changhua Energy Canada Ltd.	0.0%	0.0%	977	75	965	66	12	177	2,685	977	2,940	106
Ascensun Oil And Gas Ltd.	11.6%	1.7%	952	76	952	69	-	270	12,620	1,076	2,748	110
Crew Energy Inc.	84.9%	-7.1%	937	77	25	209	913	24	52,886	6,227	13,013	39
Artis Exploration Ltd.	77.1%	-11.3%	928	78	928	70	-	251	45,832	4,045	2,685	111
Vermilion Energy Inc.	99.4%	-0.1%	921	79	311	110	610	34	270,406	145,350	8,530	51
Insignia Energy Ltd.	95.1%	-1.2%	882	80	882	72	-	270	17,514	18,019	2,548	116

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Blackspur Oil Corp.	98.6%	-0.7%	863	<b>81</b>	861	73	2	226	100,477	63,294	2,512	117
Bonavista Energy Corporation	99.4%	0.1%	856	<b>82</b>	200	136	656	32	90,935	155,389	8,788	48
Sinopec Daylight Energy Ltd.	99.1%	0.2%	855	<b>83</b>	310	111	546	36	231,266	95,822	7,725	55
Encana Corporation	97.9%	-1.9%	810	<b>84</b>	799	76	11	182	34,641	39,094	2,449	119
N7 Energy Ltd.	0.0%	0.0%	805	<b>85</b>	805	75	-	270	9,696	805	2,324	121
Accel Canada Holdings Limited	98.5%	N/A	797	<b>86</b>	668	82	130	91	112,822	53,546	3,550	95
Bernum Petroleum Ltd.	91.7%	4.5%	789	<b>87</b>	750	79	40	139	36,089	9,520	2,661	112
Deltastream Energy Corporation	81.4%	16.8%	783	<b>88</b>	224	126	560	35	53,834	4,204	8,659	49
Spur Petroleum Ltd.	90.3%	N/A	773	<b>89</b>	304	113	469	43	101,494	7,990	6,881	61
High Ground Energy Inc.	98.8%	-0.8%	755	<b>90</b>	475	94	280	57	62,635	60,828	5,161	79
Osum Production Corp.	93.2%	-2.1%	753	<b>91</b>	753	78	-	270	470,046	11,107	1,918	132
Zargon Oil & Gas Ltd.	94.5%	-0.2%	740	<b>92</b>	730	80	10	190	86,888	13,539	2,231	125
Traverse Energy Ltd.	96.1%	-0.9%	704	<b>93</b>	602	84	102	103	17,423	17,989	3,017	104
Baccalieu Energy Inc.	99.4%	0.5%	674	<b>94</b>	176	143	498	40	130,289	110,626	6,744	62
Hemisphere Energy Corporation	82.7%	-5.5%	672	<b>95</b>	671	81	1	234	35,524	3,876	1,953	131
Fort Calgary Resources Ltd.	59.0%	-14.1%	666	<b>96</b>	306	112	359	54	5,747	1,623	5,382	76
Goldenkey Oil Inc.	71.5%	-12.6%	663	<b>97</b>	542	89	122	95	10,618	2,329	3,087	102
New Star Energy Ltd.	99.4%	-0.1%	654	<b>98</b>	267	118	387	49	41,201	110,111	5,615	74
Bow River Energy Ltd.	87.1%	46.5%	634	<b>99</b>	630	83	5	214	80,826	4,899	1,876	135
Rolling Hills Energy Ltd.	98.3%	0.6%	616	<b>100</b>	317	108	299	56	51,366	36,926	4,652	84
Outlier Resources Ltd.	94.7%	-0.8%	594	<b>101</b>	534	91	60	121	9,960	11,162	2,292	123
Point Bar Resources Inc.	77.1%	N/A	591	<b>102</b>	590	86	1	245	22,137	2,577	1,712	139
Georox Resources Inc.	20.6%	5.0%	590	<b>103</b>	590	85	-	270	1,585	744	1,705	140
Sequoia Operating Corp.	99.9%	N/A	565	<b>104</b>	81	176	484	42	57,896	381,661	6,290	68
Shield Energy Ltd.	96.2%	1.7%	547	<b>105</b>	501	92	47	133	21,984	14,274	2,033	128
LGX Oil + Gas Inc.	36.4%	-30.0%	543	<b>106</b>	543	88	-	270	8,081	854	1,568	141
Inception Exploration Ltd.	97.9%	-1.6%	536	<b>107</b>	499	93	36	143	18,408	25,524	1,895	134
Perpetual Operating Corp.	97.0%	0.7%	517	<b>108</b>	-	248	517	39	58,571	17,124	6,472	64
Vesta Energy Ltd.	98.3%	2.4%	501	<b>109</b>	134	155	368	53	188,875	29,167	4,985	81
RKSmith Energy Corp.	0.0%	N/A	489	<b>110</b>	-	253	489	41	120	489	6,123	71
City Of Medicine Hat	15.8%	-8.7%	468	<b>111</b>	232	123	236	65	10,397	556	3,623	93
Novus Energy Inc.	91.9%	5.7%	463	<b>112</b>	463	95	-	270	4,999	5,715	1,336	154
Velvet Energy Ltd.	99.4%	6.8%	432	<b>113</b>	155	148	277	58	50,750	74,117	3,910	91
Pismo Energy Ltd.	84.6%	-6.3%	420	<b>114</b>	-	253	420	46	18,737	2,725	5,261	77
Paramount Resources Ltd.	92.9%	-3.5%	420	<b>115</b>	419	96	1	249	8,325	5,929	1,217	159
Rife Resources Ltd.	93.1%	-6.4%	414	<b>116</b>	30	203	385	50	44,000	5,980	6,222	69
Forge Oil & Gas Limited	90.2%	67.2%	400	<b>117</b>	322	106	78	110	5,414	4,087	1,906	133
Ember Resources Inc.	89.0%	4.6%	399	<b>118</b>	-	253	399	48	14,180	3,624	4,991	80
Hitic Energy Ltd.	97.9%	-0.7%	397	<b>119</b>	397	97	-	270	62,851	18,554	1,146	161
Response Energy Corporation	82.0%	6.2%	392	<b>120</b>	127	157	266	60	8,181	2,181	3,690	92

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Bering Exploration Company ULC	92.8%	10.3%	392	<b>121</b>	196	137	195	70	31,106	5,415	3,009	105
Suncor Energy Inc.	98.4%	0.2%	390	<b>122</b>	269	116	121	96	12,368,687	23,675	2,637	113
Axiom Oil and Gas Inc.	98.1%	-1.6%	386	<b>123</b>	210	131	175	76	32,662	20,792	2,802	108
Manitok Energy Inc.	99.8%	0.4%	371	<b>124</b>	209	132	162	77	101,683	181,171	2,633	114
Enerplus Corporation	99.6%	0.9%	367	<b>125</b>	217	129	150	84	440,612	102,493	2,498	118
Houston Oil & Gas Ltd.	96.7%	-0.2%	365	<b>126</b>	336	104	30	150	7,785	11,065	1,343	153
Questfire Energy Corp.	98.3%	0.0%	364	<b>127</b>	204	135	160	80	11,872	21,013	2,589	115
Prairie Storm Energy Corp.	99.4%	0.0%	363	<b>128</b>	184	141	179	74	43,378	60,460	2,774	109
Verity Energy Ltd.	0.0%	0.0%	360	<b>129</b>	360	98	-	270	510	360	1,039	165
RON Resources Ltd.	69.0%	-2.4%	359	<b>130</b>	357	99	2	227	1,700	1,160	1,057	163
C Group Energy Inc.	91.7%	2.7%	347	<b>131</b>	347	101	-	270	9,813	4,204	1,003	166
Sun Century Petroleum Corporation	46.2%	-53.2%	346	<b>132</b>	342	103	5	216	6,819	644	1,043	164
Tourmaline Oil Corp.	99.7%	-0.3%	344	<b>133</b>	344	102	-	270	115,660	103,039	994	167
Signalta Resources Limited	89.7%	0.5%	325	<b>134</b>	95	169	231	66	6,594	3,160	3,158	100
Japan Canada Oil Sands Limited	75.6%	-23.1%	322	<b>135</b>	322	105	-	270	195,232	1,317	819	177
Connacher Oil And Gas Limited	98.4%	0.4%	321	<b>136</b>	321	107	-	270	728,849	19,636	818	178
Cedar Creek Energy Ltd.	98.5%	0.5%	317	<b>137</b>	317	109	-	257	35,422	21,818	918	172
Marquee Energy Ltd.	99.4%	0.2%	305	<b>138</b>	145	151	160	79	65,190	48,724	2,425	120
Westbrick Energy Ltd.	99.5%	0.0%	301	<b>139</b>	62	183	239	64	27,213	60,061	3,165	99
Cequence Energy Ltd.	99.4%	-0.1%	294	<b>140</b>	260	120	34	145	35,300	46,121	1,178	160
Nine Ring Energy Development Inc.	0.0%	N/A	289	<b>141</b>	289	114	-	270	352	289	836	176
New North Resources Ltd.	69.5%	-17.0%	287	<b>142</b>	240	122	47	132	4,008	940	1,280	158
Long Term Asset Management Inc.	85.6%	8.1%	281	<b>143</b>	213	130	68	115	2,750	1,950	1,460	146
Progress Energy Canada Ltd.	99.7%	0.1%	273	<b>144</b>	116	162	157	82	64,484	81,584	2,300	122
Bellatrix Exploration Ltd.	99.9%	0.1%	273	<b>145</b>	219	128	55	124	35,632	250,685	1,355	152
XTO Energy Canada	98.1%	-0.8%	272	<b>146</b>	142	152	130	90	14,520	14,631	2,040	127
Relentless Resources Ltd.	94.1%	-0.5%	272	<b>147</b>	272	115	-	270	6,389	4,645	786	181
Enhance Energy Inc.	97.7%	-0.7%	268	<b>148</b>	268	117	-	270	38,691	11,816	774	184
Eagle Energy Inc.	98.7%	0.0%	264	<b>149</b>	194	138	71	114	139,836	21,013	1,444	147
Kasten Energy Inc.	81.9%	32.3%	261	<b>150</b>	-	253	261	61	18,591	1,443	3,992	90
ConocoPhillips Canada Resources Corp.	99.6%	1.1%	261	<b>151</b>	261	119	-	270	6,972,243	63,654	665	188
Kaisen Energy Corp.	89.1%	N/A	253	<b>152</b>	-	253	253	62	8,654	2,320	3,169	98
Dark Warrior Resources Ltd.	56.4%	56.4%	249	<b>153</b>	185	139	64	118	6,183	570	1,364	151
Grandview Exploration Inc.	56.5%	2.5%	248	<b>154</b>	241	121	7	201	3,248	570	781	183
Nexen Energy ULC	98.1%	15.4%	244	<b>155</b>	159	145	86	107	2,366,270	12,614	1,792	138
Grizzly Resources Ltd.	0.0%	0.0%	244	<b>156</b>	-	253	244	63	25,051	244	3,049	103
Flow-Back Oil & Gas Ltd.	44.3%	19.4%	229	<b>157</b>	229	124	-	270	256	411	661	190
Transglobe Energy Corporation	99.2%	N/A	227	<b>158</b>	1	244	227	68	34,615	28,990	2,841	107
Prosper Petroleum Ltd.	11.4%	11.4%	227	<b>159</b>	-	253	227	67	9,791	256	3,612	94
Avalon Energy Ltd.	54.9%	-7.0%	227	<b>160</b>	226	125	1	242	4,200	503	662	189

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Hard Rock Resources Ltd.	92.0%	90.3%	226	<b>161</b>	205	134	20	158	1,702	2,824	849	174
Modern Resources Inc.	99.5%	-0.4%	223	<b>162</b>	207	133	16	166	46,055	46,564	799	180
Lance Exploration Corp.	10.4%	-4.8%	219	<b>163</b>	219	127	-	270	268	244	631	196
Shanpet Resources Ltd.	75.6%	75.6%	211	<b>164</b>	70	180	140	85	1,402	863	1,960	130
Joli Fou Petroleums Ltd	21.3%	2.3%	190	<b>165</b>	184	140	6	209	2,258	241	604	198
Sitka Exploration Ltd.	99.4%	-0.2%	188	<b>166</b>	82	175	106	102	30,188	31,352	1,563	142
Westdrum Energy Ltd.	73.4%	1.7%	187	<b>167</b>	56	186	131	88	1,439	704	1,806	137
Canlin Resources Partnership	99.3%	N/A	186	<b>168</b>	124	159	62	120	95,008	25,207	1,133	162
Thoroughbred Energy Ltd.	10.0%	-5.9%	182	<b>169</b>	-	253	182	73	3,188	202	2,279	124
Quattro Exploration and Production Ltd.	0.0%	-75.2%	179	<b>170</b>	179	142	-	270	252	179	518	202
Clampett Energy Ltd.	21.0%	2.0%	178	<b>171</b>	93	170	85	108	2,036	225	1,334	155
Point Loma Resources Ltd.	98.0%	39.9%	175	<b>172</b>	36	199	139	86	7,417	8,846	1,852	136
Panam Energy Services Ltd.	37.6%	-2.2%	161	<b>173</b>	161	144	-	270	328	258	464	205
Dark Energy Ltd.	39.0%	1.3%	157	<b>174</b>	-	253	157	81	3,804	258	1,966	129
Westhill Resources Limited	94.9%	1.1%	156	<b>175</b>	156	146	-	270	255	3,038	452	206
Dirham Oil (2000) Inc.	0.0%	0.0%	156	<b>176</b>	156	147	-	270	387	156	451	207
Convega Energy Ltd.	89.7%	-7.1%	155	<b>177</b>	155	149	-	270	3,680	1,502	446	209
Coastal Resources Limited	88.1%	-0.7%	152	<b>178</b>	142	153	10	188	6,897	1,277	536	199
Rally Canada Resources Ltd.	97.6%	-1.0%	148	<b>179</b>	148	150	-	270	25,605	6,041	426	211
Aeraden Energy Corp.	89.7%	23.8%	142	<b>180</b>	42	194	100	104	6,721	1,374	1,375	150
Canadian Oil & Gas International Inc.	98.6%	3.0%	140	<b>181</b>	83	174	57	123	33,292	9,670	953	169
Jupiter Resources Inc.	99.6%	-0.4%	140	<b>182</b>	100	165	39	140	33,170	34,140	782	182
Huron Resources Corp.	74.5%	74.1%	134	<b>183</b>	134	154	-	270	2,231	524	386	213
Petrus Resources Corp.	99.7%	-0.1%	133	<b>184</b>	121	160	12	180	28,679	48,134	500	203
Sphere Energy Corp.	96.1%	0.9%	132	<b>185</b>	18	216	113	98	4,579	3,370	1,472	145
Alexander Oilfield Services Ltd.	67.7%	1.5%	131	<b>186</b>	131	156	-	270	1,009	406	378	215
Devon Canada	86.6%	-0.7%	130	<b>187</b>	-	253	130	89	3,681	970	2,052	126
Athabasca Oil Corporation	99.8%	0.1%	126	<b>188</b>	126	158	-	270	1,750,680	71,511	326	226
Marlboro Energy Ltd.	84.6%	N/A	126	<b>189</b>	1	243	125	93	4,147	818	1,561	143
Highvale Operating Corp.	58.3%	6.9%	124	<b>190</b>	-	253	124	94	701	298	1,556	144
North 40 Resources Ltd.	92.4%	N/A	121	<b>191</b>	88	172	32	148	11,320	1,587	659	192
Taku Gas Limited	59.1%	18.4%	119	<b>192</b>	21	212	98	105	4,350	291	1,289	157
Crestwynd Exploration Ltd.	27.3%	N/A	118	<b>193</b>	118	161	-	270	3,396	162	339	221
Cortona Energy Ltd.	88.0%	12.6%	116	<b>194</b>	4	235	112	100	12,641	963	1,414	148
Iberdrola Canada Energy Services Ltd.	99.9%	0.0%	113	<b>195</b>	-	253	113	99	3,443	75,156	1,409	149
Arrow Point Oil & Gas Ltd.	43.6%	-16.7%	109	<b>196</b>	96	168	13	173	4,930	194	444	210
Glenogle Energy Inc.	99.8%	-0.2%	109	<b>197</b>	109	163	-	270	32,100	59,660	315	228
Ridal Resource Ltd.	32.9%	8.6%	106	<b>198</b>	-	253	106	101	1,330	158	1,327	156
Clearbrook Resources Inc.	98.4%	-0.6%	104	<b>199</b>	101	164	3	222	20,753	6,666	325	227
Trident Exploration (Alberta) Corp.	99.0%	-1.0%	100	<b>200</b>	37	197	63	119	8,779	9,772	898	173

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Corval Energy Ltd.	93.5%	-6.5%	100	201	99	166	1	249	6,050	1,535	293	234
Clearview Resources Ltd.	99.0%	N/A	99	202	99	167	-	270	14,561	9,917	286	235
97837 Resources Ltd.	28.1%	7.5%	89	203	89	171	-	270	300	124	258	237
Firenze Energy Ltd.	97.7%	12.9%	89	204	81	177	8	199	21,168	3,831	332	224
White Owl Energy Services Ltd.	73.8%	N/A	86	205	86	173	-	270	3,149	328	248	238
Ohana Resources Inc.	95.3%	-1.9%	84	206	78	179	6	209	12,808	1,800	299	233
Raimount Energy Corp.	98.1%	N/A	84	207	30	202	53	125	2,928	4,317	755	185
Wolf Coulee Resources Inc.	98.8%	0.0%	83	208	81	178	2	225	7,022	7,222	263	236
Topanga Resources Ltd.	38.9%	-21.5%	79	209	-	253	79	109	2,453	129	989	168
Insch Commodity Ltd.	92.5%	1.3%	75	210	-	248	75	111	1,367	1,000	941	170
Sifton Petroleum Inc.	99.3%	0.7%	75	211	31	200	44	136	25,454	10,312	636	194
Freehold Royalties Ltd.	97.8%	2.3%	75	212	-	253	75	113	2,918	3,457	935	171
NVP Exploration Inc.	0.0%	N/A	68	213	52	188	16	164	383	68	354	217
Forent Energy Ltd.	96.2%	-0.5%	68	214	51	190	16	163	7,149	1,767	353	218
Shell Canada Energy	99.2%	0.4%	67	215	-	253	67	116	8,060	8,221	844	175
ExxonMobil Canada Energy	99.9%	0.7%	66	216	15	220	50	129	68,481	72,503	675	187
Kaiser Exploration Ltd.	81.6%	10.1%	65	217	-	253	65	117	278	353	814	179
Elcano Exploration Inc.	0.0%	0.0%	63	218	63	181	-	270	981	63	181	246
Standard Exploration Ltd.	38.6%	-5.2%	63	219	63	182	-	270	2,638	102	181	247
Exshaw Oil Corp.	100.0%	0.1%	60	220	60	184	-	270	402,903	446,845	174	248
Hadeed Resources Inc.	51.3%	N/A	60	221	-	253	60	122	613	123	748	186
Shackleton Exploration Ltd.	99.8%	5.3%	59	222	41	195	17	161	21,756	25,396	337	222
ACCEL Energy Canada Limited	99.9%	N/A	57	223	6	231	51	127	175,718	72,704	659	191
Beaver Lake Resources Corporation	0.0%	0.0%	57	224	57	185	-	270	522	57	165	252
MEG Energy Corp.	100.0%	0.0%	56	225	56	187	1	245	4,541,466	294,952	153	255
Anegada Oil Corp.	98.5%	N/A	54	226	52	188	2	229	10,090	3,562	171	249
Top Oil Production Ltd.	97.1%	7.8%	52	227	-	253	52	126	4,504	1,793	651	193
Tykewest Limited	80.8%	2.0%	51	228	-	253	51	128	2,628	264	635	195
Direct Oil & Gas Inc.	99.1%	N/A	51	229	51	192	-	270	8,943	5,669	146	257
Derrick Petroleum Ltd.	85.8%	11.8%	50	230	-	253	50	130	894	349	622	197
Petrocapita GP I Ltd.	95.5%	28.0%	43	231	1	242	42	138	17,878	944	534	200
Supreme Energy Inc.	98.8%	N/A	43	232	43	193	-	270	7,334	3,703	123	265
Windtalker Energy Corp.	87.4%	-6.1%	41	233	27	207	14	171	17,275	324	299	232
Certus Oil And Gas Inc.	96.0%	N/A	39	234	28	205	11	185	1,984	975	215	242
Polar Star Canadian Oil And Gas Inc.	97.3%	1.9%	39	235	39	196	-	270	4,104	1,425	111	270
Range 3 Inc.	32.6%	7.9%	38	236	-	253	38	142	77	56	473	204
BDJ Energy Inc.	96.9%	3.1%	38	236	2	239	35	144	10,079	1,205	450	208
Ribbon Creek Resources Inc.	98.7%	0.3%	38	238	17	217	20	158	3,028	2,845	305	230
Keyera Energy Ltd.	100.0%	0.0%	36	239	36	198	-	270	40,002	140,064	104	273
Wilcox Energy Corp.	41.6%	8.3%	36	240	27	206	9	198	751	61	185	245

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Broadview Energy Ltd.	99.1%	0.9%	35	<b>241</b>	21	213	14	170	17,374	4,066	240	239
Trident Exploration (wx) Corp.	99.2%	2.0%	35	<b>242</b>	31	201	4	217	5,045	4,143	137	260
Barcomp Petroleum Ltd.	0.0%	0.0%	33	<b>243</b>	-	253	33	146	6,133	33	534	201
Procyon Energy Corp.	95.4%	25.9%	33	<b>244</b>	-	245	33	147	1,106	714	409	212
Entrada Resources Inc.	99.9%	0.8%	31	<b>245</b>	28	204	3	221	27,966	28,417	117	267
Golden Spike Energy Inc.	37.0%	2.8%	31	<b>246</b>	-	253	31	149	289	49	385	214
Kicking Horse Oil & Gas Ltd.	99.8%	N/A	29	<b>247</b>	-	245	29	151	1,849	12,618	364	216
TimberRock Energy Corp.	91.6%	0.7%	28	<b>248</b>	-	253	28	152	640	337	353	219
Tallahassee Resources Inc.	0.0%	0.0%	28	<b>249</b>	-	253	28	153	671	28	352	220
Sanford Petroleum Ltd.	96.6%	1.2%	27	<b>250</b>	-	253	27	154	1,054	785	335	223
South Ridge Management Ltd.	0.0%	0.0%	27	<b>251</b>	27	208	-	270	164	27	77	282
Pine Cliff Energy Ltd.	99.5%	0.5%	26	<b>252</b>	-	253	26	155	2,907	5,126	330	225
Surat Energy Inc.	0.0%	0.0%	26	<b>253</b>	25	210	1	238	674	26	85	279
Perpetual Energy Inc.	58.3%	58.3%	26	<b>254</b>	24	211	2	232	210	62	90	276
Primrose Drilling Ventures Ltd.	0.0%	-16.8%	25	<b>255</b>	-	253	25	156	460	25	307	229
Aeneid Exploration Inc.	98.5%	5.5%	24	<b>256</b>	-	253	24	157	21,857	1,564	300	231
Jast Energy Ltd.	81.4%	-1.6%	22	<b>257</b>	20	215	3	224	1,687	120	88	277
Kam's Sand Coating Ltd.	0.5%	N/A	20	<b>258</b>	20	214	-	270	349	20	58	286
Indra Oil & Gas Ltd.	0.0%	0.0%	19	<b>259</b>	7	228	12	179	526	19	170	250
Sogar Resources Ltd.	99.0%	-0.1%	18	<b>260</b>	-	253	18	160	700	1,751	228	240
Iron Bridge Resources Inc.	100.0%	N/A	17	<b>261</b>	-	253	17	161	18,823	53,292	218	241
Silver Blaze Energy Ltd.	89.4%	9.9%	16	<b>262</b>	-	253	16	165	135	153	203	243
611890 Alberta Inc.	0.0%	0.0%	16	<b>263</b>	-	253	16	168	1,740	16	197	244
Alberta Petroleum Energy Limited	32.2%	13.6%	16	<b>264</b>	16	218	-	270	478	23	45	290
Anterra Energy Inc.	92.5%	3.8%	16	<b>265</b>	15	221	1	241	1,233	206	53	288
Barnwell of Canada Limited	94.8%	32.9%	16	<b>265</b>	16	219	-	270	1,935	297	45	291
Edalis Energy Inc.	98.7%	0.0%	13	<b>267</b>	-	253	13	174	2,200	1,015	165	251
Murphy Oil Company Ltd.	98.9%	13.1%	13	<b>268</b>	-	253	13	175	2,146	1,127	159	253
Croverro Energy Ltd.	0.0%	0.0%	12	<b>269</b>	-	253	12	176	484	12	158	254
Eastnell Resources Ltd.	1.6%	1.6%	12	<b>270</b>	-	253	12	178	60	12	153	256
Tori Resources Inc.	99.0%	-1.0%	12	<b>271</b>	11	223	1	244	2,086	1,203	40	292
Rampart Oil Inc.	99.9%	0.0%	11	<b>272</b>	11	222	-	270	155,951	13,582	33	298
Rustum Petroleums Limited	0.0%	-4.4%	11	<b>273</b>	-	253	11	183	1,802	11	139	259
KinMerc Oil & Gas Inc.	93.1%	-5.4%	11	<b>273</b>	1	241	10	190	11,493	162	126	263
Norwegian Petroleum Inc.	90.8%	-3.2%	11	<b>275</b>	-	253	11	184	136	118	135	261
Sequoia Resources Corp.	99.8%	0.7%	11	<b>275</b>	5	234	6	205	7,514	4,548	91	275
Gamet Resources Ltd.	81.0%	-15.9%	11	<b>277</b>	10	225	1	239	284	56	39	293
Taber Water Disposal Inc.	0.0%	0.0%	11	<b>278</b>	-	253	11	187	752	11	131	262
Ghost River Resources Inc.	99.0%	N/A	10	<b>279</b>	10	224	-	270	6,500	1,002	30	300
HBC Energy Ltd.	0.0%	0.0%	10	<b>280</b>	-	253	10	189	355	10	124	264

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Eclipse Resources Ltd.	99.7%	0.0%	10	<b>281</b>	4	236	6	207	8,730	3,078	85	278
Incipient Exploration Ltd.	99.5%	-0.2%	10	<b>281</b>	-	253	10	192	3,109	1,987	144	258
Writers Oil & Gas Limited	0.0%	0.0%	10	<b>281</b>	-	253	10	192	276	10	120	266
935821 Alberta Ltd.	0.0%	0.0%	9	<b>284</b>	-	253	9	194	1,115	9	115	268
Tower Ridge Enterprises Corp.	80.8%	7.4%	9	<b>284</b>	-	253	9	194	639	48	115	269
NuVista Energy Ltd.	93.2%	6.7%	9	<b>286</b>	8	226	1	242	151	129	33	297
Whitehall Energy Ltd.	97.3%	7.9%	9	<b>287</b>	-	253	9	196	2,813	314	108	271
545279 Alberta Limited	17.3%	17.3%	9	<b>287</b>	-	253	9	196	161	10	108	272
Long Lake Energy Ltd.	90.8%	-8.8%	8	<b>289</b>	8	226	-	270	500	87	23	302
Muddy Petroleum Company Ltd.	98.0%	N/A	8	<b>290</b>	6	229	1	236	191	369	33	296
Sandpoint Resources Inc.	0.0%	N/A	7	<b>291</b>	-	253	7	200	609	7	91	274
Deckland Inc.	92.4%	4.8%	7	<b>292</b>	-	253	7	202	178	87	83	280
Kairos Resources (2011) Ltd.	88.8%	63.4%	7	<b>292</b>	-	253	7	202	257	59	83	280
Energy Express Canada Corp.	99.3%	N/A	6	<b>294</b>	6	230	-	259	2,979	921	20	305
HESC Energy Corporation	99.8%	-0.1%	6	<b>295</b>	6	232	-	270	4,874	3,397	17	307
Pennine Petroleum Corporation	98.2%	0.1%	6	<b>296</b>	-	245	6	211	699	325	71	283
WLA Investment Ltd.	98.4%	-1.6%	6	<b>297</b>	-	253	6	212	759	354	69	284
Persta Resources Inc.	94.7%	28.7%	5	<b>298</b>	5	233	-	270	4,010	102	16	309
Notine Holdings Inc.	99.6%	1.6%	5	<b>299</b>	-	253	5	213	319	1,376	64	285
Scollard Energy Ltd.	100.0%	0.1%	5	<b>300</b>	-	248	5	215	3,622	12,718	58	287
Shiningstar Energy Ltd.	100.0%	0.1%	4	<b>301</b>	-	253	4	218	12,715	25,192	46	289
Delphi Energy Corp.	97.0%	-3.0%	3	<b>302</b>	3	237	-	270	345	110	10	313
Vulture Energy Ltd.	86.7%	12.2%	3	<b>303</b>	3	238	-	264	513	24	10	312
Band Energy Resources Ltd.	39.6%	-20.4%	3	<b>304</b>	-	253	3	219	275	5	36	294
Corinthian Oil Corp.	99.7%	8.2%	3	<b>304</b>	-	253	3	219	1,758	936	36	294
Tri-Ment Corporation Ltd.	33.3%	-4.4%	3	<b>306</b>	-	253	3	222	21	4	33	299
The Locke Stock & Barrel Company Ltd.	0.0%	0.0%	2	<b>307</b>	-	253	2	228	587	2	24	301
Crazy Hill Resources Ltd.	93.1%	37.9%	2	<b>308</b>	-	253	2	229	197	25	21	303
Roswell Petroleum Corporation	0.0%	0.0%	2	<b>308</b>	-	253	2	229	725	2	21	303
Questerre Energy Corporation	0.0%	0.0%	2	<b>310</b>	-	253	2	232	479	2	20	306
Ener T Corporation	90.0%	90.0%	1	<b>311</b>	1	240	-	270	3,274	14	4	319
G. Herman Group Inc.	99.4%	-0.6%	1	<b>312</b>	-	253	1	234	243	236	16	308
Bashaw Oil Corp.	99.1%	-0.3%	1	<b>313</b>	-	253	1	237	863	133	15	310
Gunnarr Resources Inc.	96.3%	-3.7%	1	<b>314</b>	-	253	1	239	1,096	25	11	311
ConocoPhillips Canada Energy Partnership	99.2%	0.2%	1	<b>315</b>	-	253	1	247	39	80	8	314
Signa Oilfield Canada Inc.	0.0%	0.0%	1	<b>315</b>	-	253	1	247	136	1	8	314
Mooncor Energy Inc.	0.0%	0.0%	0	<b>317</b>	-	253	-	251	352	-	5	316
Copper Island Resources Ltd.	0.0%	-89.9%	0	<b>317</b>	-	253	-	251	47	-	5	316
Optimus Energy Limited	92.5%	-2.9%	0	<b>317</b>	-	253	-	251	314	5	5	316
Grand Rapids Petroleum Ltd.	0.0%	0.0%	0	<b>320</b>	-	253	-	257	124	-	4	320

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Company	Gas cons	Gas cons change	Gas flared + vented (1000 m³)	Gas flared + vented rank	Gas flared (1000 m³)	Flare rank	Gas vented (1000 m³)	Vent rank	Oil prod (m³)	Sol'n gas prod (1000 m³)	GHG emissions (tCO₂e)	GHG emissions rank	
Black Crane Energy Corp.	0.0%	N/A	0	321	-	253	-	259	73	-		3	321
Winslow Resources Inc.	100.0%	0.1%	0	321	-	248	-	264	1,652	4,234		2	325
Koch Oil Sands Operating ULC	0.0%	0.0%	0	321	-	253	-	259	66	-		3	321
Tantalus Energy Corp.	99.9%	N/A	0	321	-	253	-	259	358	170		3	321
Hillsdale Drilling Ltd.	98.2%	98.2%	0	321	-	253	-	259	272	11		3	321
Innes Oilfield Services Ltd.	0.0%	0.0%	0	326	-	253	-	264	32	-		1	326
Unit 18 Corp.	100.0%	0.0%	0	326	-	253	-	264	12,059	374		1	326
Scavenger Energy Gp Inc.	98.3%	15.2%	0	326	-	248	-	270	167	6		0	329
Hutton Energy Ltd.	0.0%	0.0%	0	326	-	253	-	264	80	-		1	326
Sojourn Energy Inc.	0.0%	0.0%	-	330	-	253	-	270	-	-		0	330
Shale Petroleum Ltd.	100.0%	9.5%	-	330	-	253	-	270	297	387		0	330
Tallahassee Exploration Inc.	100.0%	N/A	-	330	-	253	-	270	456	751		0	330
Ferrybank Resources Ltd.	100.0%	0.0%	-	330	-	253	-	270	961	294		0	330
Camino Industries Inc.	0.0%	-100.0%	-	330	-	253	-	270	-	-		0	330
Omers Energy Inc.	100.0%	0.5%	-	330	-	253	-	270	-	2		0	330
Harvard International Resources Ltd.	100.0%	N/A	-	330	-	253	-	270	912	2,066		0	330
Corse Energy Corp.	100.0%	0.0%	-	330	-	253	-	270	103	859		0	330
Petro Buyers Inc.	100.0%	0.0%	-	330	-	253	-	270	352	715		0	330
Five O Oil & Gas Ltd.	100.0%	22.4%	-	330	-	253	-	270	17	1		0	330
Crimson Oil & Gas Ltd.	100.0%	0.0%	-	330	-	253	-	270	3,439	143		0	330
Richbar Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-		0	330
1316751 Alberta Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-		0	330
979968 Alberta Ltd.	100.0%	0.0%	-	330	-	253	-	270	1,321	1,562		0	330
Cold Creek Resources Ltd.	100.0%	N/A	-	330	-	253	-	270	459	514		0	330
Dire Resources Ltd.	100.0%	1.5%	-	330	-	253	-	270	709	28		0	330
Land Petroleum International Inc.	0.0%	0.0%	-	330	-	253	-	270	176	-		0	330
Cote Resources Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-		0	330
Logic Energy Ltd.	100.0%	0.0%	-	330	-	253	-	270	10,765	8,047		0	330
Trilogy Resources Ltd.	0.0%	-99.0%	-	330	-	253	-	270	-	-		0	330
ConocoPhillips Canada (BRC) Partnership	0.0%	-99.5%	-	330	-	253	-	270	-	-		0	330
Rimfire Energy Inc.	100.0%	0.0%	-	330	-	253	-	270	1,186	1,542		0	330
Peyto Exploration & Development Corp.	100.0%	0.0%	-	330	-	253	-	270	507	848		0	330
Twin Butte Energy Ltd.	0.0%	-78.6%	-	330	-	253	-	270	-	-		0	330
Just Freehold Energy Corp.	100.0%	0.0%	-	330	-	253	-	270	1,044	838		0	330
Big Lake Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	20	-		0	330
Gulf Canada Limited	0.0%	0.0%	-	330	-	253	-	270	-	-		0	330
Kanati Energy Incorporated	0.0%	N/A	-	330	-	253	-	270	-	-		0	330
Tidewater Midstream and Infrastructure Ltd.	100.0%	0.1%	-	330	-	253	-	270	2,879	1,920		0	330
Rockbridge Energy Alberta Inc.	100.0%	0.0%	-	330	-	253	-	270	19	12		0	330
Spartan Energy Corp.	100.0%	0.0%	-	330	-	253	-	270	10,632	1,850		0	330

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Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Border Petroleum Limited	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Regco Petroleums Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Aqua Terra Water Management Inc.	0.0%	N/A	-	330	-	253	-	270	-	-	0	330
Steppe Petroleum Inc.	0.0%	-98.9%	-	330	-	253	-	270	-	-	0	330
Craft Oil Inc.	0.0%	-99.2%	-	330	-	253	-	270	-	-	0	330
Success Resources Ltd.	100.0%	0.0%	-	330	-	253	-	270	2,339	4,133	0	330
Frontier Energy Inc.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Canstone Energy Ltd.	100.0%	0.5%	-	330	-	253	-	270	3	439	0	330
Virginia Hills Oil Corp.	100.0%	8.9%	-	330	-	253	-	270	116	4	0	330
Regnum Energy Ltd.	100.0%	N/A	-	330	-	253	-	270	1,756	89	0	330
Vital Energy Inc.	100.0%	0.0%	-	330	-	253	-	270	995	8	0	330
Seven Generations Energy Ltd.	100.0%	0.0%	-	330	-	253	-	270	-	836	0	330
Accurate Energy Solutions Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Reber Exploration Ltd.	100.0%	0.0%	-	330	-	253	-	270	134	1	0	330
Wescan Energy Corp.	100.0%	0.0%	-	330	-	253	-	270	4,885	2,045	0	330
Mato Inc.	100.0%	0.0%	-	330	-	253	-	270	334	1,170	0	330
CNPC International (Canada) Ltd.	0.0%	N/A	-	330	-	253	-	270	-	-	0	330
Canyon Oil & Gas Corporation	100.0%	0.0%	-	330	-	253	-	270	66	551	0	330
Check Energy Ltd.	100.0%	100.0%	-	330	-	253	-	270	585	-	0	330
Pocahontas Petroleum Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Luxur Resources Inc.	100.0%	100.0%	-	330	-	253	-	270	1,033	19	0	330
AltaGas Ltd.	0.0%	-100.0%	-	330	-	253	-	270	-	-	0	330
Sabanero Energy Corp.	0.0%	N/A	-	330	-	253	-	270	-	-	0	330
Silver Bay Resources Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Sahara Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Redwater Energy Corp.	0.0%	-97.5%	-	330	-	253	-	270	-	-	0	330
Malak Energy Inc.	100.0%	0.0%	-	330	-	253	-	270	267	51	0	330
Sino-Western Petroleum Inc.	0.0%	-100.0%	-	330	-	253	-	270	23	-	0	330
Wildcat Rentals Ltd.	100.0%	7.3%	-	330	-	253	-	270	1,101	6	0	330
Benjaka Exploration Inc.	100.0%	2.6%	-	330	-	253	-	270	206	3	0	330
Concerto Resources Ltd.	0.0%	-49.4%	-	330	-	253	-	270	-	-	0	330
Mount Dakota Energy Corp.	0.0%	-93.9%	-	330	-	253	-	270	-	-	0	330
1288131 Alberta Ltd.	100.0%	0.0%	-	330	-	253	-	270	656	312	0	330
Ish Energy Ltd.	100.0%	1.2%	-	330	-	253	-	270	12	99	0	330
Sarg Oils Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Spry2 Energy Inc.	100.0%	1.1%	-	330	-	253	-	270	612	71	0	330
Lexin Resources Ltd.	0.0%	-97.2%	-	330	-	253	-	270	-	-	0	330
Spyglass Resources Corp.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Pulse Oil Operating Corp.	100.0%	N/A	-	330	-	253	-	270	510	52	0	330
Adanac Oil & Gas Limited	100.0%	0.0%	-	330	-	253	-	270	1,765	1,067	0	330

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Company	Gas cons	Gas cons change	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )	GHG emissions (tCO <sub>2</sub> e)	GHG emissions rank
Petrochina Canada Ltd.	100.0%	N/A	-	330	-	253	-	270	242,057	484	0	330
Stout Energy Inc.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
BLZ Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Success Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Sunshine Oilsands Ltd.	100.0%	100.0%	-	330	-	253	-	270	108,079	326	0	330
Blaze Energy Ltd.	100.0%	0.1%	-	330	-	253	-	270	590	6,289	0	330
Centennial Petroleum Company Ltd.	100.0%	0.0%	-	330	-	253	-	270	284	1,151	0	330
Lockwood Resources Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Sydco Energy Inc.	0.0%	-99.1%	-	330	-	253	-	270	-	-	0	330
Advantage Oil & Gas Ltd.	100.0%	N/A	-	330	-	253	-	270	127	350	0	330
Silver Peak Industries Ltd.	100.0%	N/A	-	330	-	253	-	270	98	34	0	330
Predator Oil BC Ltd.	0.0%	N/A	-	330	-	253	-	270	13	-	0	330
PetroFrontier Corp.	100.0%	N/A	-	330	-	253	-	270	6,238	106	0	330
1506928 Alberta Ltd.	100.0%	0.0%	-	330	-	253	-	270	748	14	0	330
Anderson Energy Inc.	0.0%	-99.2%	-	330	-	253	-	270	-	-	0	330
Brahma Resources Ltd.	100.0%	5.6%	-	330	-	253	-	270	1,134	118	0	330
1852797 Alberta ULC	0.0%	N/A	-	330	-	253	-	270	-	-	0	330
Gibson Energy ULC	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Knowledge Energy Inc.	100.0%	N/A	-	330	-	253	-	270	186	14	0	330
Zeal Energy Inc.	100.0%	5.4%	-	330	-	253	-	270	4,860	469	0	330
Blue Star Energy Inc.	100.0%	N/A	-	330	-	253	-	270	67	3	0	330
ZNX Energy Ltd.	100.0%	0.0%	-	330	-	253	-	270	1,578	1,777	0	330
Laricina Energy Ltd.	0.0%	0.0%	-	330	-	253	-	270	-	-	0	330
Glencoe Resources Ltd.	100.0%	0.0%	-	330	-	253	-	270	19	784	0	330
Sutton Energy Ltd.	0.0%	N/A	-	330	-	253	-	270	-	-	0	330
Second Wave Petroleum Inc.	0.0%	-99.4%	-	330	-	253	-	270	-	-	0	330
Northern Utilities (sask.) Ltd.	100.0%	0.0%	-	330	-	253	-	270	268	1	0	330
<b>Provincial totals</b>	<b>97.1%</b>		<b>568,213</b>		<b>382,415</b>		<b>185,818</b>		<b>115,484,870</b>	<b>19,553,032</b>	<b>3,677,796</b>	

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.



**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Bonnyville Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Canadian Natural Resources Limited	93.4%	29,491	1	636	6	28,855	1	9,401,234	446,816
Devon Canada Corporation	94.8%	13,368	2	828	4	12,540	2	7,744,196	256,412
Cenovus FCCL Ltd.	98.4%	5,971	3	5,435	1	536	6	20,822,061	365,406
Imperial Oil Resources Limited	99.2%	3,713	4	3,443	2	270	8	9,436,474	459,049
West Lake Energy Corp.	67.4%	2,188	5	-	16	2,188	3	57,440	6,702
Husky Oil Operations Limited	97.5%	1,385	6	1,140	3	246	10	1,274,165	56,268
Gear Energy Ltd.	74.4%	1,124	7	-	16	1,124	4	9,418	4,394
Blackpearl Resources Inc.	43.5%	886	8	-	16	886	5	44,927	1,567
Osum Production Corp.	93.2%	753	9	753	5	-	20	470,046	11,107
Baytex Energy Ltd.	88.7%	399	10	-	16	399	7	29,431	3,520
Japan Canada Oil Sands Limited	75.6%	322	11	322	7	-	20	195,232	1,317
Connacher Oil And Gas Limited	98.4%	321	12	321	8	-	20	728,849	19,636
Kasten Energy Inc.	79.8%	261	13	-	16	261	9	17,359	1,295
ConocoPhillips Canada Resources Corp.	99.6%	261	14	261	9	-	20	6,972,243	63,654
Nexen Energy ULC	98.1%	244	15	159	10	86	12	2,366,270	12,614
Bernum Petroleum Ltd.	98.8%	102	16	62	12	39	13	25,793	8,665
Pengrowth Energy Corporation	98.4%	98	17	98	11	-	20	798,345	6,254
Spur Petroleum Ltd.	90.7%	95	18	-	16	95	11	23,026	1,027
MEG Energy Corp.	100.0%	56	19	56	13	1	19	4,541,466	294,952
Windtalker Energy Corp.	87.4%	41	20	27	14	14	16	17,275	324
Deltastream Energy Corporation	80.8%	23	21	-	16	23	14	20,236	118
Athabasca Oil Corporation	99.9%	22	22	22	15	-	20	1,204,933	17,275
Devon Canada	96.2%	19	23	-	16	19	15	2,267	500
Bellatrix Exploration Ltd.	0.0%	12	24	-	16	12	17	93	12
Harvest Operations Corp.	94.0%	9	25	-	16	9	18	3,575	154
Check Energy Ltd.	100.0%	-	26	-	16	-	20	585	-
Rife Resources Ltd.	0.0%	-	26	-	16	-	20	-	-
Twin Butte Energy Ltd.	0.0%	-	26	-	16	-	20	-	-
PetroFrontier Corp.	100.0%	-	26	-	16	-	20	6,238	106
XTO Energy Canada	0.0%	-	26	-	16	-	20	-	-
<b>Totals for Bonnyville</b>	<b>97.0%</b>	<b>61,165</b>		<b>13,563</b>		<b>47,603</b>		<b>66,213,177</b>	<b>2,039,144</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**  
**Drayton Valley Crude Oil and Crude Bitumen Batteries for Alberta**  
**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Bonterra Energy Corp.	98.9%	2,522	1	1,494	1	1,027	3	445,528	234,505
Obsidian Energy Ltd.	98.6%	2,259	2	478	8	1,781	1	409,223	159,216
InPlay Oil Corp.	93.7%	2,042	3	894	5	1,148	2	83,225	32,241
ARC Resources Ltd.	98.6%	1,995	4	1,085	2	910	6	454,911	138,362
Whitecap Resources Inc.	98.8%	1,701	5	786	6	915	5	334,202	147,747
TORC Oil & Gas Ltd.	98.2%	1,416	6	472	9	944	4	88,875	77,954
Boulder Energy Ltd.	99.0%	1,074	7	959	4	114	20	175,762	107,929
Journey Energy Inc.	99.3%	1,017	8	325	12	692	7	67,100	145,595
Changhua Energy Canada Ltd.	0.0%	977	9	965	3	12	40	2,685	977
Tamarack Acquisition Corp.	99.5%	885	10	771	7	114	19	110,353	175,244
Sinopec Daylight Energy Ltd.	99.0%	853	11	310	13	543	9	223,663	87,764
Ridgeback Resources Inc.	99.6%	806	12	304	14	502	10	239,237	219,422
Vermilion Energy Inc.	99.5%	697	13	104	22	594	8	229,538	141,312
New Star Energy Ltd.	99.4%	654	14	267	15	387	12	41,201	110,111
Baccalieu Energy Inc.	99.0%	564	15	157	19	407	11	101,716	56,025
Cenovus Energy Inc.	99.5%	518	16	378	11	140	16	56,814	104,011
Long Run Exploration Ltd.	99.5%	508	17	453	10	54	27	10,910	106,285
Westbrick Energy Ltd.	99.5%	301	18	62	27	239	13	27,213	60,061
TAQA North Ltd.	99.4%	256	19	41	29	214	14	22,273	42,324
Shanpet Resources Ltd.	5.3%	211	20	70	25	140	15	168	222
SanLing Energy Ltd.	6.3%	191	21	190	16	1	57	1,166	204
Joli Fou Petroleum Ltd	21.3%	190	22	184	17	6	47	2,258	241
Mancal Energy Inc.	98.0%	182	23	180	18	2	53	6,283	9,274
Baytex Energy Ltd.	97.5%	159	24	143	21	15	39	11,099	6,345
Blackspur Oil Corp.	99.5%	151	25	151	20	-	63	24,835	31,133
Highvale Operating Corp.	58.3%	124	26	-	43	124	17	701	298
Sequoia Operating Corp.	99.4%	123	27	-	43	123	18	4,525	21,369
Iberdrola Canada Energy Services Ltd.	99.9%	113	28	-	43	113	21	3,443	75,156
Bellatrix Exploration Ltd.	99.9%	112	29	69	26	43	31	17,055	102,679
97837 Resources Ltd.	28.1%	89	30	89	23	-	63	300	124
C Group Energy Inc.	94.7%	78	31	78	24	-	63	3,095	1,458
Insch Commodity Ltd.	92.5%	75	32	-	41	75	22	1,367	1,000
Sifton Petroleum Inc.	99.0%	75	33	31	32	44	30	22,410	7,217
Bonavista Energy Corporation	99.4%	75	34	-	43	75	23	8,477	13,048
Freehold Royalties Ltd.	97.8%	75	35	-	43	75	24	2,918	3,457
Repsol Oil & Gas Canada Inc.	98.1%	74	36	55	28	20	37	4,395	3,883
Velvet Energy Ltd.	99.7%	70	37	-	43	70	25	8,280	26,567
Kaiser Exploration Ltd.	0.0%	65	38	-	43	65	26	173	65
Harvest Operations Corp.	99.0%	54	39	-	43	54	27	3,245	5,371
Tangle Creek Energy Ltd.	99.9%	53	40	21	35	31	33	19,686	40,831

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Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Derrick Petroleum Ltd.	85.8%	50	41	-	43	50	29	894	349
Point Loma Resources Ltd.	99.5%	39	42	36	31	3	51	6,423	8,243
Keyera Energy Ltd.	100.0%	36	43	36	30	-	63	40,002	140,064
Questfire Energy Corp.	0.0%	36	44	-	43	36	32	481	36
ORLEN Upstream Canada Ltd.	99.8%	30	45	7	37	23	35	3,667	12,284
Perpetual Energy Inc.	58.3%	26	46	24	33	2	55	210	62
Pismo Energy Ltd.	98.1%	25	47	-	43	25	34	3,164	1,343
Wilcox Energy Corp.	31.1%	24	48	24	34	-	63	373	35
XTO Energy Canada	97.8%	22	49	-	43	22	36	1,160	1,006
Signalta Resources Limited	98.8%	16	50	5	39	12	42	1,152	1,377
Rife Resources Ltd.	98.1%	16	51	-	43	16	38	447	845
Anterra Energy Inc.	92.9%	15	52	15	36	-	63	992	205
Petrus Resources Corp.	100.0%	12	53	-	43	12	41	26,408	48,013
Pine Cliff Energy Ltd.	76.6%	10	54	-	43	10	43	182	42
HBC Energy Ltd.	0.0%	10	54	-	43	10	43	355	10
Eclipse Resources Ltd.	99.7%	10	56	4	40	6	46	8,730	3,078
Gain Energy Ltd.	99.3%	8	57	-	43	8	45	2,366	1,202
Muddy Petroleum Company Ltd.	98.0%	8	58	6	38	1	56	191	369
WLA Investment Ltd.	98.4%	6	59	-	43	6	48	759	354
Notline Holdings Inc.	99.6%	5	60	-	43	5	49	319	1,376
Gear Energy Ltd.	100.0%	4	61	-	43	4	50	11,967	13,759
Arrow Point Oil & Gas Ltd.	90.3%	2	62	-	43	2	52	448	24
Crazy Hill Resources Ltd.	93.1%	2	63	-	43	2	54	197	25
Houston Oil & Gas Ltd.	100.0%	1	64	-	43	1	57	2,265	5,136
Enercapita Energy Ltd.	0.0%	1	64	-	43	1	57	-	1
Paramount Resources (TEC) Ltd.	99.9%	1	64	-	43	1	57	166	1,193
ConocoPhillips Canada Energy Partnership	99.2%	1	67	-	43	1	61	39	80
Zargon Oil & Gas Ltd.	99.4%	1	68	-	43	1	62	803	79
Perpetual Operating Corp.	100.0%	0	69	-	41	-	63	880	4,447
Tourmaline Oil Corp.	100.0%	-	70	-	43	-	63	3,962	18,872
Blaze Energy Ltd.	100.0%	-	70	-	43	-	63	590	6,289
Lockwood Resources Ltd.	0.0%	-	70	-	43	-	63	-	-
Scollard Energy Ltd.	100.0%	-	70	-	43	-	63	230	1,907
Tidewater Midstream and Infrastructure Ltd.	100.0%	-	70	-	43	-	63	2,857	1,733
Sequoia Resources Corp.	0.0%	-	70	-	43	-	63	-	-
Ish Energy Ltd.	100.0%	-	70	-	43	-	63	-	69
Delphi Energy Corp.	0.0%	-	70	-	43	-	63	-	-
Aqua Terra Water Management Inc.	0.0%	-	70	-	43	-	63	-	-
Paramount Resources (ACL) Ltd.	0.0%	-	70	-	43	-	63	-	-
Shiningstar Energy Ltd.	0.0%	-	70	-	43	-	63	-	-

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Incipient Exploration Ltd.	100.0%	-	70	-	43	-	63	1,095	1,976
Land Petroleum International Inc.	0.0%	-	70	-	43	-	63	173	-
Canamax Energy Ltd.	100.0%	-	70	-	43	-	63	465	4,357
Hitic Energy Ltd.	100.0%	-	70	-	43	-	63	15,318	9,330
Paramount Resources Ltd.	100.0%	-	70	-	43	-	63	568	517
Adanac Oil & Gas Limited	100.0%	-	70	-	43	-	63	1,765	1,067
Centennial Petroleum Company Ltd.	100.0%	-	70	-	43	-	63	284	1,151
Sino-Western Petroleum Inc.	0.0%	-	70	-	43	-	63	-	-
Petro Buyers Inc.	100.0%	-	70	-	43	-	63	352	715
Spry2 Energy Inc.	100.0%	-	70	-	43	-	63	612	71
Rimfire Energy Inc.	100.0%	-	70	-	43	-	63	572	1,143
Tallahassee Exploration Inc.	100.0%	-	70	-	43	-	63	456	751
Surge Energy Inc.	100.0%	-	70	-	43	-	63	4,919	1,783
ConocoPhillips Canada (BRC) Partnership	0.0%	-	70	-	43	-	63	-	-
Canlin Resources Partnership	100.0%	-	70	-	43	-	63	1,783	1,187
KinMerc Oil & Gas Inc.	100.0%	-	70	-	43	-	63	353	2
Procyon Energy Corp.	100.0%	-	70	-	43	-	63	909	681
Clearview Resources Ltd.	100.0%	-	70	-	43	-	63	1,548	4,365
Benjaka Exploration Inc.	100.0%	-	70	-	43	-	63	206	3
ConocoPhillips Canada Resources Corp.	0.0%	-	70	-	43	-	63	-	-
Husky Oil Operations Limited	100.0%	-	70	-	43	-	63	4,108	5,468
Canadian Natural Resources Limited	100.0%	-	70	-	43	-	63	88	1,118
Pulse Oil Operating Corp.	100.0%	-	70	-	43	-	63	510	52
Mount Dakota Energy Corp.	0.0%	-	70	-	43	-	63	-	-
New North Resources Ltd.	100.0%	-	70	-	43	-	63	142	11
<b>Totals for Drayton Valley</b>	<b>99.2%</b>	<b>23,796</b>		<b>11,723</b>		<b>12,073</b>		<b>3,429,213</b>	<b>2,806,682</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Edmonton Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Crescent Point Energy Corp.	86.3%	9,008	1	8,451	1	558	2	303,056	65,587
Aspenleaf Energy Limited	85.1%	4,481	2	4,287	2	193	11	224,422	29,978
NEP Canada ULC	96.7%	3,727	3	3,727	3	-	63	326,299	112,884
Ridgeback Resources Inc.	58.2%	3,135	4	2,950	4	185	12	27,722	7,500
Canadian Natural Resources Limited	96.4%	2,753	5	2,659	5	94	16	258,789	76,387
Tamarack Acquisition Corp.	75.2%	2,741	6	-	65	2,741	1	61,435	11,036
Razor Energy Corp.	95.6%	1,738	7	1,390	10	348	7	130,266	39,880
ARC Resources Ltd.	91.4%	1,688	8	1,480	8	208	10	187,780	19,724
Paramount Resources (TEC) Ltd.	99.3%	1,684	9	1,594	7	90	17	302,565	246,011
InPlay Oil Corp.	0.0%	1,643	10	1,643	6	-	63	5,084	1,643
Altura Energy Inc.	57.9%	1,476	11	1,470	9	6	42	13,003	3,503
Baytex Energy Ltd.	60.8%	1,217	12	1,170	11	47	27	24,989	3,107
Mancal Energy Inc.	84.1%	1,169	13	1,128	12	41	28	43,916	7,334
Canuck North Resources Ltd.	0.0%	985	14	983	13	2	54	2,069	985
Tangle Creek Energy Ltd.	98.8%	929	15	518	19	411	4	148,536	74,502
Long Run Exploration Ltd.	98.6%	911	16	415	22	497	3	216,360	66,271
Spur Petroleum Ltd.	40.0%	620	17	304	27	316	8	21,128	1,032
ORLEN Upstream Canada Ltd.	97.4%	613	18	607	14	6	46	26,232	23,280
Journey Energy Inc.	95.8%	607	19	542	16	64	22	52,876	14,555
Outlier Resources Ltd.	79.6%	594	20	534	18	60	23	4,787	2,903
Point Bar Resources Inc.	77.1%	591	21	590	15	1	58	22,137	2,577
Accel Canada Holdings Limited	99.0%	543	22	446	21	97	15	103,890	52,335
N7 Energy Ltd.	0.0%	538	23	538	17	-	63	7,354	538
Harvest Operations Corp.	93.5%	473	24	470	20	3	49	9,811	7,230
TORC Oil & Gas Ltd.	98.1%	469	25	380	24	89	18	91,197	24,130
Rifle Shot Oil Corp.	93.8%	449	26	80	44	370	6	57,333	7,281
Cenovus Energy Inc.	95.3%	433	27	56	47	377	5	44,051	9,317
Hitic Energy Ltd.	93.9%	397	28	397	23	-	63	30,891	6,497
Enercapita Energy Ltd.	95.6%	354	29	327	25	27	33	8,032	8,062
Response Energy Corporation	81.5%	347	30	127	38	220	9	5,528	1,872
Cedar Creek Energy Ltd.	98.5%	317	31	317	26	-	60	35,422	21,818
Surge Energy Inc.	97.0%	301	32	241	31	60	24	15,428	10,136
Forge Oil & Gas Limited	91.8%	290	33	290	28	-	63	3,263	3,519
Zargon Oil & Gas Ltd.	7.7%	271	34	262	30	9	41	2,061	293
C Group Energy Inc.	10.1%	269	35	269	29	-	63	5,178	299
Axiom Oil and Gas Inc.	97.5%	239	36	210	32	29	31	8,915	9,596
Paramount Resources (ACL) Ltd.	98.6%	196	37	148	36	48	26	18,957	13,594
Quattro Exploration and Production Ltd.	0.0%	179	38	179	33	-	63	252	179
Novus Energy Inc.	23.1%	159	39	159	34	-	63	1,351	207
Dark Energy Ltd.	39.1%	157	40	-	65	157	13	3,749	257

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Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Westhill Resources Limited	94.9%	156	41	156	35	-	63	255	3,038
Coastal Resources Limited	0.0%	141	42	141	37	-	63	3,053	141
Point Loma Resources Ltd.	0.0%	132	43	-	65	132	14	321	132
Petrus Resources Corp.	0.0%	121	44	121	39	-	63	2,271	121
Crestwynd Exploration Ltd.	27.3%	118	45	118	40	-	63	3,396	162
Repsol Oil & Gas Canada Inc.	44.9%	114	46	110	41	4	48	1,168	206
Cardinal Energy Ltd.	97.1%	113	47	107	42	6	44	3,674	3,869
Clearview Resources Ltd.	93.8%	99	48	99	43	-	63	6,101	1,604
Sequoia Operating Corp.	19.4%	89	49	-	65	89	19	653	110
Ohana Resources Inc.	95.3%	84	50	78	45	6	45	12,808	1,800
Enerplus Corporation	98.9%	73	51	-	64	73	20	15,901	6,699
Shell Canada Energy	95.8%	67	52	-	65	67	21	5,169	1,598
Shackleton Exploration Ltd.	99.8%	58	53	41	48	16	35	20,900	24,495
ACCEL Energy Canada Limited	99.9%	57	54	6	60	51	25	175,718	72,704
Beaver Lake Resources Corporation	0.0%	57	55	57	46	-	63	522	57
TAQA North Ltd.	99.5%	41	56	-	65	41	29	3,162	7,886
Raging River Exploration Inc.	55.1%	39	57	39	49	-	63	1,619	86
Clearbrook Resources Inc.	92.1%	38	58	38	50	-	63	5,686	480
Trident Exploration (wx) Corp.	99.2%	35	59	31	51	4	47	5,045	4,143
Procyon Energy Corp.	0.0%	33	60	-	65	33	30	187	33
New North Resources Ltd.	8.5%	28	61	-	65	28	32	474	31
Surat Energy Inc.	0.0%	26	62	25	53	1	57	674	26
NVP Exploration Inc.	0.0%	25	63	25	52	-	63	270	25
Primrose Drilling Ventures Ltd.	0.0%	25	64	-	65	25	34	460	25
Vesta Energy Ltd.	98.4%	22	65	22	54	-	63	1,380	1,365
Bonterra Energy Corp.	94.5%	20	66	13	56	6	42	1,768	358
Athabasca Oil Corporation	100.0%	16	67	16	55	-	63	27,012	53,199
Ember Resources Inc.	93.3%	12	68	-	65	12	36	144	183
Eastnall Resources Ltd.	1.6%	12	69	-	65	12	37	60	12
Norwegian Petroleum Inc.	90.8%	11	70	-	65	11	38	136	118
NAL Resources Limited	99.6%	10	71	-	65	10	39	2,008	2,816
XTO Energy Canada	99.8%	10	72	-	65	10	40	1,307	4,324
Canlin Resources Partnership	99.5%	10	73	8	58	1	55	4,282	1,742
Kelt Exploration Ltd.	99.4%	8	74	8	57	-	63	11,101	1,303
Indra Oil & Gas Ltd.	0.0%	7	75	7	59	-	63	206	7
Delphi Energy Corp.	66.0%	3	76	3	61	-	63	345	10
Vulture Energy Ltd.	86.7%	3	77	3	62	-	62	513	24
Bonavista Energy Corporation	100.0%	2	78	-	65	2	50	15,409	16,512
Whitcap Resources Inc.	0.0%	2	78	-	65	2	50	918	2
Velvet Energy Ltd.	87.0%	2	78	-	65	2	50	88	18

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Scollard Energy Ltd.	91.6%	2	81	-	65	2	53	24	28
Rally Canada Resources Ltd.	99.8%	2	82	2	63	-	63	7,973	833
Sun Century Petroleum Corporation	96.8%	1	83	-	65	1	56	299	38
Sequoia Resources Corp.	99.9%	1	84	-	65	1	59	3,464	965
Hillsdale Drilling Ltd.	98.2%	0	85	-	65	-	61	272	11
Gear Energy Ltd.	0.0%	-	86	-	65	-	63	-	-
G. Herman Group Inc.	100.0%	-	86	-	65	-	63	29	235
Sinopec Daylight Energy Ltd.	0.0%	-	86	-	65	-	63	-	-
Redwater Energy Corp.	0.0%	-	86	-	65	-	63	-	-
SanLing Energy Ltd.	0.0%	-	86	-	65	-	63	-	-
Border Petroleum Limited	0.0%	-	86	-	65	-	63	-	-
Success Energy Ltd.	0.0%	-	86	-	65	-	63	-	-
Lockwood Resources Ltd.	0.0%	-	86	-	65	-	63	-	-
Spartan Energy Corp.	100.0%	-	86	-	65	-	63	10,632	1,850
Murphy Oil Company Ltd.	0.0%	-	86	-	65	-	63	-	-
Sino-Western Petroleum Inc.	0.0%	-	86	-	65	-	63	23	-
Dire Resources Ltd.	100.0%	-	86	-	65	-	63	709	28
Anderson Energy Inc.	0.0%	-	86	-	65	-	63	-	-
Husky Oil Operations Limited	100.0%	-	86	-	65	-	63	702	3,725
Obsidian Energy Ltd.	0.0%	-	86	-	65	-	63	-	-
Ish Energy Ltd.	100.0%	-	86	-	65	-	63	12	30
Malak Energy Inc.	100.0%	-	86	-	65	-	63	267	51
Land Petroleum International Inc.	0.0%	-	86	-	65	-	63	3	-
West Lake Energy Corp.	100.0%	-	86	-	65	-	63	1,427	448
Barnwell of Canada Limited	0.0%	-	86	-	65	-	63	-	-
Energy Express Canada Corp.	100.0%	-	86	-	65	-	63	2,301	395
HESC Energy Corporation	100.0%	-	86	-	65	-	63	2,687	3,006
Deltastream Energy Corporation	100.0%	-	86	-	65	-	63	79	-
Regco Petroleum Ltd.	0.0%	-	86	-	65	-	63	-	-
Inception Exploration Ltd.	100.0%	-	86	-	65	-	63	722	2,326
Wescan Energy Corp.	0.0%	-	86	-	65	-	63	-	-
Tori Resources Inc.	100.0%	-	86	-	65	-	63	156	997
Dark Warrior Resources Ltd.	0.0%	-	86	-	65	-	63	-	-
Enhance Energy Inc.	0.0%	-	86	-	65	-	63	-	-
KinMerc Oil & Gas Inc.	100.0%	-	86	-	65	-	63	967	4
Tidewater Midstream and Infrastructure Ltc	0.0%	-	86	-	65	-	63	-	-
<b>Totals for Edmonton</b>	<b>95.8%</b>	<b>50,611</b>		<b>42,612</b>		<b>8,002</b>		<b>3,225,026</b>	<b>1,214,273</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Fort McMurray Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Canadian Natural Resources Limited	96.2%	888	1	-	4	888	1	545,875	23,061
Suncor Energy Inc.	98.4%	390	2	269	1	121	3	12,368,687	23,675
Husky Oil Operations Limited	96.5%	329	3	109	2	220	2	2,330,214	9,437
Athabasca Oil Corporation	91.5%	88	4	88	3	-	4	518,735	1,038
Petrochina Canada Ltd.	100.0%	-	5	-	4	-	4	242,057	484
Sunshine Oilsands Ltd.	100.0%	-	5	-	4	-	4	108,079	326
<b>Totals for Fort McMurray</b>	<b>97.1%</b>	<b>1,694</b>		<b>466</b>		<b>1,229</b>		<b>16,113,647</b>	<b>58,021</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**  
**Grande Prairie / High Level Crude Oil and Crude Bitumen Batteries for Alberta**  
**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Canadian Natural Resources Limited	99.1%	8,089	1	6,577	2	1,512	1	995,052	871,333
Hammerhead Resources Inc.	98.7%	7,855	2	7,810	1	45	23	294,409	589,903
Executive Adventures 2008 Inc.	0.7%	3,902	3	3,860	3	43	24	19,370	3,928
Paramount Resources (ACL) Ltd.	97.9%	3,377	4	3,300	4	77	18	79,073	161,103
TAQA North Ltd.	92.3%	2,807	5	1,464	12	1,343	2	30,098	36,405
Surge Energy Inc.	98.5%	2,342	6	2,319	5	23	36	152,326	158,078
Cabot Energy Inc.	14.4%	2,190	7	2,190	6	-	57	24,370	2,557
Ikkuma Resources Corp.	3.6%	2,136	8	2,136	7	-	61	2,647	2,215
Strategic Oil & Gas Ltd.	96.1%	2,102	9	2,102	8	-	61	99,803	54,404
Long Run Exploration Ltd.	98.5%	1,871	10	1,791	9	80	17	167,830	120,995
Rising Star Resources Ltd.	96.1%	1,811	11	1,773	10	38	26	62,737	46,535
SanLing Energy Ltd.	45.6%	1,702	12	1,202	17	500	5	11,058	3,132
ARC Resources Ltd.	99.7%	1,582	13	1,087	20	494	6	342,970	539,847
Whitecap Resources Inc.	98.8%	1,565	14	1,435	13	130	12	276,731	135,473
Gain Energy Ltd.	97.1%	1,538	15	1,537	11	1	53	26,708	53,559
Birchcliff Energy Ltd.	99.8%	1,446	16	1,434	14	12	42	259,048	682,422
Venturion Oil Limited	80.3%	1,413	17	1,413	15	-	61	17,086	7,173
Drakkar Energy Ltd.	19.4%	1,395	18	1,395	16	-	61	5,251	1,731
Cenovus Energy Inc.	98.4%	1,384	19	737	25	647	4	67,580	86,091
Strath Resources Ltd.	97.6%	1,275	20	556	28	719	3	18,883	53,251
Mancal Energy Inc.	97.1%	1,257	21	1,139	19	118	13	48,465	42,972
Canamax Energy Ltd.	95.9%	1,201	22	1,201	18	-	58	91,990	29,081
Kelt Exploration Ltd.	99.7%	1,015	23	999	21	16	39	254,326	328,923
Longshore Resources Ltd.	97.0%	1,003	24	955	22	49	21	56,880	33,390
Husky Oil Operations Limited	99.9%	991	25	546	29	445	7	375,933	1,135,453
Enercapita Energy Ltd.	99.0%	916	26	613	26	304	8	194,761	95,981
Insignia Energy Ltd.	95.1%	882	27	882	23	-	61	17,514	18,019
Encana Corporation	97.8%	810	28	799	24	11	43	32,576	36,338
Georox Resources Inc.	14.8%	590	29	590	27	-	61	506	693
Shield Energy Ltd.	96.2%	547	30	501	30	47	22	21,984	14,274
Inception Exploration Ltd.	97.7%	536	31	499	31	36	27	17,686	23,198
Paramount Resources (TEC) Ltd.	98.4%	487	32	482	32	5	44	48,937	31,073
Harvest Operations Corp.	98.8%	412	33	347	33	66	19	91,524	33,354
Cardinal Energy Ltd.	99.0%	346	34	345	34	1	56	36,175	34,044
Tourmaline Oil Corp.	99.6%	344	35	344	35	-	61	111,698	84,167
Cequence Energy Ltd.	99.4%	294	36	260	38	34	29	35,300	46,121
Nine Ring Energy Development Inc.	0.0%	289	37	289	36	-	61	352	289
Progress Energy Canada Ltd.	99.7%	273	38	116	47	157	10	64,484	81,584
N7 Energy Ltd.	0.0%	267	39	267	37	-	61	2,343	267
Accel Canada Holdings Limited	79.0%	254	40	222	40	32	30	8,932	1,211

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Grizzly Resources Ltd.	0.0%	244	41	-	74	244	9	25,051	244
XTO Energy Canada	97.4%	241	42	142	46	99	14	12,053	9,301
Obsidian Energy Ltd.	87.5%	233	43	204	43	29	31	7,668	1,863
Flow-Back Oil & Gas Ltd.	44.3%	229	44	229	39	-	61	256	411
Modern Resources Inc.	99.5%	223	45	207	42	16	40	46,055	46,564
Goldenkey Oil Inc.	19.7%	214	46	214	41	-	61	2,571	267
Bering Exploration Company ULC	0.0%	206	47	51	56	155	11	3,527	206
Clampett Energy Ltd.	21.0%	178	48	93	51	85	16	2,036	225
Panam Energy Services Ltd.	37.6%	161	49	161	44	-	61	328	258
Velvet Energy Ltd.	99.6%	160	50	71	53	89	15	36,343	39,323
Dirham Oil (2000) Inc.	0.0%	156	51	156	45	-	61	387	156
Jupiter Resources Inc.	99.6%	140	52	100	50	39	25	33,170	34,140
Crescent Point Energy Corp.	99.7%	137	53	108	49	29	33	25,221	52,640
Glenogle Energy Inc.	99.8%	109	54	109	48	-	61	32,100	59,660
White Owl Energy Services Ltd.	73.8%	86	55	86	52	-	61	3,149	328
Raimount Energy Corp.	98.4%	69	56	16	63	53	20	2,902	4,302
Exshaw Oil Corp.	100.0%	60	57	60	54	-	61	402,903	446,845
Anegada Oil Corp.	98.5%	54	58	52	55	2	50	10,090	3,562
Direct Oil & Gas Inc.	99.1%	51	59	51	57	-	61	8,943	5,669
ORLEN Upstream Canada Ltd.	93.5%	43	60	39	58	4	46	5,878	669
Polar Star Canadian Oil And Gas Inc.	97.3%	39	61	39	59	-	61	4,104	1,425
BDJ Energy Inc.	96.9%	38	62	2	69	35	28	10,079	1,205
Ribbon Creek Resources Inc.	98.7%	38	63	17	62	20	37	3,028	2,845
Kicking Horse Oil & Gas Ltd.	99.8%	29	64	-	70	29	31	1,849	12,618
Tallahassee Resources Inc.	0.0%	28	65	-	74	28	34	671	28
Sequoia Operating Corp.	84.7%	25	66	-	74	25	35	983	166
Firenze Energy Ltd.	92.6%	25	67	21	60	4	45	5,009	339
Kam's Sand Coating Ltd.	0.5%	20	68	20	61	-	61	349	20
Iron Bridge Resources Inc.	100.0%	17	69	-	74	17	38	18,823	53,292
Barnwell of Canada Limited	94.8%	16	70	16	64	-	61	1,934	297
Enerplus Corporation	100.0%	15	71	15	65	-	61	53,513	83,704
Huron Resources Corp.	0.0%	15	71	15	65	-	61	115	15
Murphy Oil Company Ltd.	98.9%	13	73	-	74	13	41	2,146	1,127
Eagle Energy Inc.	99.5%	12	74	12	67	-	61	111,702	2,334
Taku Gas Limited	0.0%	12	75	11	68	1	55	488	12
Canadian Oil & Gas International Inc.	97.1%	4	76	-	74	4	47	332	130
Shiningstar Energy Ltd.	100.0%	4	77	-	74	4	48	12,715	25,192
Sinopec Daylight Energy Ltd.	100.0%	3	78	-	74	3	49	7,129	7,644
Tangle Creek Energy Ltd.	100.0%	2	79	-	74	2	51	33,383	30,583
Bashaw Oil Corp.	0.0%	1	80	-	74	1	52	265	1

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.



Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Point Loma Resources Ltd.	99.7%	1	81	-	74	1	53	525	415
Procyon Energy Corp.	0.0%	0	82	-	70	-	61	11	-
Winslow Resources Inc.	100.0%	0	82	-	72	-	58	1,652	4,234
Scavenger Energy Gp Inc.	98.3%	0	84	-	72	-	61	167	6
Hutton Energy Ltd.	0.0%	0	84	-	74	-	58	80	-
Craft Oil Inc.	0.0%	-	86	-	74	-	61	-	-
Novus Energy Inc.	100.0%	-	86	-	74	-	61	1,039	1,265
Ridgeback Resources Inc.	0.0%	-	86	-	74	-	61	-	-
Rimfire Energy Inc.	100.0%	-	86	-	74	-	61	615	398
Shell Canada Energy	100.0%	-	86	-	74	-	61	2,892	6,622
Paramount Resources Ltd.	0.0%	-	86	-	74	-	61	-	-
Baytex Energy Ltd.	100.0%	-	86	-	74	-	61	7,540	1,487
Hitic Energy Ltd.	100.0%	-	86	-	74	-	61	16,643	2,728
Sydco Energy Inc.	0.0%	-	86	-	74	-	61	-	-
Trilogy Resources Ltd.	0.0%	-	86	-	74	-	61	-	-
ConocoPhillips Canada Resources Corp.	0.0%	-	86	-	74	-	61	-	-
Response Energy Corporation	100.0%	-	86	-	74	-	61	10	3
Devon Canada Corporation	0.0%	-	86	-	74	-	61	-	-
Rife Resources Ltd.	0.0%	-	86	-	74	-	61	-	-
Manitok Energy Inc.	0.0%	-	86	-	74	-	61	4	-
BLZ Energy Ltd.	0.0%	-	86	-	74	-	61	-	-
Glencoe Resources Ltd.	0.0%	-	86	-	74	-	61	-	-
Relentless Resources Ltd.	100.0%	-	86	-	74	-	61	197	1,694
Reber Exploration Ltd.	100.0%	-	86	-	74	-	61	134	1
Cold Creek Resources Ltd.	100.0%	-	86	-	74	-	61	459	514
NAL Resources Limited	100.0%	-	86	-	74	-	61	48,097	115,557
Summerland Energy Inc.	100.0%	-	86	-	74	-	61	4,245	3,569
Delphi Energy Corp.	100.0%	-	86	-	74	-	61	-	100
Seven Generations Energy Ltd.	100.0%	-	86	-	74	-	61	-	836
NuVista Energy Ltd.	0.0%	-	86	-	74	-	61	-	-
Lexin Resources Ltd.	0.0%	-	86	-	74	-	61	-	-
Zargon Oil & Gas Ltd.	0.0%	-	86	-	74	-	61	-	-
Advantage Oil & Gas Ltd.	100.0%	-	86	-	74	-	61	127	350
Athabasca Oil Corporation	0.0%	-	86	-	74	-	61	-	-
Peyto Exploration & Development Corp.	100.0%	-	86	-	74	-	61	507	848
Tidewater Midstream and Infrastructure Ltc	100.0%	-	86	-	74	-	61	23	187
<b>Totals for Grande Prairie / High Level</b>	<b>99.0%</b>	<b>67,845</b>		<b>59,831</b>		<b>8,016</b>		<b>5,479,611</b>	<b>6,750,991</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**  
**Medicine Hat Crude Oil and Crude Bitumen Batteries for Alberta**  
**Run Date: Apr 7, 2018**

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Granite Oil Corp.	96.7%	6,168	1	6,168	1	-	56	150,709	184,780
Canadian Natural Resources Limited	97.4%	5,280	2	4,464	2	816	4	991,311	202,485
Cardinal Energy Ltd.	96.4%	2,907	3	1,599	8	1,308	2	252,664	80,737
SanLing Energy Ltd.	87.0%	2,755	4	2,688	3	67	11	56,954	21,213
Rockeast Energy Corp.	0.0%	2,566	5	2,566	4	-	56	6,170	2,566
TORC Oil & Gas Ltd.	0.0%	2,441	6	2,441	5	-	56	19,140	2,441
Torxen Energy Ltd.	98.7%	2,300	7	476	20	1,824	1	510,756	183,416
Cenovus Energy Inc.	94.6%	2,072	8	887	15	1,185	3	403,902	38,061
Cor4 Oil Corp.	95.6%	1,967	9	1,953	6	14	28	200,679	44,750
Obsidian Energy Ltd.	93.1%	1,716	10	1,539	9	177	8	51,941	24,902
Gryphon Petroleum Corp.	0.0%	1,608	11	1,608	7	-	56	15,104	1,609
Tamarack Acquisition Corp.	92.4%	1,591	12	1,306	10	285	6	71,588	20,881
Raging River Exploration Inc.	97.8%	1,382	13	1,298	11	84	10	73,414	62,754
ARC Resources Ltd.	50.8%	1,343	14	1,287	13	56	12	24,296	2,731
Little Rock Resources Ltd.	75.8%	1,341	15	1,297	12	44	14	19,823	5,530
Ascensun Oil And Gas Ltd.	11.6%	952	16	952	14	-	56	12,620	1,076
Hemisphere Energy Corporation	82.7%	672	17	671	16	1	48	35,524	3,876
Blackspur Oil Corp.	97.7%	661	18	659	17	2	45	74,198	28,924
Traverse Energy Ltd.	91.5%	582	19	541	19	41	16	11,781	6,855
Journey Energy Inc.	98.9%	549	20	213	30	336	5	90,234	50,724
LGX Oil + Gas Inc.	36.4%	543	21	543	18	-	56	8,081	854
City Of Medicine Hat	15.8%	468	22	232	27	236	7	10,397	556
Crescent Point Energy Corp.	21.6%	387	23	369	21	18	23	6,857	494
Houston Oil & Gas Ltd.	10.6%	305	24	287	23	18	22	2,107	341
Prairie Provident Resources Canada Ltd	93.7%	297	25	297	22	-	56	19,667	4,713
Zargon Oil & Gas Ltd.	90.4%	275	26	275	24	-	56	23,042	2,861
TAQA North Ltd.	94.7%	270	27	266	25	4	41	43,933	5,112
New North Resources Ltd.	18.4%	257	28	240	26	18	23	2,896	315
Avalon Energy Ltd.	32.6%	227	29	226	28	1	50	4,055	336
Lance Exploration Corp.	10.4%	219	30	219	29	-	56	268	244
Marquee Energy Ltd.	99.5%	210	31	59	37	151	9	47,773	39,292
Convega Energy Ltd.	89.7%	155	32	155	31	-	56	3,680	1,502
Manitok Energy Inc.	27.8%	144	33	115	32	30	19	2,092	200
Baytex Energy Ltd.	95.6%	121	34	68	35	52	13	8,181	2,759
North 40 Resources Ltd.	92.4%	121	35	88	34	32	18	11,320	1,587
Arrow Point Oil & Gas Ltd.	37.1%	107	36	96	33	11	31	4,482	170
Standard Exploration Ltd.	38.6%	63	37	63	36	-	56	2,638	102
Blackpearl Resources Inc.	34.1%	55	38	55	38	-	54	1,886	83
Strategic Oil & Gas Ltd.	68.9%	54	39	44	40	11	32	681	174
Novus Energy Inc.	58.4%	44	40	44	39	-	56	654	107

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Tykewest Limited	76.0%	42	41	-	49	42	15	2,223	176
Enerplus Corporation	99.4%	39	42	1	47	38	17	239,639	6,235
Broadview Energy Ltd.	95.9%	35	43	21	41	14	27	2,682	850
Sanford Petroleum Ltd.	96.6%	27	44	-	49	27	20	1,054	785
Husky Oil Operations Limited	99.2%	25	45	-	49	25	21	2,414	3,083
Ridal Resource Ltd.	0.0%	16	46	-	49	16	25	164	16
Alberta Petroleum Energy Limited	32.2%	16	47	16	42	-	56	478	23
Harvest Operations Corp.	99.8%	15	48	-	49	15	26	72,510	6,181
Raimount Energy Corp.	0.0%	15	49	15	43	-	56	26	15
Signalta Resources Limited	97.2%	12	50	-	49	12	29	758	432
Indra Oil & Gas Ltd.	0.0%	12	51	-	49	12	30	319	12
Taber Water Disposal Inc.	0.0%	11	52	-	49	11	33	752	11
Toro Oil & Gas Ltd.	0.0%	10	53	10	44	1	52	314	10
Writers Oil & Gas Limited	0.0%	10	54	-	49	10	34	276	10
Edalis Energy Inc.	46.5%	9	55	-	49	9	35	601	17
Tower Ridge Enterprises Corp.	80.8%	9	56	-	49	9	36	639	48
935821 Alberta Ltd.	0.0%	9	56	-	49	9	36	1,115	9
NuVista Energy Ltd.	93.2%	9	58	8	45	1	50	151	129
Sandpoint Resources Inc.	0.0%	7	59	-	49	7	38	609	7
Deckland Inc.	92.4%	7	60	-	49	7	39	178	87
Aeneid Exploration Inc.	0.0%	5	61	-	49	5	40	492	5
Sequoia Operating Corp.	97.9%	4	62	2	46	2	44	1,834	195
Corinthian Oil Corp.	99.7%	3	63	-	49	3	42	1,758	936
Band Energy Resources Ltd.	39.6%	3	63	-	49	3	42	275	5
Enercapita Energy Ltd.	56.8%	2	65	-	49	2	46	458	4
Questerre Energy Corporation	0.0%	2	66	-	49	2	47	479	2
Anterra Energy Inc.	0.0%	1	67	-	49	1	49	242	1
Optimus Energy Limited	92.5%	0	68	-	49	-	53	314	5
Scollard Energy Ltd.	99.9%	0	69	-	48	-	56	230	196
Point Loma Resources Ltd.	95.0%	0	69	-	49	-	54	12	2
Corval Energy Ltd.	100.0%	-	71	-	49	-	56	2,672	985
Richbar Energy Ltd.	0.0%	-	71	-	49	-	56	-	-
1288131 Alberta Ltd.	100.0%	-	71	-	49	-	56	656	312
Ridgeback Resources Inc.	0.0%	-	71	-	49	-	56	-	-
Response Energy Corporation	0.0%	-	71	-	49	-	56	-	-
Canadian Oil & Gas International Inc.	0.0%	-	71	-	49	-	56	-	-
Petrocapita GP I Ltd.	0.0%	-	71	-	49	-	56	-	-
Canlin Resources Partnership	0.0%	-	71	-	49	-	56	-	-
Sarg Oils Ltd.	0.0%	-	71	-	49	-	56	-	-
1506928 Alberta Ltd.	100.0%	-	71	-	49	-	56	748	14

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Luxur Resources Inc.	100.0%	-	71	-	49	-	56	1,033	19
Lexin Resources Ltd.	0.0%	-	71	-	49	-	56	-	-
Frontier Energy Inc.	0.0%	-	71	-	49	-	56	-	-
Bonavista Energy Corporation	100.0%	-	71	-	49	-	56	266	106
Regnum Energy Ltd.	100.0%	-	71	-	49	-	56	1,756	89
Relentless Resources Ltd.	100.0%	-	71	-	49	-	56	5,095	1,910
Pengrowth Energy Corporation	0.0%	-	71	-	49	-	56	1	-
AltaGas Ltd.	0.0%	-	71	-	49	-	56	-	-
Incipient Exploration Ltd.	0.0%	-	71	-	49	-	56	-	-
Success Resources Ltd.	100.0%	-	71	-	49	-	56	2,339	4,133
Surge Energy Inc.	0.0%	-	71	-	49	-	56	-	-
Spyglass Resources Corp.	0.0%	-	71	-	49	-	56	-	-
Silver Bay Resources Ltd.	0.0%	-	71	-	49	-	56	-	-
Rockbridge Energy Alberta Inc.	100.0%	-	71	-	49	-	56	19	12
Murphy Oil Company Ltd.	0.0%	-	71	-	49	-	56	-	-
<b>Totals for Medicine Hat</b>	<b>95.7%</b>	<b>45,527</b>		<b>38,427</b>		<b>7,105</b>		<b>3,625,079</b>	<b>1,059,180</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Midnapore Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Tamarack Acquisition Corp.	64.2%	2,576	1	2,492	1	85	12	8,091	7,195
SanLing Energy Ltd.	65.8%	2,372	2	2,327	2	45	17	18,964	6,941
Cuda Energy Inc.	0.0%	2,266	3	2,266	3	-	44	3,482	2,266
Bearspaw Petroleum Ltd.	18.3%	1,954	4	1,952	4	2	41	8,879	2,391
ORLEN Upstream Canada Ltd.	82.7%	1,570	5	1,543	5	27	20	4,018	9,098
Torxen Energy Ltd.	99.1%	1,160	6	436	9	724	2	161,843	131,476
Little Rock Resources Ltd.	15.2%	1,118	7	1,118	6	-	48	10,660	1,319
Canadian Natural Resources Limited	98.2%	1,093	8	343	10	750	1	87,642	60,500
TORC Oil & Gas Ltd.	4.0%	1,064	9	1,053	7	11	23	4,267	1,108
Crescent Point Energy Corp.	98.1%	763	10	651	8	112	8	123,234	40,563
Bonavista Energy Corporation	99.2%	405	11	76	21	329	3	31,283	52,693
NAL Resources Limited	99.7%	310	12	305	11	5	30	69,435	109,288
TAQA North Ltd.	99.0%	295	13	4	34	291	4	33,697	30,832
Long Term Asset Management Inc.	85.6%	281	14	213	13	68	14	2,750	1,950
Bernum Petroleum Ltd.	32.3%	217	15	217	12	-	48	442	320
Husky Oil Operations Limited	99.5%	183	16	141	15	41	18	34,444	38,618
Thoroughbred Energy Ltd.	10.0%	182	17	-	38	182	5	3,188	202
Zargon Oil & Gas Ltd.	98.1%	149	18	149	14	-	48	37,934	7,855
Journey Energy Inc.	99.4%	141	19	112	16	29	19	16,263	23,580
Sphere Energy Corp.	96.1%	132	20	18	26	113	6	4,579	3,370
Traverse Energy Ltd.	98.8%	122	21	62	23	61	15	5,468	10,547
Cortona Energy Ltd.	88.0%	116	22	4	33	112	7	12,641	963
Axiom Oil and Gas Inc.	2.4%	112	23	-	38	112	8	591	115
Signalta Resources Limited	52.0%	104	24	-	38	104	10	2,586	217
Corval Energy Ltd.	81.9%	100	25	99	17	1	43	3,378	550
Manitok Energy Inc.	99.9%	97	26	14	27	83	13	42,625	73,236
Marquee Energy Ltd.	98.9%	95	27	86	18	9	25	16,268	8,871
Ridal Resource Ltd.	36.7%	90	28	-	38	90	11	1,166	142
Wolf Coulee Resources Inc.	98.8%	83	29	81	19	2	38	7,022	7,222
Baytex Energy Ltd.	96.3%	77	30	77	20	-	48	6,922	2,102
Surge Energy Inc.	31.3%	69	31	69	22	-	48	1,338	100
Hadeed Resources Inc.	51.3%	60	32	-	38	60	16	613	123
Houston Oil & Gas Ltd.	98.9%	59	33	48	25	11	24	3,413	5,588
Blackspur Oil Corp.	98.4%	51	34	51	24	-	48	1,444	3,237
Silver Blaze Energy Ltd.	90.4%	15	35	-	38	15	21	127	150
Cenovus Energy Inc.	94.1%	13	36	-	38	13	22	1,076	221
Wilcox Energy Corp.	55.3%	12	37	3	35	9	27	379	26
Westdrum Energy Ltd.	92.3%	12	38	12	28	-	48	236	150
Rampart Oil Inc.	99.9%	11	39	11	29	-	48	155,951	13,582
Huron Resources Corp.	0.0%	9	40	9	30	-	48	29	9

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
545279 Alberta Limited	17.3%	9	41	-	38	9	26	161	10
Hard Rock Resources Ltd.	0.0%	8	42	-	38	8	28	446	8
Questfire Energy Corp.	99.1%	8	43	-	38	8	29	236	907
Sequoia Operating Corp.	100.0%	8	44	5	32	2	39	2,158	26,692
HESC Energy Corporation	86.3%	6	45	6	31	-	48	1,545	43
Coastal Resources Limited	99.4%	5	46	-	38	5	31	815	854
Edalis Energy Inc.	99.6%	4	47	-	38	4	32	1,599	998
Firenze Energy Ltd.	99.7%	4	47	1	36	3	34	13,994	1,438
Cardinal Energy Ltd.	99.8%	4	49	-	38	4	33	1,417	1,467
Harvest Operations Corp.	99.9%	3	50	-	37	3	36	2,339	2,517
Forent Energy Ltd.	99.3%	3	51	-	38	3	35	1,116	490
Jast Energy Ltd.	88.3%	3	52	-	38	3	37	224	21
TimberRock Energy Corp.	99.2%	2	53	-	38	2	39	537	278
The Locke Stock & Barrel Company Ltd.	0.0%	2	54	-	38	2	42	587	2
Black Crane Energy Corp.	0.0%	0	55	-	38	-	45	73	-
Response Energy Corporation	0.0%	0	55	-	38	-	45	29	-
Spur Petroleum Ltd.	100.0%	0	57	-	38	-	47	1,045	525
Concerto Resources Ltd.	0.0%	-	58	-	38	-	48	-	-
NuVista Energy Ltd.	0.0%	-	58	-	38	-	48	-	-
Lexin Resources Ltd.	0.0%	-	58	-	38	-	48	-	-
Anterra Energy Inc.	0.0%	-	58	-	38	-	48	-	-
Logic Energy Ltd.	100.0%	-	58	-	38	-	48	6,254	7,102
979968 Alberta Ltd.	100.0%	-	58	-	38	-	48	1,321	1,562
Goldenkey Oil Inc.	0.0%	-	58	-	38	-	48	-	-
Spyglass Resources Corp.	0.0%	-	58	-	38	-	48	-	-
Ridgeback Resources Inc.	0.0%	-	58	-	38	-	48	4	-
Pine Cliff Energy Ltd.	100.0%	-	58	-	38	-	48	81	547
Indra Oil & Gas Ltd.	0.0%	-	58	-	38	-	48	-	-
Sutton Energy Ltd.	0.0%	-	58	-	38	-	48	-	-
Kaiser Exploration Ltd.	0.0%	-	58	-	38	-	48	-	-
Pocahontas Petroleum Ltd.	0.0%	-	58	-	38	-	48	-	-
Transglobe Energy Corporation	100.0%	-	58	-	38	-	48	86	1,228
Encana Corporation	100.0%	-	58	-	38	-	48	2,066	2,756
Obsidian Energy Ltd.	0.0%	-	58	-	38	-	48	-	-
Prairie Provident Resources Canada Ltd.	100.0%	-	58	-	38	-	48	24,198	99,882
ConocoPhillips Canada Energy Partnership	0.0%	-	58	-	38	-	48	-	-
Enerplus Corporation	0.0%	-	58	-	38	-	48	-	-
Harvard International Resources Ltd.	100.0%	-	58	-	38	-	48	912	2,066
LGX Oil + Gas Inc.	0.0%	-	58	-	38	-	48	-	-
Topanga Resources Ltd.	0.0%	-	58	-	38	-	48	-	-

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Rockeast Energy Corp.	100.0%	-	58	-	38	-	48	127	15
North 40 Resources Ltd.	0.0%	-	58	-	38	-	48	-	-
Avalon Energy Ltd.	100.0%	-	58	-	38	-	48	145	167
Silver Peak Industries Ltd.	100.0%	-	58	-	38	-	48	98	34
Second Wave Petroleum Inc.	0.0%	-	58	-	38	-	48	-	-
Shanpet Resources Ltd.	0.0%	-	58	-	38	-	48	901	-
<b>Totals for Midnapore</b>	<b>97.6%</b>	<b>19,604</b>		<b>16,054</b>		<b>3,552</b>		<b>992,882</b>	<b>810,325</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**  
**Red Deer Crude Oil and Crude Bitumen Batteries for Alberta**  
**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Pengrowth Energy Corporation	3.1%	3,697	1	3,697	1	-	78	20,849	3,817
Bearspaw Petroleum Ltd.	35.2%	3,590	2	3,586	2	4	57	35,353	5,536
Whitecap Resources Inc.	99.1%	2,386	3	2,318	3	69	27	361,706	264,263
Crescent Point Energy Corp.	64.7%	2,205	4	2,197	4	8	52	10,657	6,239
Yangarra Resources Corp.	98.7%	1,834	5	1,420	6	414	4	120,335	139,462
Paramount Resources (ACL) Ltd.	97.5%	1,777	6	1,723	5	55	32	20,461	71,445
NAL Resources Limited	99.6%	1,584	7	985	7	599	1	252,788	359,539
Cenovus Energy Inc.	99.4%	958	8	819	10	139	16	139,643	150,181
Canadian Natural Resources Limitec	99.5%	947	9	836	9	111	18	129,517	209,952
Artis Exploration Ltd.	77.1%	928	10	928	8	-	72	45,832	4,045
TAQA North Ltd.	99.4%	802	11	417	13	385	6	87,747	125,127
Tamarack Acquisition Corp.	98.6%	797	12	451	11	346	8	109,441	58,553
InPlay Oil Corp.	98.4%	601	13	51	41	550	2	40,248	38,119
RKSmith Energy Corp.	0.0%	489	14	-	65	489	3	120	489
Vesta Energy Ltd.	98.3%	479	15	112	28	368	7	187,496	27,802
Paramount Resources Ltd.	92.2%	420	16	419	12	1	71	7,758	5,412
Ember Resources Inc.	88.8%	387	17	-	65	387	5	14,036	3,441
Bonavista Energy Corporation	99.5%	374	18	124	25	250	11	35,500	73,030
Mancal Energy Inc.	11.1%	366	19	347	14	19	43	5,715	412
Prairie Storm Energy Corp.	99.4%	363	20	184	19	179	14	43,378	60,460
Husky Oil Operations Limited	99.1%	288	21	1	61	288	9	26,882	33,306
Surge Energy Inc.	98.6%	280	22	15	51	265	10	17,652	19,697
Relentless Resources Ltd.	73.9%	272	23	272	15	-	78	1,097	1,042
Sequoia Operating Corp.	99.9%	271	24	74	37	197	13	44,851	331,053
Enhance Energy Inc.	97.7%	268	25	268	16	-	78	38,691	11,816
Eagle Energy Inc.	98.6%	252	26	182	20	71	26	28,134	18,679
Grandview Exploration Inc.	56.5%	248	27	241	17	7	53	3,248	570
Obsidian Energy Ltd.	99.8%	237	28	133	22	104	20	198,044	156,767
Transglobe Energy Corporation	99.2%	227	29	1	62	227	12	34,529	27,762
Hard Rock Resources Ltd.	92.3%	218	30	205	18	12	47	1,256	2,815
ORLEN Upstream Canada Ltd.	99.8%	202	31	101	30	101	22	22,226	131,851
Velvet Energy Ltd.	97.6%	199	32	84	33	115	17	6,039	8,209
Signalta Resources Limited	83.0%	193	33	90	31	102	21	2,099	1,134
Sitka Exploration Ltd.	99.4%	188	34	82	34	106	19	30,188	31,352
Gain Energy Ltd.	98.7%	181	35	115	27	66	28	14,955	14,054
Canlin Resources Partnership	99.2%	176	36	116	26	61	31	88,942	22,279
Harvest Operations Corp.	99.5%	175	37	-	63	175	15	18,420	35,516
Bellatrix Exploration Ltd.	99.9%	150	38	150	21	-	78	18,485	147,994
Alexander Oilfield Services Ltd.	67.7%	131	39	131	23	-	78	1,009	406
Manitok Energy Inc.	99.9%	130	40	81	35	50	34	56,963	107,735

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.



Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Rally Canada Resources Ltd.	97.4%	130	41	130	24	-	78	16,510	5,020
Bonterra Energy Corp.	99.3%	116	42	22	49	95	23	3,007	17,545
Forge Oil & Gas Limited	80.7%	110	43	32	45	78	25	2,151	568
Baccalieu Energy Inc.	99.8%	110	44	19	50	91	24	28,573	54,601
Huron Resources Corp.	78.1%	109	45	109	29	-	78	2,087	499
Canadian Oil & Gas International Inc	98.4%	105	46	76	36	29	41	28,865	6,613
Trident Exploration (Alberta) Corp.	98.9%	100	47	37	43	63	30	8,748	9,158
Questfire Energy Corp.	99.5%	91	48	86	32	5	56	7,608	19,594
Gear Energy Ltd.	99.5%	90	49	51	40	39	35	47,326	17,912
Clearbrook Resources Inc.	98.9%	66	50	63	38	3	60	15,067	6,186
ExxonMobil Canada Energy	99.9%	66	51	15	51	50	33	68,481	72,503
Ridgeback Resources Inc.	99.6%	64	52	-	65	64	29	3,906	17,190
Firenze Energy Ltd.	97.1%	60	53	60	39	-	78	2,165	2,054
Westdrum Energy Ltd.	80.3%	49	54	13	53	37	37	353	251
Forent Energy Ltd.	96.3%	45	55	37	44	9	50	2,713	1,239
Supreme Energy Inc.	98.8%	43	56	43	42	-	78	7,334	3,703
Certus Oil And Gas Inc.	96.0%	39	57	28	47	11	48	1,984	975
Range 3 Inc.	32.6%	38	58	-	65	38	36	77	56
Predator Oil Ltd.	5.6%	36	59	-	65	36	38	854	38
Axiom Oil and Gas Inc.	99.7%	35	60	-	65	35	39	23,156	11,081
Entrada Resources Inc.	99.9%	31	61	28	46	3	59	27,966	28,417
Golden Spike Energy Inc.	37.0%	31	62	-	65	31	40	289	49
South Ridge Management Ltd.	0.0%	27	63	27	48	-	78	164	27
TimberRock Energy Corp.	55.9%	26	64	-	65	26	42	103	59
Sogar Resources Ltd.	99.0%	18	65	-	65	18	44	700	1,751
Pine Cliff Energy Ltd.	99.6%	17	66	-	65	17	45	2,644	4,537
Vermilion Energy Inc.	98.7%	16	67	-	65	16	46	758	1,242
Tori Resources Inc.	94.4%	12	68	11	54	1	70	1,931	207
Gamet Resources Ltd.	81.0%	11	69	10	55	1	69	284	56
Sequoia Resources Corp.	99.7%	10	70	5	58	6	54	4,050	3,583
Baytex Energy Ltd.	99.5%	9	71	-	65	9	49	2,108	1,719
Tykewest Limited	90.4%	9	72	-	65	9	51	405	88
Rife Resources Ltd.	80.9%	7	73	7	56	-	73	1,091	36
Energy Express Canada Corp.	98.8%	6	74	6	57	-	75	678	525
Long Run Exploration Ltd.	99.7%	6	75	-	65	6	55	1,161	1,651
Summerland Energy Inc.	99.9%	4	76	4	59	-	78	4,979	3,196
Response Energy Corporation	98.9%	3	77	-	65	3	58	1,018	263
Tri-Ment Corporation Ltd.	33.3%	3	78	-	65	3	60	21	4
Scollard Energy Ltd.	100.0%	2	79	-	65	2	62	3,138	10,587
Coastal Resources Limited	91.9%	2	80	1	60	1	66	383	23

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Point Loma Resources Ltd.	96.6%	2	81	-	65	2	63	135	54
Silver Blaze Energy Ltd.	37.0%	2	82	-	65	2	64	7	3
Sun Century Petroleum Corporation	93.6%	1	83	-	65	1	65	236	22
New North Resources Ltd.	99.8%	1	84	-	65	1	66	496	583
Shackleton Exploration Ltd.	99.9%	1	85	-	65	1	68	856	901
Traverse Energy Ltd.	99.9%	0	86	-	65	-	73	174	588
Tantalus Energy Corp.	99.9%	0	87	-	65	-	75	358	170
Journey Energy Inc.	100.0%	0	87	-	65	-	75	10,188	6,916
Marquee Energy Ltd.	99.2%	0	87	-	64	-	78	729	25
Omers Energy Inc.	100.0%	-	90	-	65	-	78	-	2
Clearview Resources Ltd.	100.0%	-	90	-	65	-	78	6,912	3,947
Camino Industries Inc.	0.0%	-	90	-	65	-	78	-	-
Canyon Oil & Gas Corporation	100.0%	-	90	-	65	-	78	66	551
SanLing Energy Ltd.	0.0%	-	90	-	65	-	78	-	-
Enerplus Corporation	100.0%	-	90	-	65	-	78	88	1,047
Wolf Coulee Resources Inc.	0.0%	-	90	-	65	-	78	-	-
C Group Energy Inc.	100.0%	-	90	-	65	-	78	1,540	2,446
Kanati Energy Incorporated	0.0%	-	90	-	65	-	78	-	-
Raging River Exploration Inc.	100.0%	-	90	-	65	-	78	425	1,806
Corse Energy Corp.	100.0%	-	90	-	65	-	78	103	859
HESC Energy Corporation	100.0%	-	90	-	65	-	78	642	348
Ferrybank Resources Ltd.	100.0%	-	90	-	65	-	78	961	294
TORC Oil & Gas Ltd.	0.0%	-	90	-	65	-	78	-	-
Steppe Petroleum Inc.	0.0%	-	90	-	65	-	78	-	-
ZNX Energy Ltd.	100.0%	-	90	-	65	-	78	1,578	1,777
Outlier Resources Ltd.	100.0%	-	90	-	65	-	78	363	1,402
Goldenkey Oil Inc.	100.0%	-	90	-	65	-	78	1,601	1,205
KinMerc Oil & Gas Inc.	100.0%	-	90	-	65	-	78	268	1
Just Freehold Energy Corp.	100.0%	-	90	-	65	-	78	1,044	838
Caltex Resources Ltd.	100.0%	-	90	-	65	-	78	1,613	1,359
Gibson Energy ULC	0.0%	-	90	-	65	-	78	-	-
Bashaw Oil Corp.	100.0%	-	90	-	65	-	78	599	131
Mato Inc.	100.0%	-	90	-	65	-	78	334	1,170
Sinopec Daylight Energy Ltd.	100.0%	-	90	-	65	-	78	473	415
Incipient Exploration Ltd.	0.0%	-	90	-	65	-	78	-	-
Glencoe Resources Ltd.	100.0%	-	90	-	65	-	78	19	784
Canstone Energy Ltd.	100.0%	-	90	-	65	-	78	3	439
Kaiser Exploration Ltd.	100.0%	-	90	-	65	-	78	105	288
Rockbridge Energy Alberta Inc.	0.0%	-	90	-	65	-	78	-	-
Blue Star Energy Inc.	100.0%	-	90	-	65	-	78	67	3

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Shale Petroleum Ltd.	100.0%	-	90	-	65	-	78	297	387
Predator Oil BC Ltd.	0.0%	-	90	-	65	-	78	13	-
Shanpet Resources Ltd.	100.0%	-	90	-	65	-	78	333	641
Sifton Petroleum Inc.	100.0%	-	90	-	65	-	78	3,044	3,096
Adanac Oil & Gas Limited	0.0%	-	90	-	65	-	78	-	-
<b>Totals for Red Deer</b>	<b>99.0%</b>	<b>31,029</b>		<b>23,876</b>		<b>7,162</b>		<b>2,682,796</b>	<b>3,050,665</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Slave Lake Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Obsidian Energy Ltd.	39.2%	66,422	1	66,422	1	-	31	511,145	109,271
Baytex Energy Ltd.	84.2%	41,443	2	41,441	2	2	25	941,446	262,569
Canadian Natural Resources Limited	93.8%	18,092	3	10,052	3	8,040	1	4,822,297	292,293
Prairie Provident Resources Canada Ltd.	72.3%	2,936	4	715	10	2,221	2	142,904	10,595
Harvest Operations Corp.	72.7%	2,644	5	1,617	6	1,026	4	118,984	9,671
Predator Oil Ltd.	29.1%	2,414	6	1,670	5	744	6	67,193	3,403
Surge Energy Inc.	62.5%	2,175	7	-	24	2,175	3	40,377	5,798
Mount Bastion Oil & Gas Corp.	87.1%	2,031	8	1,281	8	750	5	249,147	15,712
Summerland Energy Inc.	73.0%	1,794	9	1,794	4	-	31	107,842	6,634
Mancal Energy Inc.	20.6%	1,335	10	1,323	7	12	19	22,164	1,681
Cardinal Energy Ltd.	98.5%	1,115	11	971	9	144	11	302,799	74,330
Bernum Petroleum Ltd.	11.8%	471	12	471	11	-	29	9,855	534
Long Run Exploration Ltd.	0.0%	452	13	251	13	201	10	8,044	452
Deltastream Energy Corporation	81.8%	426	14	78	18	349	7	17,612	2,339
Blackpearl Resources Inc.	89.8%	297	15	297	12	-	31	92,188	2,901
Husky Oil Operations Limited	99.3%	268	16	-	24	268	8	150,807	39,202
Questfire Energy Corp.	51.8%	230	17	119	17	111	12	3,547	476
Prosper Petroleum Ltd.	11.4%	227	18	-	24	227	9	9,791	256
Cenovus Energy Inc.	23.7%	213	19	181	15	32	15	10,920	279
Vermilion Energy Inc.	92.6%	208	20	208	14	-	31	40,109	2,796
Goldenkey Oil Inc.	45.0%	152	21	138	16	14	18	5,738	276
Crescent Point Energy Corp.	57.9%	82	22	61	19	21	16	1,216	195
Enercapita Energy Ltd.	12.1%	66	23	-	24	66	13	1,732	75
Gryphon Petroleum Corp.	20.6%	62	24	56	20	6	23	4,433	78
Spur Petroleum Ltd.	90.3%	36	25	-	24	36	14	51,087	366
Aeneid Exploration Inc.	98.8%	19	26	-	24	19	17	21,365	1,558
Rustum Petroleums Limited	0.0%	11	27	-	24	11	20	1,802	11
KinMerc Oil & Gas Inc.	92.9%	11	27	1	23	10	21	9,906	156
Whitehall Energy Ltd.	97.3%	9	29	-	24	9	22	2,813	314
Long Lake Energy Ltd.	90.8%	8	30	8	21	-	31	500	87
Persta Resources Inc.	94.7%	5	31	5	22	-	31	4,010	102
Coastal Resources Limited	98.4%	4	32	-	24	4	24	2,646	259
G. Herman Group Inc.	0.0%	1	33	-	24	1	26	215	1
Gunnarr Resources Inc.	0.0%	1	34	-	24	1	27	116	1
Dark Energy Ltd.	0.0%	0	35	-	24	-	28	54	-
Koch Oil Sands Operating ULC	0.0%	0	36	-	24	-	29	66	-
XTO Energy Canada	0.0%	-	37	-	24	-	31	-	-
Bering Exploration Company ULC	100.0%	-	37	-	24	-	31	470	11
Murphy Oil Company Ltd.	0.0%	-	37	-	24	-	31	-	-
Perpetual Operating Corp.	100.0%	-	37	-	24	-	31	382	5

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

<b>Company</b>	<b>Gas cons</b>	<b>Gas flared + vented (1000 m<sup>3</sup>)</b>	<b>Gas flared + vented rank</b>	<b>Gas flared (1000 m<sup>3</sup>)</b>	<b>Flare rank</b>	<b>Gas vented (1000 m<sup>3</sup>)</b>	<b>Vent rank</b>	<b>Oil prod (m<sup>3</sup>)</b>	<b>Sol'n gas prod (1000 m<sup>3</sup>)</b>
Virginia Hills Oil Corp.	100.0%	-	37	-	24	-	31	116	4
Cequence Energy Ltd.	0.0%	-	37	-	24	-	31	-	-
Devon Canada Corporation	0.0%	-	37	-	24	-	31	-	-
CNPC International (Canada) Ltd.	0.0%	-	37	-	24	-	31	-	-
NAL Resources Limited	0.0%	-	37	-	24	-	31	-	-
Border Petroleum Limited	0.0%	-	37	-	24	-	31	-	-
Crimson Oil & Gas Ltd.	100.0%	-	37	-	24	-	31	3,439	143
Cote Resources Ltd.	0.0%	-	37	-	24	-	31	-	-
Manitok Energy Inc.	0.0%	-	37	-	24	-	31	-	-
Accurate Energy Solutions Ltd.	0.0%	-	37	-	24	-	31	-	-
Gulf Canada Limited	0.0%	-	37	-	24	-	31	-	-
Laricina Energy Ltd.	0.0%	-	37	-	24	-	31	-	-
Kaisen Energy Corp.	0.0%	-	37	-	24	-	31	-	-
Sabanero Energy Corp.	0.0%	-	37	-	24	-	31	-	-
1852797 Alberta ULC	0.0%	-	37	-	24	-	31	-	-
Stout Energy Inc.	0.0%	-	37	-	24	-	31	-	-
Georox Resources Inc.	100.0%	-	37	-	24	-	31	1,079	50
<b>Totals for Slave Lake</b>	<b>82.8%</b>	<b>145,658</b>		<b>129,160</b>		<b>16,500</b>		<b>7,782,356</b>	<b>844,884</b>

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

**Field Centre Ranking of Operators – 2017 Flared + Vented Volume<sup>1</sup>**

**Wainwright Crude Oil and Crude Bitumen Batteries for Alberta**

**Run Date: Apr 7, 2018**

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Husky Oil Operations Limited	74.0%	25,153	1	1,571	8	23,582	1	1,076,308	96,854
Canadian Natural Resources Limited	88.3%	22,782	2	688	15	22,094	2	1,039,129	194,171
Karve Energy Inc.	74.8%	16,743	3	14,814	1	1,929	7	255,573	66,522
West Lake Energy Corp.	85.2%	7,378	4	6,253	2	1,125	8	394,568	49,914
Cardinal Energy Ltd.	67.4%	6,759	5	1,712	7	5,048	4	308,759	20,756
Gear Energy Ltd.	83.8%	5,924	6	-	55	5,924	3	162,644	36,622
Repsol Oil & Gas Canada Inc.	80.4%	4,961	7	2,439	4	2,522	6	466,738	25,256
Devon Canada Corporation	80.7%	4,437	8	-	55	4,437	5	128,049	23,048
Rifle Shot Oil Corp.	1.9%	2,684	9	2,683	3	-	67	110,745	2,736
Cleo Energy Corp.	62.5%	2,347	10	2,333	5	15	52	65,477	6,261
Surge Energy Inc.	93.9%	2,139	11	1,970	6	169	23	319,719	34,915
Raging River Exploration Inc.	78.4%	1,593	12	1,454	9	139	26	7,978	7,364
Harvest Operations Corp.	93.5%	1,527	13	1,086	11	441	12	131,778	23,646
Prairie Provident Resources Canada Ltd	60.7%	1,347	14	948	12	399	13	29,504	3,432
Toro Oil & Gas Ltd.	81.2%	1,245	15	1,121	10	124	30	18,914	6,625
Caltex Resources Ltd.	86.0%	1,165	16	784	14	381	15	198,688	8,296
Crescent Point Energy Corp.	95.6%	996	17	900	13	97	35	50,415	22,582
Crew Energy Inc.	84.9%	937	18	25	41	913	9	52,886	6,227
Tamarack Acquisition Corp.	98.1%	846	19	307	24	539	10	148,278	45,234
High Ground Energy Inc.	98.8%	755	20	475	17	280	19	62,635	60,828
Long Run Exploration Ltd.	76.2%	682	21	452	18	229	21	7,326	2,864
Fort Calgary Resources Ltd.	59.0%	666	22	306	25	359	17	5,747	1,623
Bow River Energy Ltd.	87.1%	634	23	630	16	5	57	80,826	4,899
Rolling Hills Energy Ltd.	98.3%	616	24	317	22	299	18	51,366	36,926
Perpetual Operating Corp.	95.9%	517	25	-	55	517	11	57,309	12,672
SanLing Energy Ltd.	93.9%	408	26	281	26	128	28	11,138	6,655
Pismo Energy Ltd.	71.4%	395	27	-	55	395	14	15,572	1,382
Rife Resources Ltd.	92.3%	392	28	23	42	369	16	42,462	5,099
Verity Energy Ltd.	0.0%	360	29	360	19	-	71	510	360
RON Resources Ltd.	69.0%	359	30	357	20	2	60	1,700	1,160
Sun Century Petroleum Corporation	41.2%	344	31	342	21	2	61	6,285	584
Deltastream Energy Corporation	80.9%	334	32	146	31	188	22	15,907	1,747
Rockeast Energy Corp.	9.1%	317	33	317	23	-	71	42,774	349
Goldenkey Oil Inc.	48.8%	297	34	190	29	108	32	709	581
Venturion Oil Limited	98.0%	290	35	139	33	150	24	160,045	14,752
Novus Energy Inc.	93.7%	259	36	259	27	-	71	1,955	4,136
Kaisen Energy Corp.	89.1%	253	37	-	55	253	20	8,654	2,320
Dark Warrior Resources Ltd.	56.4%	249	38	185	30	64	38	6,183	570
Enerplus Corporation	95.0%	239	39	201	28	38	44	131,472	4,809
Bering Exploration Company ULC	96.4%	185	40	146	32	40	43	27,110	5,198

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas cons	Gas flared + vented (1000 m <sup>3</sup> )	Gas flared + vented rank	Gas flared (1000 m <sup>3</sup> )	Flare rank	Gas vented (1000 m <sup>3</sup> )	Vent rank	Oil prod (m <sup>3</sup> )	Sol'n gas prod (1000 m <sup>3</sup> )
Obsidian Energy Ltd.	99.2%	166	41	19	44	147	25	26,480	20,130
Canuck North Resources Ltd.	0.0%	152	42	17	45	136	27	1,019	152
Aeraden Energy Corp.	89.7%	142	43	42	38	100	33	6,721	1,374
Westdrum Energy Ltd.	58.2%	126	44	32	39	95	36	851	302
Marlboro Energy Ltd.	84.6%	126	45	1	53	125	29	4,147	818
Devon Canada	76.3%	111	46	-	55	111	31	1,415	469
Altura Energy Inc.	99.0%	109	47	109	34	-	71	38,926	10,460
Taku Gas Limited	61.6%	107	48	10	49	98	34	3,862	280
Enercapita Energy Ltd.	51.6%	90	49	58	36	33	46	555	186
Topanga Resources Ltd.	38.9%	79	50	-	55	79	37	2,453	129
Elcano Exploration Inc.	0.0%	63	51	63	35	-	71	981	63
Top Oil Production Ltd.	97.1%	52	52	-	55	52	39	4,504	1,793
Sequoia Operating Corp.	97.8%	46	53	-	55	46	40	2,894	2,076
Zargon Oil & Gas Ltd.	98.2%	45	54	44	37	1	64	23,049	2,451
NVP Exploration Inc.	0.0%	43	55	27	40	16	49	113	43
Petrocapita GP I Ltd.	95.5%	43	56	1	52	42	42	17,878	944
Response Energy Corporation	0.0%	43	57	-	55	43	41	1,596	43
Barcomp Petroleum Ltd.	0.0%	33	58	-	55	33	45	6,133	33
Canadian Oil & Gas International Inc.	98.9%	31	59	7	50	24	47	4,095	2,928
Spur Petroleum Ltd.	99.5%	23	60	-	55	23	48	5,208	5,039
Jast Energy Ltd.	79.9%	20	61	20	43	-	71	1,463	99
Forent Energy Ltd.	48.9%	19	62	15	47	4	58	3,320	37
Rally Canada Resources Ltd.	91.2%	17	63	17	45	-	71	1,122	188
Baytex Energy Ltd.	78.1%	16	64	-	55	16	50	4,318	72
611890 Alberta Inc.	0.0%	16	65	-	55	16	51	1,740	16
Croverro Energy Ltd.	0.0%	12	66	-	55	12	53	484	12
Ghost River Resources Inc.	99.0%	10	67	10	48	-	71	6,500	1,002
Incipient Exploration Ltd.	11.9%	10	68	-	55	10	54	2,014	11
Kairos Resources (2011) Ltd.	88.8%	7	69	-	55	7	55	257	59
Pennine Petroleum Corporation	98.2%	6	70	-	54	6	56	699	325
TAQA North Ltd.	96.9%	4	71	-	55	4	59	3,313	116
Roswell Petroleum Corporation	0.0%	2	72	-	55	2	62	725	2
Ener T Corporation	90.0%	1	73	1	51	-	71	3,274	14
Signa Oilfield Canada Inc.	0.0%	1	74	-	55	1	63	136	1
Copper Island Resources Ltd.	0.0%	0	75	-	55	-	65	47	-
Mooncor Energy Inc.	0.0%	0	75	-	55	-	65	352	-
Grand Rapids Petroleum Ltd.	0.0%	0	77	-	55	-	67	124	-
Innes Oilfield Services Ltd.	0.0%	0	78	-	55	-	69	32	-
Unit 18 Corp.	100.0%	0	78	-	55	-	69	12,059	374
Wildcat Rentals Ltd.	100.0%	-	80	-	55	-	71	1,101	6

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.

Company	Gas flared +		Gas flared +		Flare	Gas vented		Vent	Sol'n gas prod	
	Gas cons	vented (1000 m <sup>3</sup> )	vented rank	Gas flared (1000 m <sup>3</sup> )		(1000 m <sup>3</sup> )	rank		Oil prod (m <sup>3</sup> )	(1000 m <sup>3</sup> )
Questfire Energy Corp.	0.0%	-	80	-	55	-	71	-	-	-
Logic Energy Ltd.	100.0%	-	80	-	55	-	71	4,511	944	-
Big Lake Energy Ltd.	0.0%	-	80	-	55	-	71	20	-	-
Wescan Energy Corp.	100.0%	-	80	-	55	-	71	4,885	2,045	-
Five O Oil & Gas Ltd.	100.0%	-	80	-	55	-	71	17	-	1
Zeal Energy Inc.	100.0%	-	80	-	55	-	71	4,860	469	-
Predator Oil Ltd.	0.0%	-	80	-	55	-	71	-	-	-
Cenovus Energy Inc.	0.0%	-	80	-	55	-	71	-	-	-
Gunnarr Resources Inc.	100.0%	-	80	-	55	-	71	980	24	-
Vital Energy Inc.	100.0%	-	80	-	55	-	71	995	8	-
Encana Corporation	0.0%	-	80	-	55	-	71	-	-	-
Kasten Energy Inc.	100.0%	-	80	-	55	-	71	1,232	148	-
Pengrowth Energy Corporation	0.0%	-	80	-	55	-	71	-	-	-
Sahara Energy Ltd.	0.0%	-	80	-	55	-	71	-	-	-
Trident Exploration (Alberta) Corp.	100.0%	-	80	-	55	-	71	31	614	-
Paramount Resources (ACL) Ltd.	0.0%	-	80	-	55	-	71	-	-	-
Twin Butte Energy Ltd.	0.0%	-	80	-	55	-	71	-	-	-
Redwater Energy Corp.	0.0%	-	80	-	55	-	71	-	-	-
Sequoia Resources Corp.	0.0%	-	80	-	55	-	71	-	-	-
Northern Utilities (sask.) Ltd.	100.0%	-	80	-	55	-	71	268	1	-
Marquee Energy Ltd.	100.0%	-	80	-	55	-	71	420	536	-
Broadview Energy Ltd.	100.0%	-	80	-	55	-	71	14,692	3,216	-
Knowledge Energy Inc.	100.0%	-	80	-	55	-	71	186	14	-
Brahma Resources Ltd.	100.0%	-	80	-	55	-	71	1,134	118	-
Sojourn Energy Inc.	0.0%	-	80	-	55	-	71	-	-	-
InPlay Oil Corp.	100.0%	-	80	-	55	-	71	2,271	1,856	-
1316751 Alberta Ltd.	0.0%	-	80	-	55	-	71	-	-	-
Outlier Resources Ltd.	100.0%	-	80	-	55	-	71	4,810	6,858	-
<b>Totals for Wainwright</b>	<b>86.8%</b>	<b>121,285</b>		<b>46,707</b>		<b>74,586</b>		<b>5,941,107</b>	<b>918,874</b>	

<sup>1</sup> Caution is required when comparing with last year's report due to corporate mergers, acquisitions, and divestments.