



BC's Energy Transition

What We Regulate

The British Columbia Energy Regulator (BCER) is the agency responsible for overseeing the full life cycle of energy resource activities in the province from exploration and site planning, through development and pipeline transportation to final site restoration.

Until recently, our responsibilities included natural gas, oil and aspects of geothermal resources. In late 2022 our mandate expanded to include carbon capture and storage (CCS), and facilities that manufacture hydrogen, ammonia and methanol and the associated pipelines.

This representative sample of projects provides a glimpse into the projects the BCER could regulate under its new authority, with explanations of how each energy activity operates. If there are project specific questions regarding jurisdiction, please refer to the Energy Resource Activities Act and contact our Energy Transition Team at energy.transition@bc-er.ca.

For more information about the BCER, go to BC-ER.CA.

1 ELECTROLYSIS HYDROGEN

- This manufacturing facility depicts a renewable firming scheme, meaning it generates renewable power when it's able and stores the energy for later use.
- Renewable power generation is intermittent in nature. It's dependent on wind and solar power (sometimes the sun is hidden, and sometimes there's no wind blowing).
- One way to store energy for use on an electricity grid is by making hydrogen, storing it in its compressed form, then turning it back into electricity to feed the grid when needed.
- Note: this facility is connected to the electricity grid and electricity consumers. Generally, these areas do not fall under the BCER's jurisdiction (indicated by white coloured infrastructure).

2 HYDROGEN

- This manufacturing facility depicts a natural gas pipeline feeding two possible processes:
 - **Steam methane reformer units** use high temperature steam to react with methane to produce hydrogen, carbon monoxide, and carbon dioxide.
 - **Pyrolysis units** make hydrogen by heating organic material in the absence of oxygen to break apart the molecules (into hydrogen and solid carbon). This process is not electrolysis.
- Air discharge is shown with this facility. Each project must be analyzed to determine if an air discharge permit is required (it is anticipated not all facilities will require this kind of permit).
- Hydrogen manufactured at this kind of facility could go into a hydrogen pipeline which would be regulated by the BCER.
- Alternatively, the hydrogen could be loaded for transport by road or rail via loading arms or hoses. Like oil and gas facilities, BCER jurisdiction ends at the end of the loading arm or hose. Once transferred into any kind of transportation vehicle, it is beyond our jurisdiction.

3 METHANOL

- This manufacturing facility does not show a specific manufacturing pathway; there are several ways of making methanol and this depicts a generic facility.
- A methanol pipeline is shown leaving the facility which would fall within our jurisdiction.

4 ELECTROLYSIS HYDROGEN

- At this manufacturing facility, electrolysis uses an electric current to split water into hydrogen and oxygen.
- Operators may approach the municipality for water, or request permission from the BCER to withdraw water from the environment. We have authority to permit water use for this type of activity under the Water Sustainability Act.
- Hydrogen electrolyzers require 'ultrapure' water for this process. This requires impurities be reduced or removed from the water through a treatment process, resulting in some wastewater.
- Operators may seek approval to discharge wastewater to the environment or municipal sewer system. Generally, the impurities in the wastewater (e.g. minerals) were present in the water at the time of withdrawal, regardless of source (municipal or environmental). In most cases, new contaminants are not introduced in the water treatment processes required for electrolysis.
- Discharged water must meet water quality objectives respective to the protection of the environment and human health. Discharged water is monitored frequently to ensure water quality requirements are being met.
- Municipalities set the quality and volume requirements for wastewater sent to their sewage systems.
- Hydrogen is shown going to a pipeline, loading arms, and in this example, it is connected to a hydrogen vehicle fueling station. Our jurisdiction does not include fueling stations or dispensing equipment. The jurisdiction transition point between a hydrogen manufacturing facility and fueling station situated directly beside each other would need to be defined for each project.

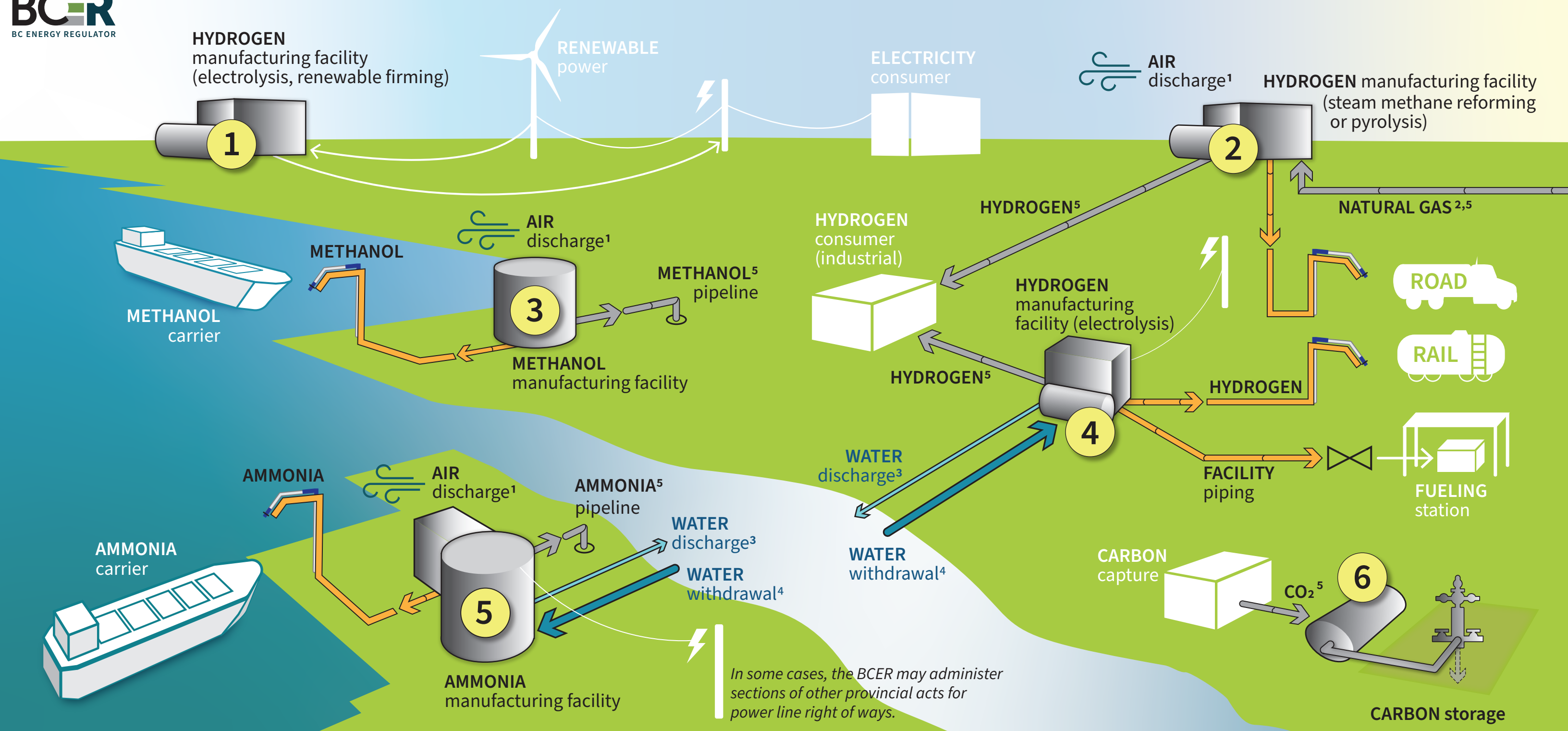
5 AMMONIA

- This manufacturing facility shows electrolysis as the manufacturing pathway for ammonia (since there is current interest in this pathway).
- While not the only way to make ammonia (and not the only type of ammonia the BCER would regulate) it is currently the most discussed option.
- If an ammonia pipeline was proposed in B.C., it would be regulated by the BCER.
- This ammonia facility is depicted on the coast with a loading arm or hose to a marine vessel.
- If other projects proposed loading ammonia onto railcars, the BCER would have jurisdiction up to the end of the loading arm or hose (like the hydrogen manufacturing facility in example #2).

6 CARBON CAPTURE and STORAGE (also called CCS)

- These structures depict a carbon capture facility, carbon dioxide pipeline and an injection facility with associated underground carbon storage.
 - Generally, carbon capture facilities are not under our jurisdiction. The exception is when carbon capture is integrated into an energy resource activity facility.
 - Any carbon dioxide pipeline in B.C. is our jurisdiction.
 - Carbon storage activities are also our jurisdiction.





For discussion purposes only. Proponents or interested parties with questions about a specific project or facility may contact the BCER directly at energy.transition@bc-er.ca.

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LEGEND



FOOTNOTES

- ¹**Air discharge:** outside Metro Vancouver, the BCER is delegated authority under the [Environmental Management Act](#).
- ²**Natural gas (pipeline):** greater than 700 kPa = BCER authority.
- ³**Water discharge:** the BCER is delegated authority under the [Environmental Management Act](#).
- ⁴**Water withdrawal:** the BCER is delegated authority under the [Water Sustainability Act](#).
- ⁵**Other Specified Enactments:** The BCER administers sections of other provincial acts (e.g., Land Act, Heritage Conservation Act, Forest Act). See the BCER's [Legislative Framework](#).