

Water Used in Energy Resource Activities



Why is Water Used?

Water use is necessary during the development of energy resource activities. The largest use of water is for [hydraulic fracturing](#), which involves injecting water underground at high pressure to create fractures in a target rock formation, allowing natural gas to flow to the wellbore. Water is also used for drilling, washing machinery, dust control, hydrostatic testing and freezing ice roads.



How Much Water is Used?

The BC Energy Regulator (BCER) requires industry to submit quarterly water use data, made available to the public on the BCER's [Reports](#) webpage.

Overall, cumulative freshwater use by industry accounts for approximately 0.004 per cent of total volume of mean annual runoff in northeast B.C. (NEBC), the heart of oil and natural gas production in the province.

Companies are continually seeking ways to reduce freshwater use by including sources such as recycled hydraulic fracturing flowback water and the use of unpotable water from deep wells.

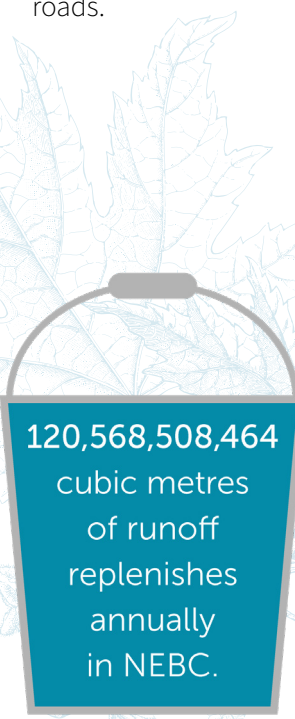


How is Water Managed?

The BCER is responsible for regulating water used for energy resource activities in the province. The overall goal is to ensure the water needs of the environment and other users are addressed before allocating water for industry use.

Water use from surface water and groundwater is permitted to operators through short-term water use approvals and water licences (longer term) of both surface water and groundwater resources.

The BCER considers a number of key points when reviewing water use applications, such as streamflow in rivers, groundwater aquifer productivity, other water users and ecological values. Conditions may be attached to the licence or approval and we can and do suspend industry water use in times of drought.



120,568,508,464
cubic metres
of runoff
replenishes
annually
in NEBC.

How much water was used by energy resource activities in NEBC in 2023?

From that, 34,462,387 m³ was permitted for use via licences . . .

and 12,572,525 m³ was permitted via short-term approvals.

At year end, 4,582,025 m³, or 9.7% of permitted volumes, was actually withdrawn...

Equivalent to
0.004%


of annual runoff.

Outside of NEBC, only 2.4 per cent of water permitted for use was withdrawn, totalling 1,459,960 m³. Our quarterly Water Management Summaries detailing short-term water use approvals and long-term licences are available on our [Reports webpage](#).

What is New at the BCER?

In an effort to increase transparency for statutory decision-makers, public and industry and to manage the cumulative effects of water use, we collaborated with government partners to develop regional map-based water tracking tools (e.g., the Northeast Water Tool), housed at bcwatertool.ca.

The tools provide guidance on water availability across NEBC, support the decision-making process for water use approvals and licences and provide public access to a wide range of water-related information in B.C.



The BCER is currently monitoring streamflows at six hydrometric locations across NEBC, with funding for the project provided by the [BC Oil and Gas Research and Innovation Society \(BC OGRIS\)](#). The goal is to collect streamflow and water level information on smaller streams to supplement data collected on larger rivers through the [Water Survey of Canada](#), while facilitating capacity building for Treaty 8 First Nations through ongoing participation in these monitoring activities. This data supports responsible water resource management and is available through the [BC Water Portal](#) and [Aquarius](#).

To learn about the BCER's major water management basins in NEBC, and to view water use withdrawal locations like in the example at right, check out our [online Data Narratives webpage](#).

How Do We Proactively Regulate?

The BCER has the legislative authority to make decisions on proposed energy resource activities. While we do not set policy, the diverse expertise and experience of BCER staff provides critical insight at every level of energy resource development. This knowledge base provides perspective through scientific evidence, guidance, best practices, reports, tools and analysis.

Companies looking to explore, develop, produce, and market oil and natural gas resources in B.C. must apply to the BCER. We then review, assess and make decisions on these applications. This consolidated single-window authority provides not only a one-stop place for all oil and natural gas and associated activity requirements, but a consistent application, decision, regulatory and compliance authority. Stakeholders work with one agency; therefore, the BCER serves the public interest by having an all encompassing review process for these energy resource activities.



Water Use Withdrawal Locations

As a point in time example, at the end of 2023, there were 725 approved short-term water withdrawal locations (green dots) and 132 (longer term) approved/licenced water withdrawal locations (blue dots).