

Production Dashboard Report Background and Instructions

VERSION 1: July 2024



About the Regulator

The BC Energy Regulator (Regulator) is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.

The Regulator’s core roles include reviewing and assessing applications for industry activity, consulting with First Nations, ensuring industry complies with provincial legislation and cooperating with partner agencies. The public interest is protected by ensuring public safety, protecting the environment, conserving petroleum resources and ensuring equitable participation in production.

Vision, Mission and Values

Vision

A resilient energy future where B.C.’s energy resource activities are safe, environmentally leading and socially responsible.

Mission

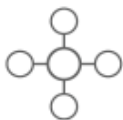
We regulate the life cycle of energy resource activities in B.C., from site planning to restoration, ensuring activities are undertaken in a manner that:



Protects public safety and the environment



Supports reconciliation with Indigenous peoples and the transition to low-carbon energy



Conserves energy resources



Fosters a sound economy and social well-being



Values

Respect is our commitment to listen, accept and value diverse perspectives.

Integrity is our commitment to the principles of fairness, trust and accountability.

Transparency is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation is our commitment to learn, adapt, act and grow.

Responsiveness is our commitment to listening and timely and meaningful action.

Table of Revisions

The Regulator is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the [Energy Professionals](#) section of the Regulator's website. Stakeholders are invited to provide input or feedback on Regulator documentation to Systems@bc-er.ca or submit feedback using the [feedback form](#).

| Version Number | Posted Date | Effective Date | Chapter Section | Summary of Revision(s) |
|----------------|--------------|----------------|-----------------|--|
| 1.0 | July 5, 2024 | July 5, 2024 | Various | This is a new document. Users are encouraged to review this document in full. |

Additional Guidance

As with all Regulator documents, this information does not take the place of applicable legislation. Readers are encouraged to become familiar with the acts and regulations and seek direction from Regulator staff for clarification.

The Regulator publishes both application and operations manuals and guides. The application manual provides guidance to applicants in preparing and applying for permits and the regulatory requirements in the planning and application stages. The operation manual details the reporting, compliance and regulatory obligations of the permit holder. Regulator manuals focus on requirements and processes associated with the Regulator's legislative authorities. Some activities may require additional requirements and approvals from other regulators or create obligations under other statutes. It is the applicant and permit holder's responsibility to know and uphold all legal obligations and responsibilities. For example, Federal Fisheries Act, Transportation Act, Highway Act, Workers Compensation Act and Wildlife Act.

Throughout the manual there are references to guides, forms, tables and definitions to assist in creating and submitting all required information. Additional resources include:

- [Glossary and acronym listing](#) on the Regulator website.
- [Documentation and guidelines](#) on the Regulator website.
- [Frequently asked questions](#) on the Regulator website.
- [Advisories, bulletins, reports and directives](#) on the Regulator website.
- [Regulations and Acts](#) listed on the Regulator website.

Please Note:

This information/tool is provided for general information purposes only. The Regulator accepts no liability for any errors or omissions or for loss or damages incurred by any person or business entity based on the use of this information/tool.

Introduction and Background

The Production Dashboard is an online multipage interactive report that provides comprehensive provincial hydrocarbon production data, displayed across various categories including province-wide, by company, or by basin, enhanced with interactive visualizations. This tool aims to enhance transparency and accessibility of BC's energy resource production data.

Key Features:

- **Navigational Ease:** Users can seamlessly switch between different report sections using navigation buttons. A home button on each page allows for quick returns to the main dashboard.
- **Instructions for Use:** An informational page is available to guide new users on navigating and utilizing the dashboard effectively. Additionally, hover-over "instruction" prompts provide page-specific guidance.
- **Data Updates:** The dashboard leverages live data, ensuring information is current and updated automatically on a monthly basis.
- **Interactive Visuals Include:**
 - Comparative figures and tables for gas, oil, and hydrocarbon liquids production across different years, operators, and basins.
 - Maps pinpointing well locations, basin extents, and operator details.
 - Charts depicting the count of producing wells and newly drilled wells.

The report is refreshed monthly, usually on the 21st or the next business day if on a weekend/holiday.

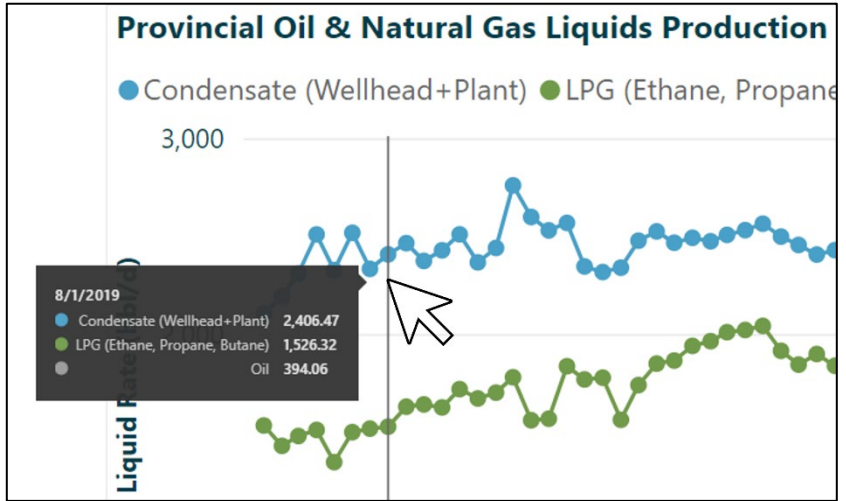
General Instructions

Navigation

Navigation of the report can be done by clicking the tabs at the bottom of the page, or by clicking the page buttons on the Home page. The Home page can be accessed by clicking the Home button at the top right of any page.

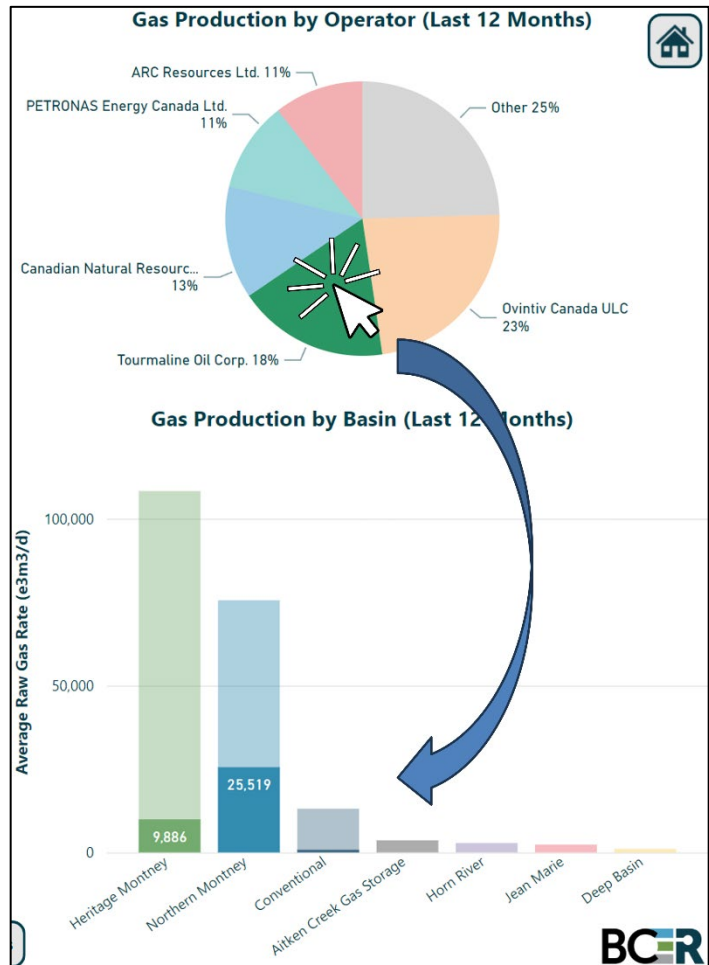
Interactive Visuals

Exact numbers can be determined on nearly every visual by hovering over the item of interest.



Different visuals can be cross-filtered or cross-highlighted. In other words, clicking a category in one chart will highlight or filter some or all of the other visuals on the page. This can be cleared/reset by re-clicking the same category.

Note: Unless explicitly categorized, production from the Aitken Creek Gas Storage project is excluded. Aitken Creek is a depleted oil and gas pool that is now used to store produced gas during the summer when gas demand/prices are low, which is produced in the winter when gas demand/prices are high.



Terms

LPG (Liquified Petroleum Gases) – Includes sales volumes for ethane (C2), propane (C3), and butane (C4) that are removed from raw natural gas at gas processing plants

Raw Gas – Gas volume measured at the wellhead of a gas well. This includes impurities and hydrocarbons liquids, which are mostly removed during gas processing, resulting in market/sales gas.

Market (or Sales) Gas – Gas that has been process at a gas plant, to have impurities and hydrocarbon liquids removed

Shrinkage – The reduction in volume of raw gas, after it is processed into market/sales gas. Usually expressed as a percentage.

Condensate (wellhead condensate) – Hydrocarbon liquids recovered at the wellhead of a gas wells.

Pentanes+ (C5+) – hydrocarbon liquids recovered from raw gas at a gas processing plant that are pentanes or heavier hydrocarbon chains (hexane, heptane, etc.). Sometimes referred to as **plant condensates** and often grouped with condensate as it is usually chemically identical to wellhead condensate.

Basin/Field – Identifies one or more subsurface producing zones, in a defined geographic area.

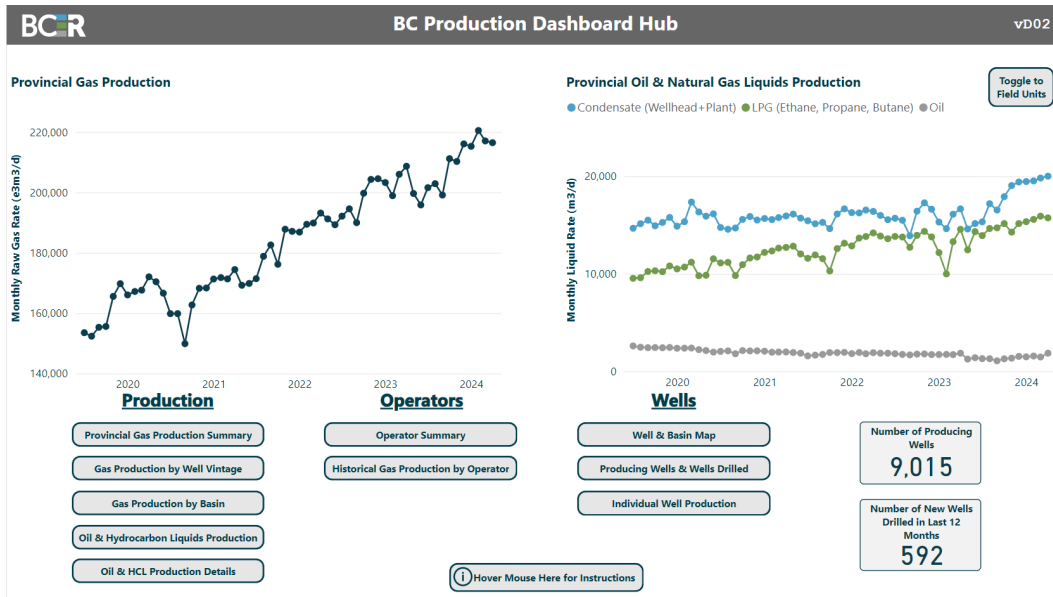
Conventional Field/Basin – This is essentially treated as an “other” category. It contains mostly small mature conventional pools strewn throughout the province. It also does include a very small number of unconventional wells, such as Oak or Two Rivers Montney wells.

BOE (Barrel of Oil Equivalent) – a unit of energy equal to the amount of energy release when a barrel of oil is combusted. It can be used to express amounts of different types of hydrocarbons. Eg. Amounts of gas, propane, and oil can be expressed in BOE.

Page/Tab Descriptions and Guides

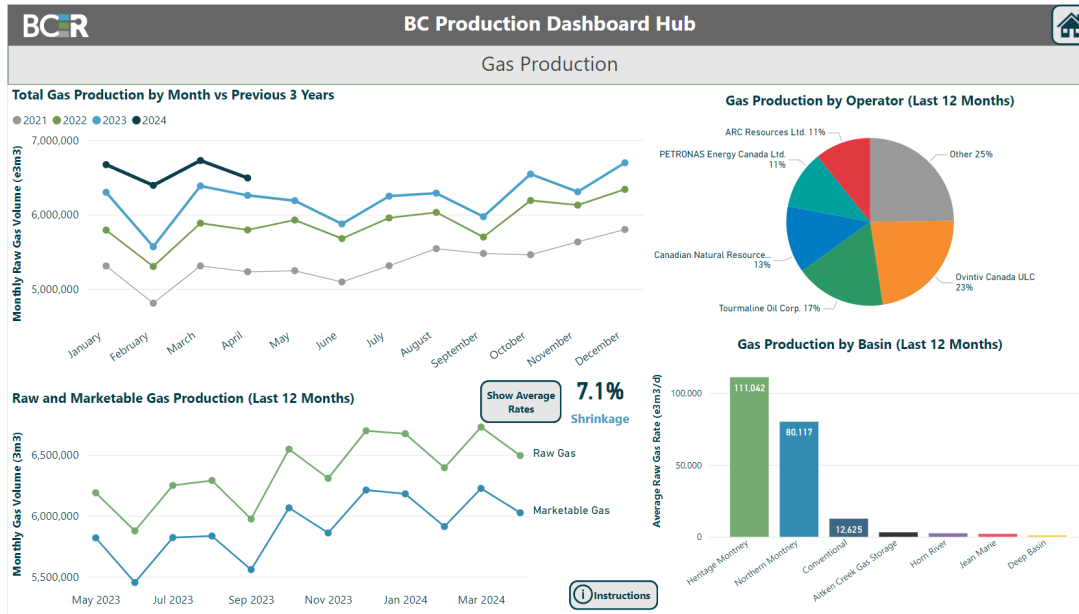
Home Page

Shows charts of raw gas and liquids production rates for the last five years. Can be toggle to either metric or field units with the button at the top right. Note condensates in this chart include both wellhead condensate and pentanes+ (“plant condensate”). Buttons linking to other pages in the report are located below the charts. Hover over the buttons for a brief description of each page. Hover over the Number of Producing Wells box to see a breakdown of which basins/field the producing wells are in.



Gas Production Page

The top left chart shows a comparison of the current calendar year's raw gas production versus the previous three calendar years. The bottom left chart shows the last 12 months of raw and market/sales production of gas. These two charts can be toggled to show daily average rates or monthly total volume. Note monthly totals can be misleading, as some months have less days than others (e.g. February is almost always low, as it only has 28/29 days).



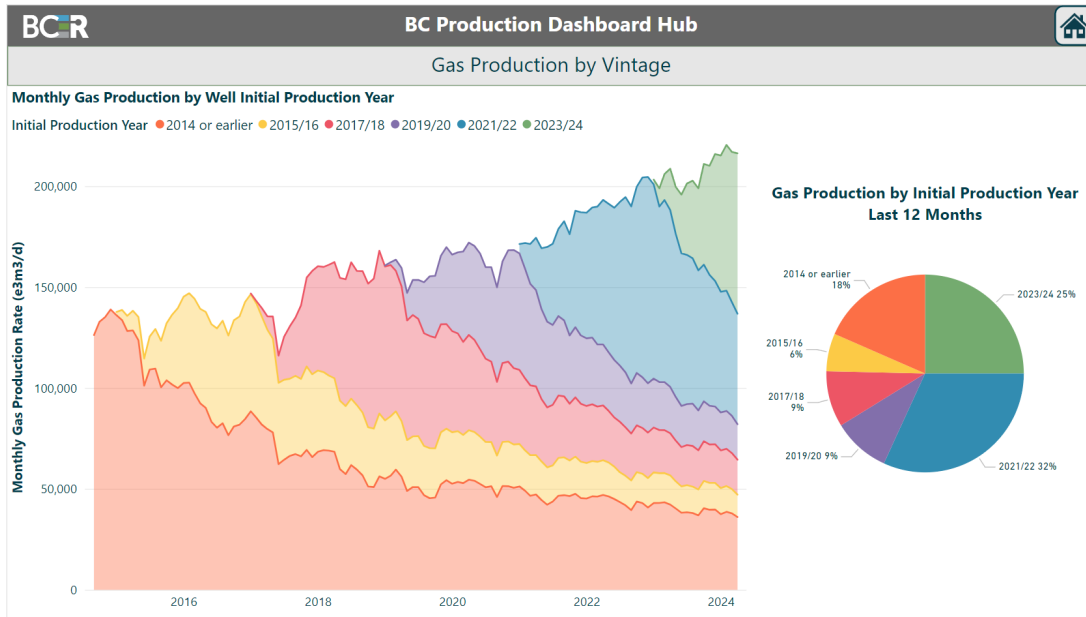
The pie chart in the top right shows gas production by operator/company over the past 12 months. Percentages are shown, but exact numbers (average daily raw gas rate) can be seen by hovering the cursor over the slices of the pie chart. The chart only shows the top 5 operators, with the rest combined into the “Other” category.

The bar chart on the bottom right shows raw gas production by field/basin for the past 12 months, expressed as an average daily rate.

The charts on this page (excluding the top left chart) can interact with each other. For example, click on an operator in the top right and the bottom two charts will update to show just that company. The user can select additional operators by holding CTRL and clicking more. Alternatively, the user can select one or more basins/fields from the bar chart and filter the pie chart and bottom left line chart to those fields.

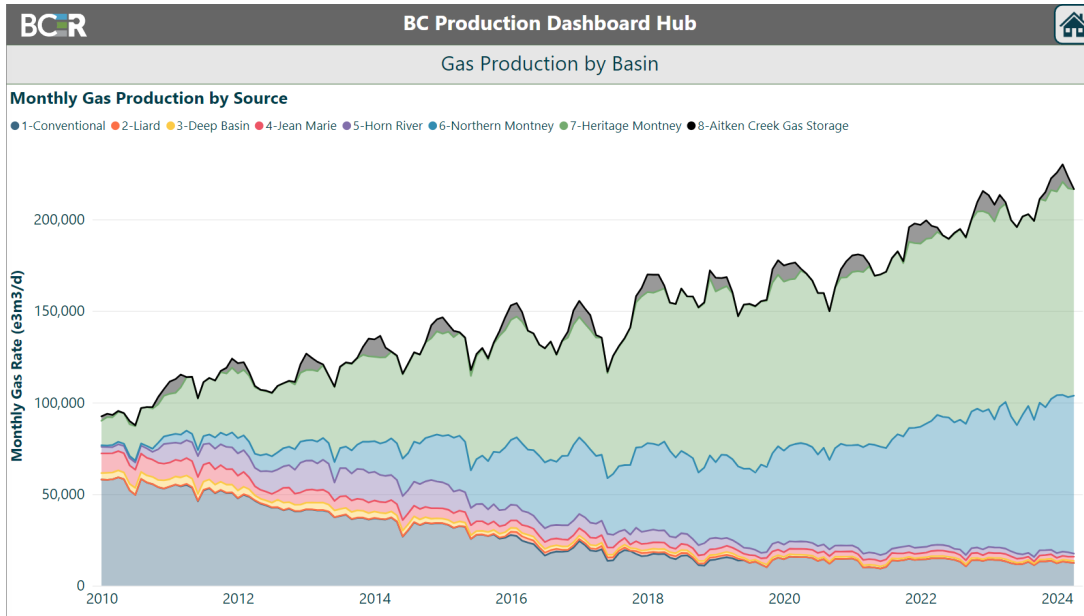
Gas Production by Vintage Page

The chart on the left shows the last 10 years of raw gas production (shown as a daily average rate), coloured by the initial production year of the well producing it (the well’s “vintage”). For example, the gas production that is shown in red is from wells that started production in 2017 or 2018. The pie chart on the right shows how much wells of different vintages contributed to the province’s raw gas production in the last 12 months. This page generally shows that new wells always make up a large amount of production, and then their production drops off steeply afterwards. This is due to the majority of that gas production being sourced from the Montney, a tight unconventional gas play with high decline rates.



Gas Production by Basin Page

This chart shows raw gas production (as a daily average rate) from 2010 onward, coloured by the basin/field from which it was sourced. This shows how the two Montney fields have come to dominate gas production in the province, and the decline of other fields. This chart also shows the contribution of the Aitken Creek gas storage projects, boosting gas production during the winter.

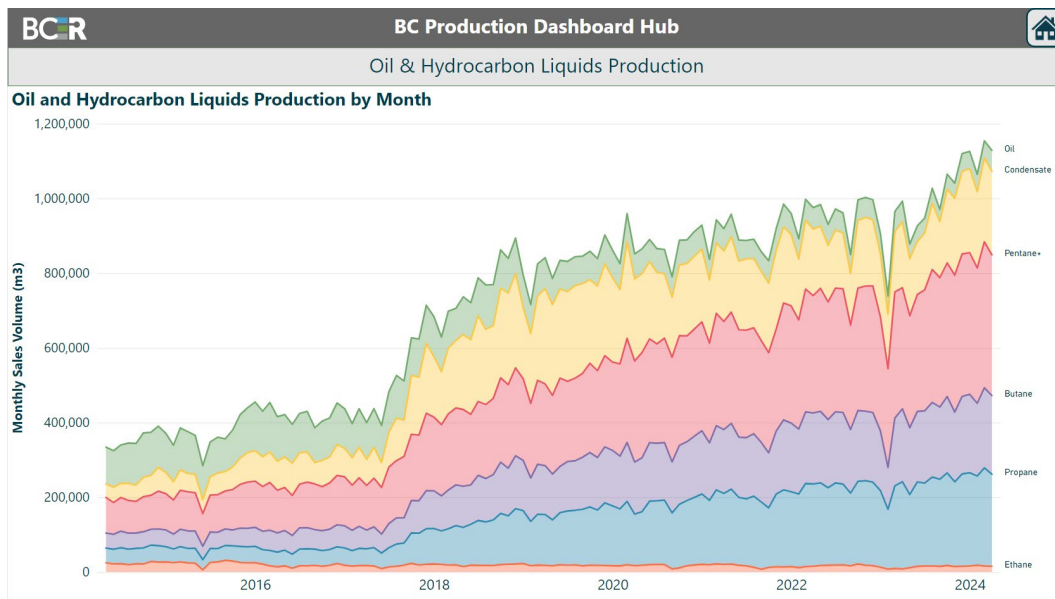


Liquids Products Page

This chart shows monthly sales volumes for the various hydrocarbon liquids produced in the province in the last 10 years. All liquids, except for oil, are recovered from BC's gas wells. All liquids, other than oil and condensate, are extracted from raw natural gas in the province's gas processing plants.

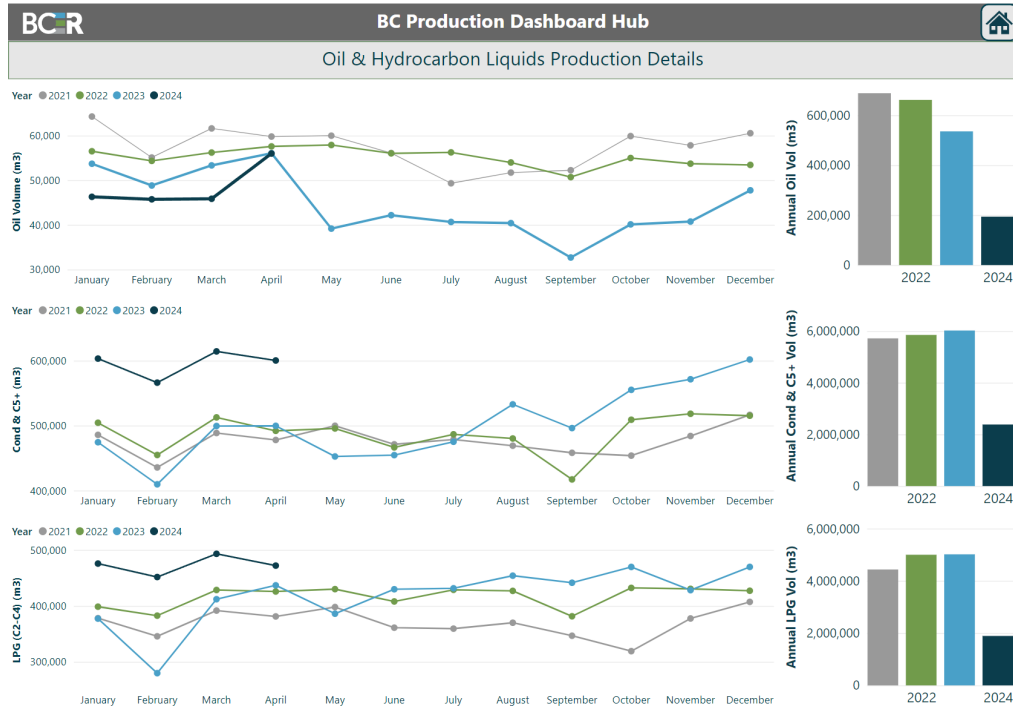
The large jump seen from mid-2017 to late 2018 was driven by Montney operators increased targeting of the hydrocarbon liquids rich areas of the Montney, likely due to commodity price pressures at the time (low gas prices and high oil prices – hydrocarbon liquids prices are generally correlated to oil prices).

Ethane sales have remained low in the province, due to limited deep cut facilities. Much of the ethane produced from BC gas wells remains in gas plant outlet streams, to be extracted in other jurisdictions closer to end markets or is reaching the burner tip.



Liquids Details Page

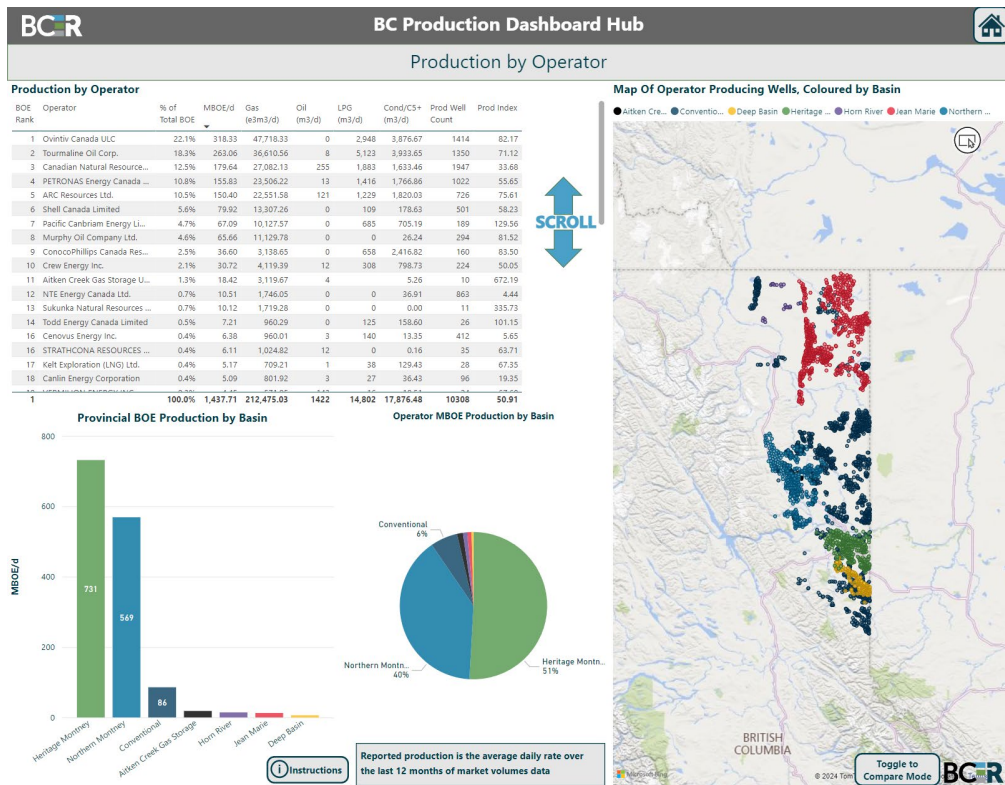
This page shows a comparison of the different categories of hydrocarbon liquids production in the current calendar year versus the previous three calendar years. Oil is shown in the top charts, Condensate and Pentanes+ are grouped and shown in the middle charts, and LPGs are shown in the bottom two charts.

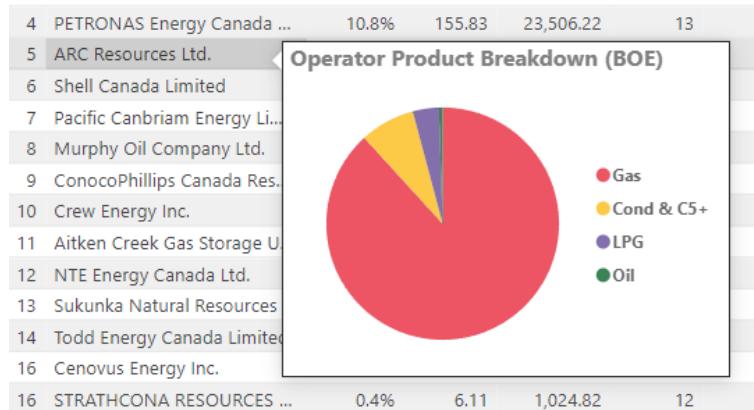


Operators Page

This page provides context around the comparative size and locations of different producing operators (companies) in the province. The table in the top left shows all operators, ordered by their *BOE Rank*^{*}. *BOE Rank* ranks operators by their total BOE production in the last 12 months, including all hydrocarbon products (oil, gas & hydrocarbon liquids). The total BOE for the last 12 months is expressed as an average daily rate (mBOE/d or thousands of BOE/d), and each company's BOE production share of the total provincial BOE production is shown in the *% of Total BOE* column. The production of the various hydrocarbons is displayed in individual columns. The producing well count and *Productivity Index*, total BOE production divided by number of producing wells, is also shown. *Productivity Index* allows for a rough comparison of how productive, on average, a company's wells are.

** Note: There is a bug in PowerBI that causes the RANK function to falsely identify ties. The companies will be sorted properly but two or more companies that do not have the same BOE production may show as the same rank.*



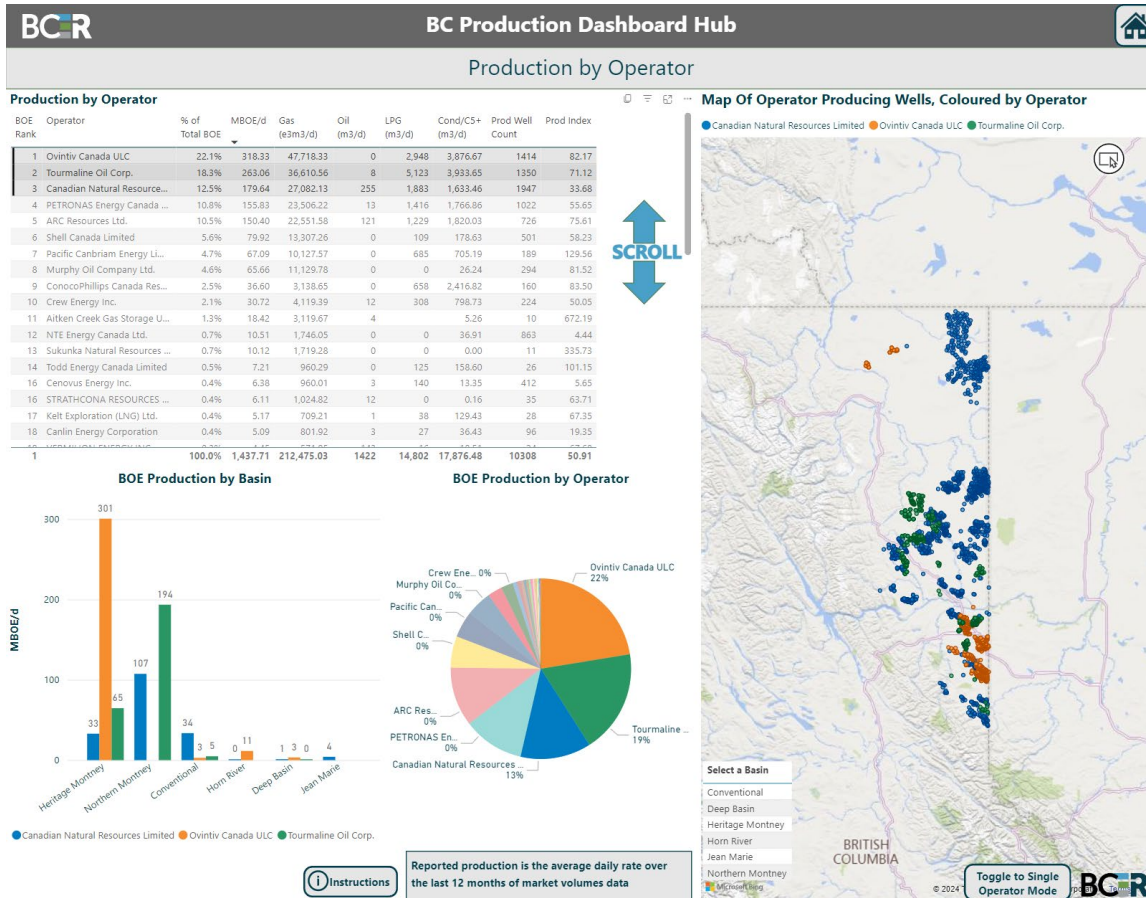


Hovering over a company with the cursor shows a visual breakdown of the contribution of different hydrocarbon products to the company's production on a BOE-basis.

This page has two modes, Single Operator Mode (default) and Comparison Mode, which can be toggled with the button at the bottom right. Single Operator Mode can be used to evaluate a single operator's production whereas Comparison Mode can be used to compared two or more operators.

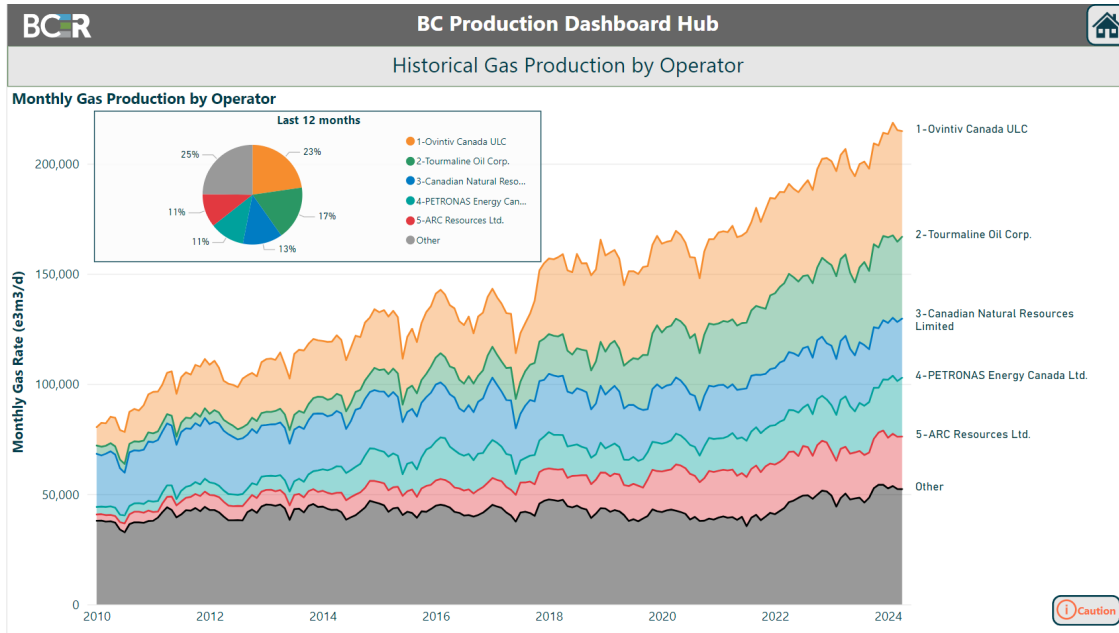
In single operator mode, click an operator in the table to filter the other visuals to that operator. The chart on the bottom left shows the operator's BOE production in the province's major fields, as a fraction of the province's total production (faded bar). The pie chart in the middle bottom of the page shows the operator's BOE production, with each slice representing a different field/basin. Finally, the map on the right shows all the operator's producing wells (in the last 12 months) coloured by their basin/field. The map is interactive and can be panned and zoomed. The user can hover the cursor over a well to see its information.

In Comparison Mode, wells on the map are now coloured by operator. To compare multiple companies, click one, and then hold the CTRL key and click more. The map and two charts will filter to those companies. The user can also compare all companies within just a single field/basin but selecting a field or basin in the table on the bottom left of the map. The bar chart on the bottom left shows the companies BOE production by basin compared, and the pie chart shows the selected companies contribution to the total provincial production.



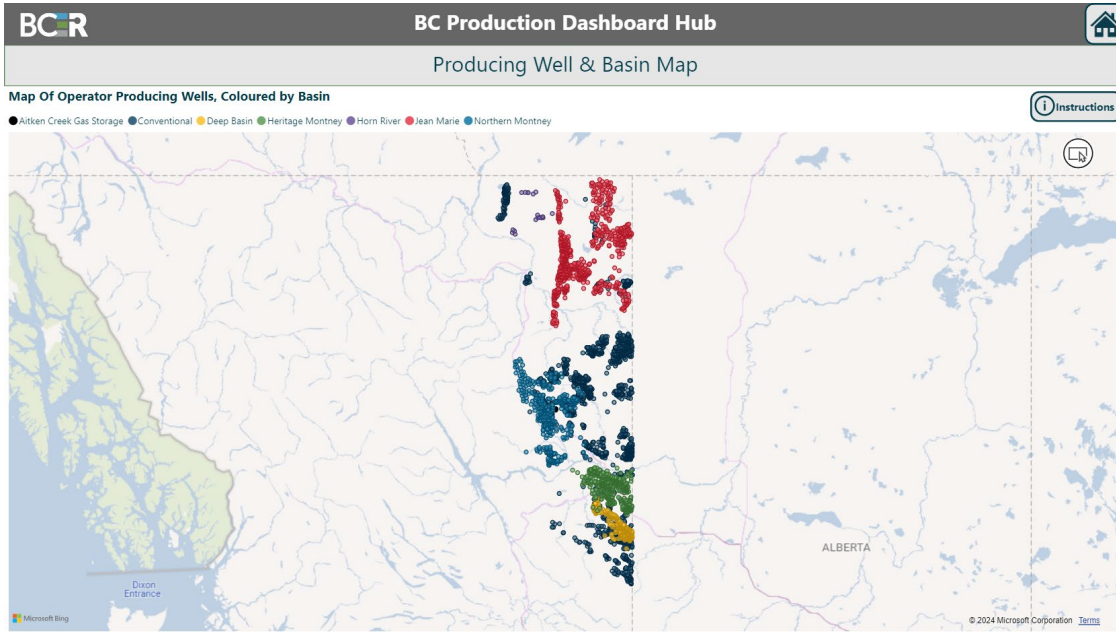
Gas Production by Operator Page

This chart shows average monthly raw gas production by operator/company going back to 2010. Note production in this chart is tallied by **current** well ownership. If a well currently owned by Company A was owned by Company B in the past, historical production for **all** times will show as belonging to Company A. Additionally, an operator's "ranking" by production (i.e., 1 to 5 or other) is not dynamic on this page and must be manually updated, and therefore may not represent the operator's true current "rank".



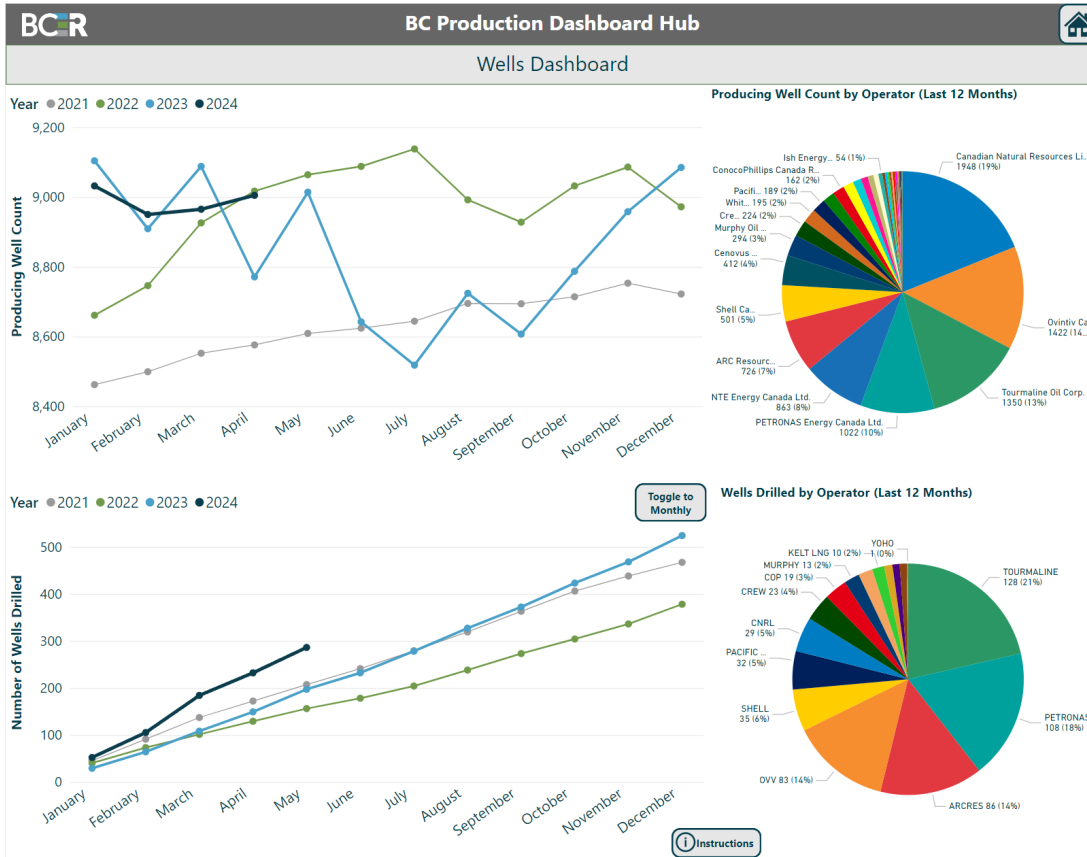
Well and Basin Map Page

This page shows a map of all wells that have produce in the last 12 months, coloured by their basin/field. The map is interactive and can be panned and zoomed. The user can hover the cursor over a well to see its name, producing field and formation, and average production rates over the past 12 months.

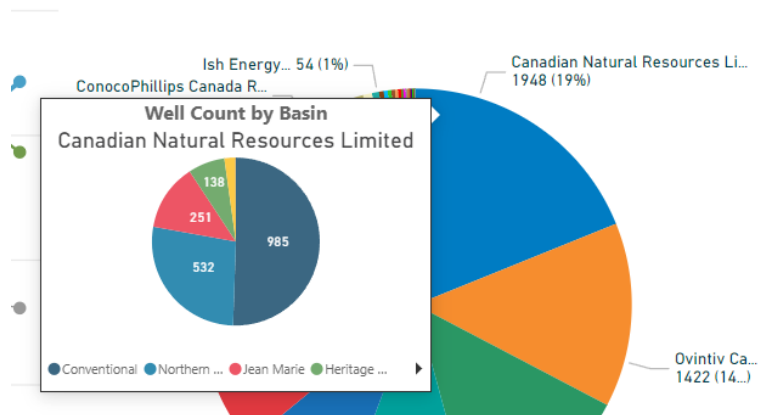


Wells Dashboard Page

The top left chart shows a comparison of the current calendar year's monthly wells on production versus the previous three calendar years. The pie chart on the top right shows the number of producing wells by operator, as well as their percentage of total producing wells. Hover over a slice on this pie chart to see a breakdown of which fields/basins these wells are in. The chart at the bottom left shows the cumulative (i.e. running total) of wells drilled in the current calendar year versus the previous 3 calendar years. The chart can also be toggled to show monthly totals of wells drilled. The pie chart in the bottom right shows how many wells have been drilled by operator, with their percentage of the total also displayed.



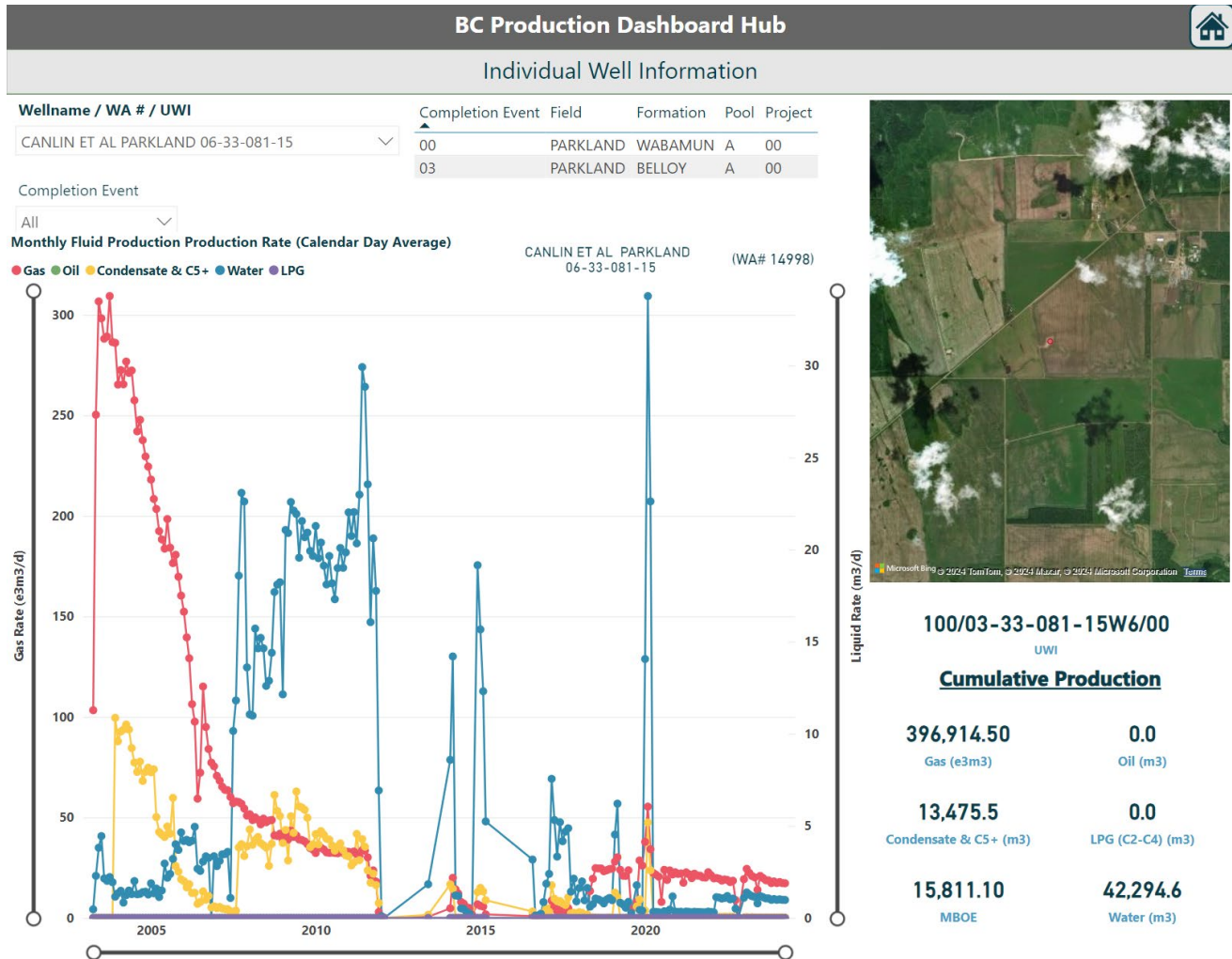
Producing Well Count by Operator (Last 12 Months)



Individual Wells Page

A well can be reached from the *Wellname / WA # / UWI* box at the top left, and can be searched by any of these. Note the list will show the wells by Wellname, and the WA # and UWI can only be seen by expanding a well name on the list. Note wellnames sometimes have unexpected space characters in them which can hinder searching by wellname.

When a well is selected, the tap in the top middle will show all of the wells completion events, including their field, formation, pool, and project number. A particular completion event can be selected to further filter this page. The large chart shows the production of all fluids. Note the black bars along each axis can be used to zoom in to a desired range. Cumulative production volumes are shown in the bottom right, and a satellite map showing the wellhead location can be found in the top right.



Downloading Data

Most of the raw production data utilized by this report can be downloaded from the BC Total production report.

The processed/structured/aggregated data shown in the various chart is unfortunately not possible to download.

If you have questions regarding this tool, please contact:

Logan Gray, P.Eng.
Reservoir Engineer
Logan.Gray@bc-er.ca
250-419-4465