

ARDENODE RENEWABLE NATURAL GAS FACILITY

Open House
August 23, 2022



WELCOME

ARDENODE RENEWABLE NATURAL GAS FACILITY OPEN HOUSE

Please come in to view the display boards, speak with members of EPCOR, its consultants and/or Cattleland Feedyards (key feedstock supplier) and provide your feedback.

Please register inside to receive your free food & drink ticket.

EPCOR ARDENODE RENEWABLE NATURAL GAS FACILITY OPEN HOUSE

Welcome

Thank you for attending the Open House. Please view the display boards, speak with members of EPCOR, GHD (EPCOR's Design Consultant for the Project), Bird (EPCOR's construction contractor for the Project) and/or Cattleland Feedyards (key feedstock supplier and where the Project will be located) to learn more, ask questions and share your thoughts, and complete a short questionnaire providing your feedback.

Please sign in at the front desk to allow us to track attendance and you can ask to receive future Project updates.

Purpose of the Open House

- Inform, consult and engage with members of the community regarding the proposed Project, potential impacts, and proposed mitigations.
- Provide an opportunity for neighbours and the general public to learn about the proposed Project, ask questions, and provide comments.

EPCOR'S COMMITMENT TO YOUR COMMUNITY

EPCOR wants to be a good neighbor. A big part of that is ensuring our communities know what we're doing and have an opportunity to engage with us.

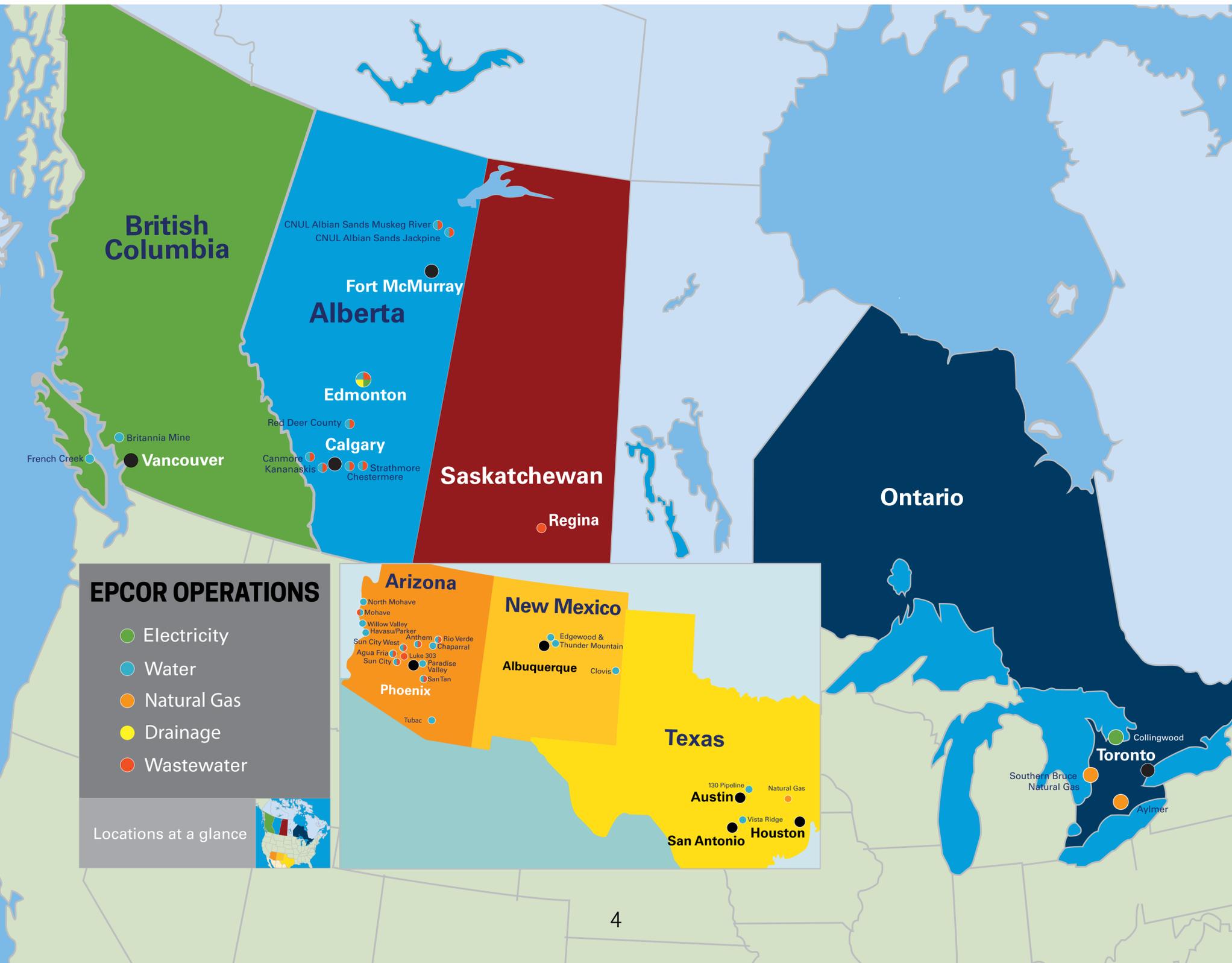
- EPCOR is committed to engaging with communities, regulatory agencies, and members of the public on our projects.
- Our employees work 24/7 to provide essential services to a number of communities.
- We consider environmental stewardship in all that we do.
- As a company, and through our employees, we contribute to the communities where we live and work.

WHO IS EPCOR?

EPCOR builds, owns, and operates electrical, natural gas, and water transmission and distribution networks, water and wastewater treatment facilities, sanitary, and stormwater systems in Canada and the United States. The company also provides electricity, natural gas, and water products and services to residential and commercial customers.

Specifically in southern Alberta, EPCOR operates water and wastewater systems for municipal clients in:

- Strathmore (22 years)
- Chestermere (15 years)
- Red Deer County (21 years)
- Canmore (21 years)
- Kananaskis (8 years)



EPCOR'S MISSION, PRIORITIES & VALUES

Our Mission

To provide clean water and safe, reliable energy.

Our Priorities

We implement our vision and mission through a long term plan that focuses on four strategic priorities:

- **People** - attracting and retaining high-quality employees, supporting our workforce in growing and becoming future leaders, and nurturing a strong culture of engagement.
- **Growth** - through sustaining capital and organic growth in our existing service areas, and business development and acquisitions.
- **Operational excellence** - continually improving health, safety, and environment performance, and seeking efficiencies through scale, business unit synergies, and technology.
- **Communities** - being trusted by our customers and stakeholders, engaging in collaborative and transparent planning, and meeting our commitments to the community.



EPCOR'S PRIORITIES AND VALUES IN PRACTICE

EPCOR Operational Excellence

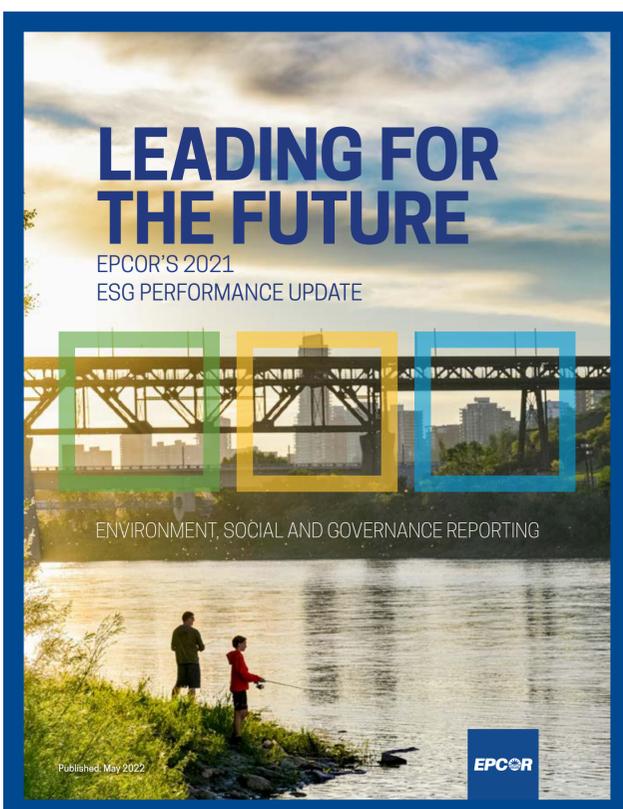
EPCOR has over 130 years of utility experience, serves over two million customers in two countries, four provinces and three states, and is a reliable and responsible owner and operator of over \$13 billion in utility assets.

EPCOR is committed to conducting our business and operations safely and responsibly. Environmental stewardship, public health and community well-being are at the heart of our mission to provide clean water and safe, reliable energy.



EPCOR tracks and reports on a number of Environmental, Social and Governance (ESG) goals. Our ESG goals are derived from reviews of our company's performance and reporting standards, and reflect feedback from stakeholders representing a broad range of interests and experiences.

For more information please visit: www.epcor.com/about/who-we-are-what-we-do/sustainability-report/ or scan the QR code above using your smartphone.



EPCOR'S LONG-TERM PLAN: 2022 PRIORITIES

People – Pandemic response and safe reintegration of employees at facilities; and launch of the Where We Work hybrid work program.

Operational Excellence – Pursuing funding and opportunities for grid transformation; implementing the Advanced Meter Infrastructure Plan for Water Canada; consolidating teams and resources from Water and Drainage in a shared facility; and moving towards the greening of EPCOR's fleet.

Community – Progressing our lead service line replacement program on priority properties in Edmonton; completing projects to green the electricity supply for Edmonton operations; and maintaining effective relationships with our sole shareholder.

Growth – Exploring the potential for a renewable natural gas project at Edmonton's Gold Bar Wastewater Treatment Plant; advancing major water projects in Arizona and Texas; and developing the finance structure for our major projects.

EPCOR IN YOUR COMMUNITY

In 2019, EPCOR commenced a 15-year agreement to sponsor the Strathmore Motor Products Sports Centre. In 2020 and 2021, through the Heart + Soul Fund by EPCOR, we proudly supported the Wheatland Crisis Society, the Wheatland Food Bank, and the Wheatland Society of Arts.



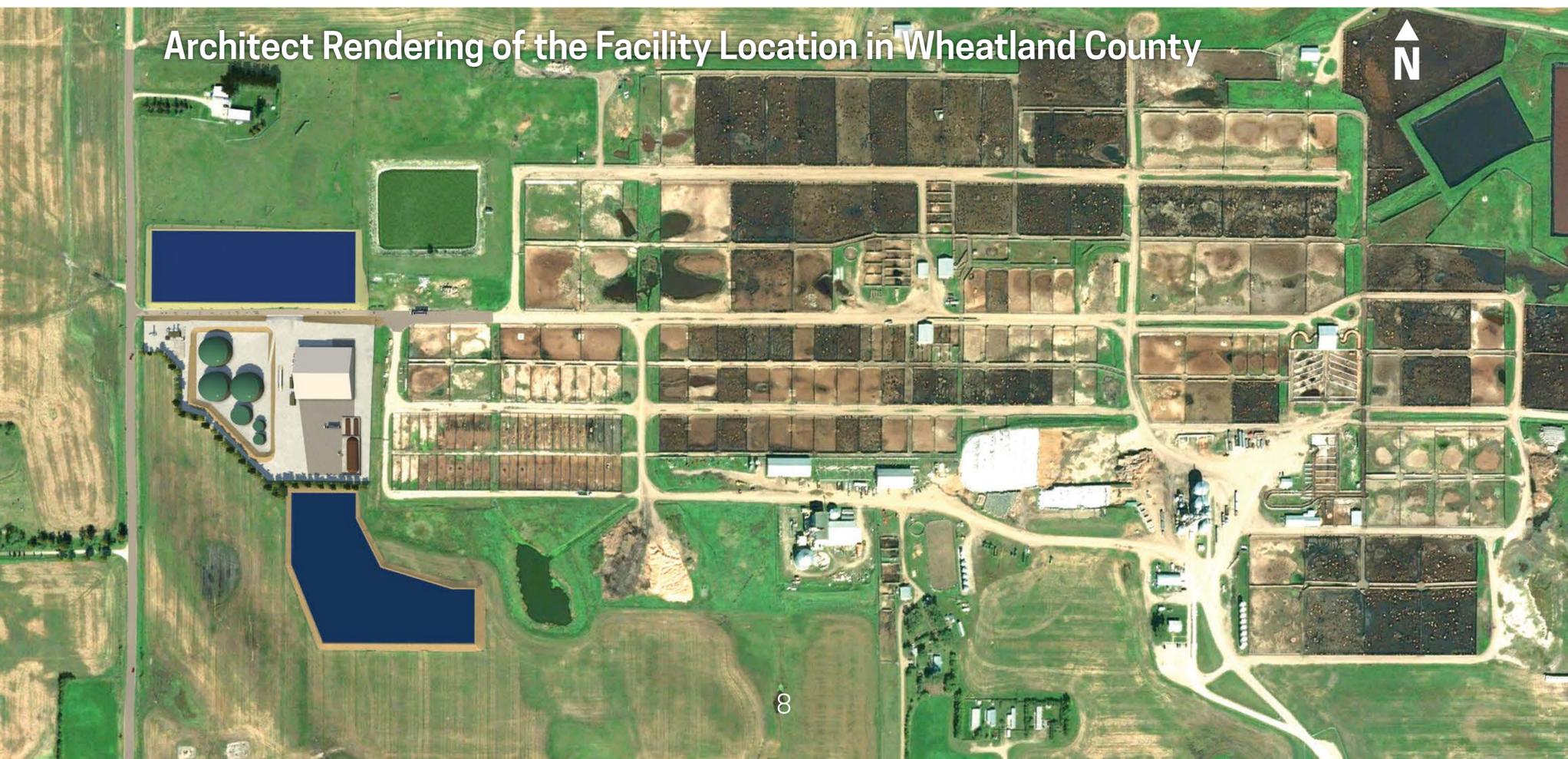
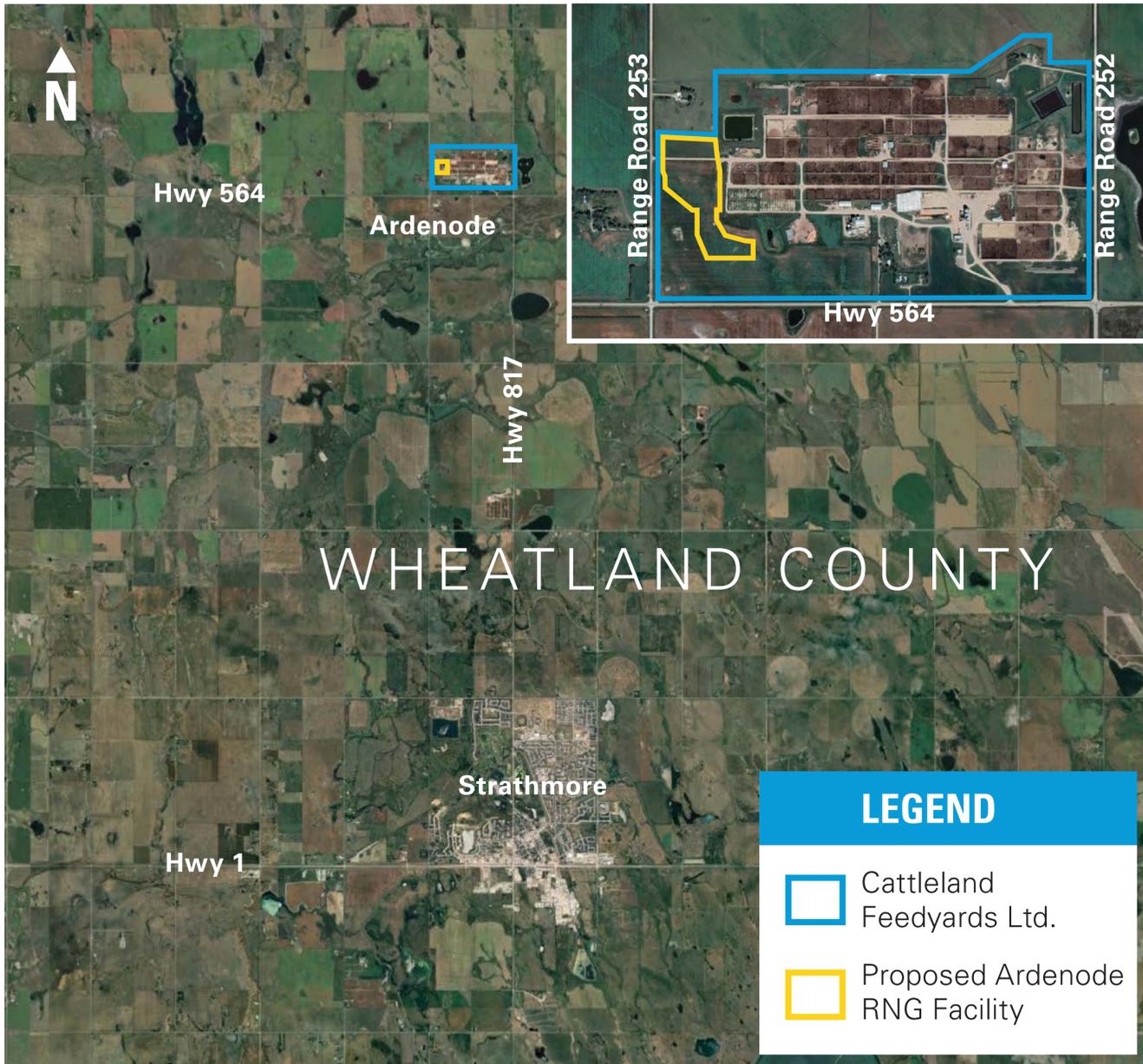
EPCOR as an Employer

EPCOR has more than 3,500 employees and is an Alberta Top 75 employer (since 2006), is among Canada's Top Employers for Young People (since 2012), and is ranked among Corporate Knights' 2021 Best 50 Corporate Citizens in Canada.



FROM FARM TO FUEL

The Ardenode RNG Facility is proposed to be located in Wheatland County, 13km north of Strathmore, Alberta on a 20-acre (8ha) site adjacent to the Cattleland Feedyard at the northeast corner of Highway 564 and Range Road 253.



WHAT WILL THE FACILITY DO?

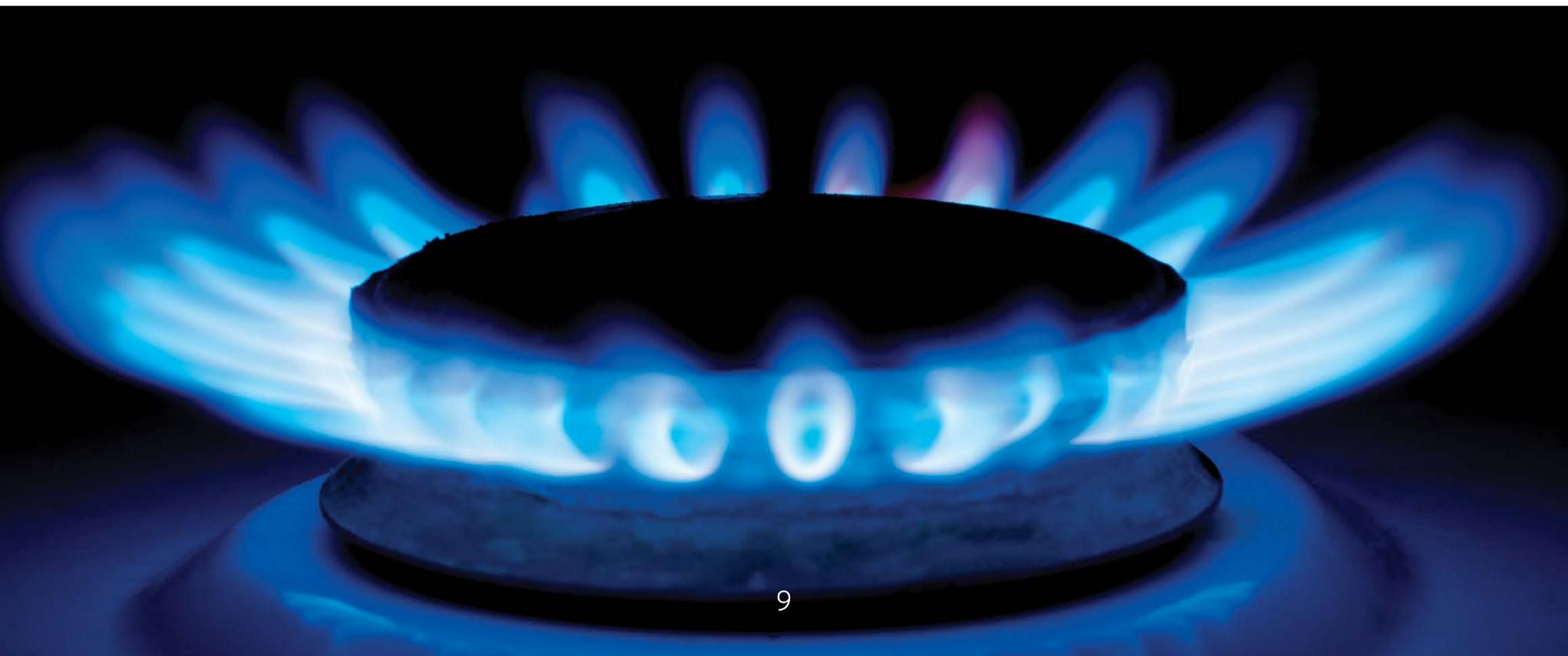
The proposed facility will receive livestock manure from Cattleland Feedyards Ltd., as well as other organics such as fats, oils, and greases from various external sources. The manure and organics (or feedstock) will be fed into anaerobic digesters where bacteria will break down (or digest) them to produce two outputs: biogas and digestate.

The biogas will be captured in the digesters and filtered to remove carbon dioxide (CO₂) and other impurities to produce renewable natural gas (RNG) that meets the specifications for injection into the existing natural gas pipeline system where it will be used just like conventional natural gas. **Biogas is classified as a renewable resource because the production-and-use cycle repeats continuously. The facility will generate no net greenhouse gas (GHG) emissions as it captures methane that would otherwise be emitted into the atmosphere.**

The digestate (solid and liquid material) is a nutrient rich product that will be spread onto agricultural land, as is currently being done with the livestock manure from Cattleland.

WHAT IS RENEWABLE NATURAL GAS?

- RNG is a pipeline-quality gas that is fully interchangeable with conventional natural gas.
- RNG is a biogas that has been cleaned to yield purified methane (biomethane) that can be readily incorporated into natural gas pipelines, making it a promising renewable energy source.
- RNG can be produced through anaerobic digestion of organic materials (or 'feedstocks') including livestock manure, agricultural by-products, commercial organics, and commercial by-products like fats, oils and greases.



ANAEROBIC DIGESTION

- Anaerobic digestion (AD) is a natural process where microorganisms degrade organic matter in the absence of oxygen to produce biogas and digestate.
- AD has the dual advantage of presenting a sustainable process for waste management and production of both renewable energy and nutrient rich digestate, while reducing GHG emissions.
- AD facilities are widely used across the world in municipal, agricultural and agri-food sectors.
- In many parts of Europe, Agricultural AD facilities have been in place for many years; for example, in Germany AD facilities are producing biogas at over 8,000 agricultural sites.
- In Canada there are currently 45 agricultural AD facilities and 126 municipal facilities that produce biogas.
- In the United States there are more than 200 anaerobic digesters safely operating on farms.

EPCOR'S EXPERIENCE WITH ANAEROBIC DIGESTERS, BIOGAS AND NATURAL GAS

- EPCOR operates 11 anaerobic digesters at two sites: Edmonton and Regina.
- EPCOR through its two operated facilities, produces approximately 315,000 GJ of biogas per year.
- EPCOR operates natural gas utilities in Ontario and Texas.



WHAT ARE THE BENEFITS OF THE PROJECT?

EPCOR is proposing to build a facility to capture methane gas from livestock manure and other organic materials, and transform it into renewable natural gas (RNG).

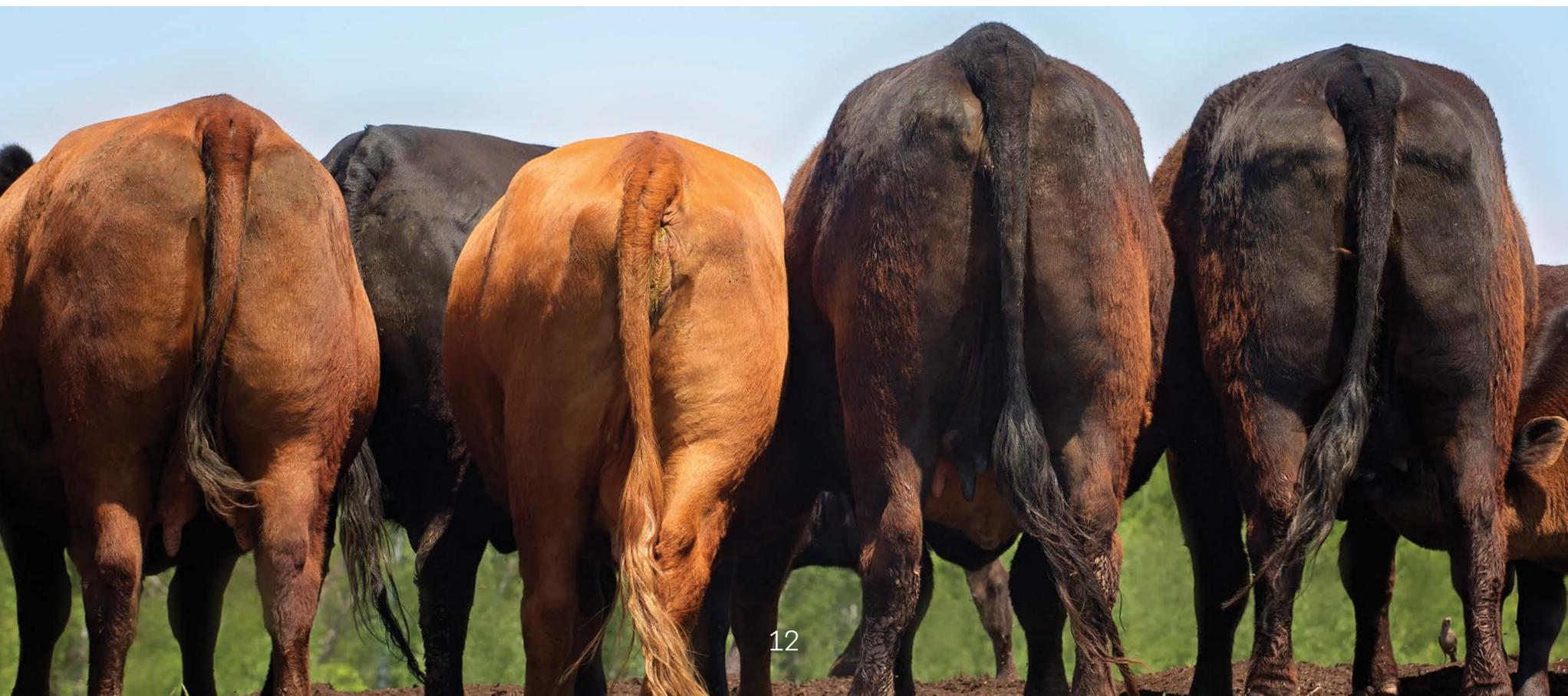
The proposed Project is expected to:

- Generate enough **renewable energy** to heat 3,250 homes (260,000 Gigajoules of RNG per year)
- **Reduce greenhouse gas (GHG) emissions** every year by up to 42,000 tonnes of carbon dioxide equivalent (equivalent to taking over 9,000 vehicles off the road).
- **Create nutrient-rich digestate** that will be used to enrich local farm soil.
- **Create 110,000 hours of short-term employment** during design and construction.
- **Create full-time employment** for three individuals throughout operations.
- **Contribute to provincial and municipal tax revenues.**
- Provide up to **35,000 tonnes of processing capacity** for regional off-farm organic waste that is typically disposed of without benefit, such as fats, oils, and greases.
- Support the **diversification of the energy supply** within Alberta.

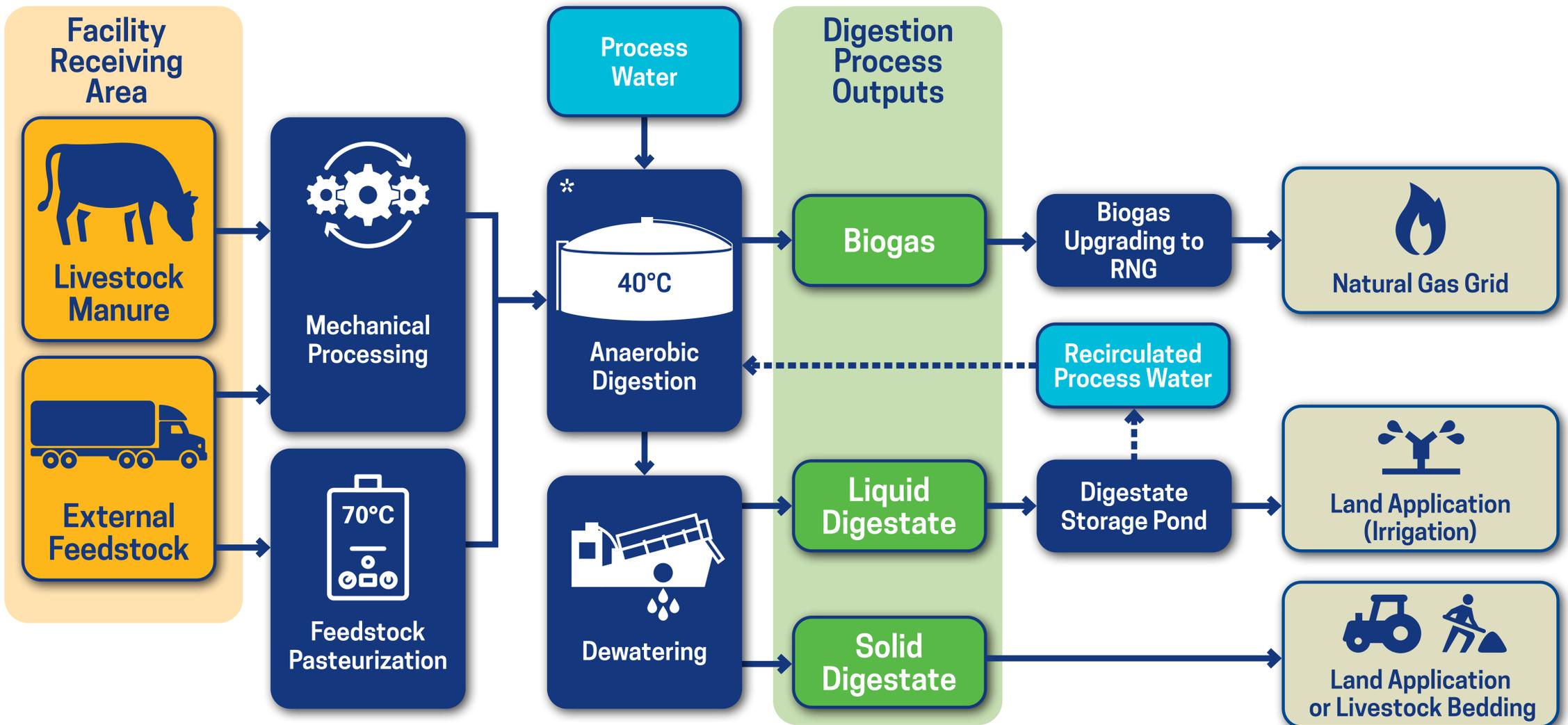
This innovative agro-industrial facility will help support Wheatland County's existing and proposed Municipal Development Plans and will help to showcase Wheatland County as a leader in agro-industrial businesses and renewable energy.

WHAT ARE THE ENVIRONMENTAL BENEFITS?

- This Project will reduce GHG emissions by **capturing methane that would otherwise be released to the atmosphere**, and instead turn it into useable energy.
 - 10% of Canada's greenhouse gas emissions are from crop and livestock production.
 - In livestock production, methane (CH₄) is produced by the decaying manure.
 - Methane traps over 70 times more heat over a 20-year period than the equivalent amount of carbon dioxide, having a greater impact on climate change than CO₂.
- Application of digestate to farmland **reduces the requirement for synthetic fertilizers** which reduce GHG emissions, while providing the benefit of organic matter and other micro nutrients.
- Helps **keep water safe** since the nutrient balanced digestate that is applied to land in place of manure reduces the potential for nutrient loading in water bodies due to more bioavailable and homogenous nutrients.
- Application of digestate has been shown to **increase crop yields and soil health** in Alberta, compared to the application of untreated manure.
- AD facilities help livestock operations to **reduce storage time** for manure, **reduce odours** from land application, and allows for **better management** of pens and land application.
- Implementation of AD as a waste management strategy in conjunction with the livestock sector **decreases the environmental footprint of the industry** and provides sustainable waste and resource management.
- The RNG produced at this facility will be used in place of traditional natural gas and **reduces reliance on fossil fuels**.



THE PROCESS



* indicates environmentally sealed process

Step 1: Collecting Feedstock

Livestock manure will be collected from Cattleland’s pens and transported to the immediately adjacent facility by truck. External feedstock in the form of other organics such as paunch manure, and fats, oils, and greases will also be accepted at the facility (up to 50% of total feedstock). The manure and external feedstock will be temporarily stored at the facility in separate holding tanks or on receiving pads until it is fed into the system.

Step 2: Pasteurization to Remove Pathogens

Some external feedstock will undergo pasteurization where the feedstock will be heated to 70 degrees Celsius, removing potential pathogens from the material before it goes into the anaerobic digestion tanks, similar to what is done to pasteurize milk. To reduce overall energy use, heat from the pasteurizer will be recycled.

Step 3: Feedstock Processing

Manure and solid external feedstock will be fed into the system and blended with liquid external feedstock and process water to create a slurry. Some of the process water required for this step will be recycled from liquid digestate (one of the outputs of the process). The remainder of the required process water is anticipated to be sourced from a water license off the Bow River and delivered to the Project through the Western Irrigation District infrastructure.

Step 4: Anaerobic Digestion

The slurry will be sent to fully enclosed tanks where it will be maintained at 40 degrees Celsius in an oxygen-free environment for up to 65 days. During this step, natural microbiological processes will break down the organic material to produce two products: biogas and nutrient-rich digestate. These fully enclosed tanks are designed to contain the biogas and any odours resulting from the anaerobic digestion process.

Step 5: Upgrading the Biogas

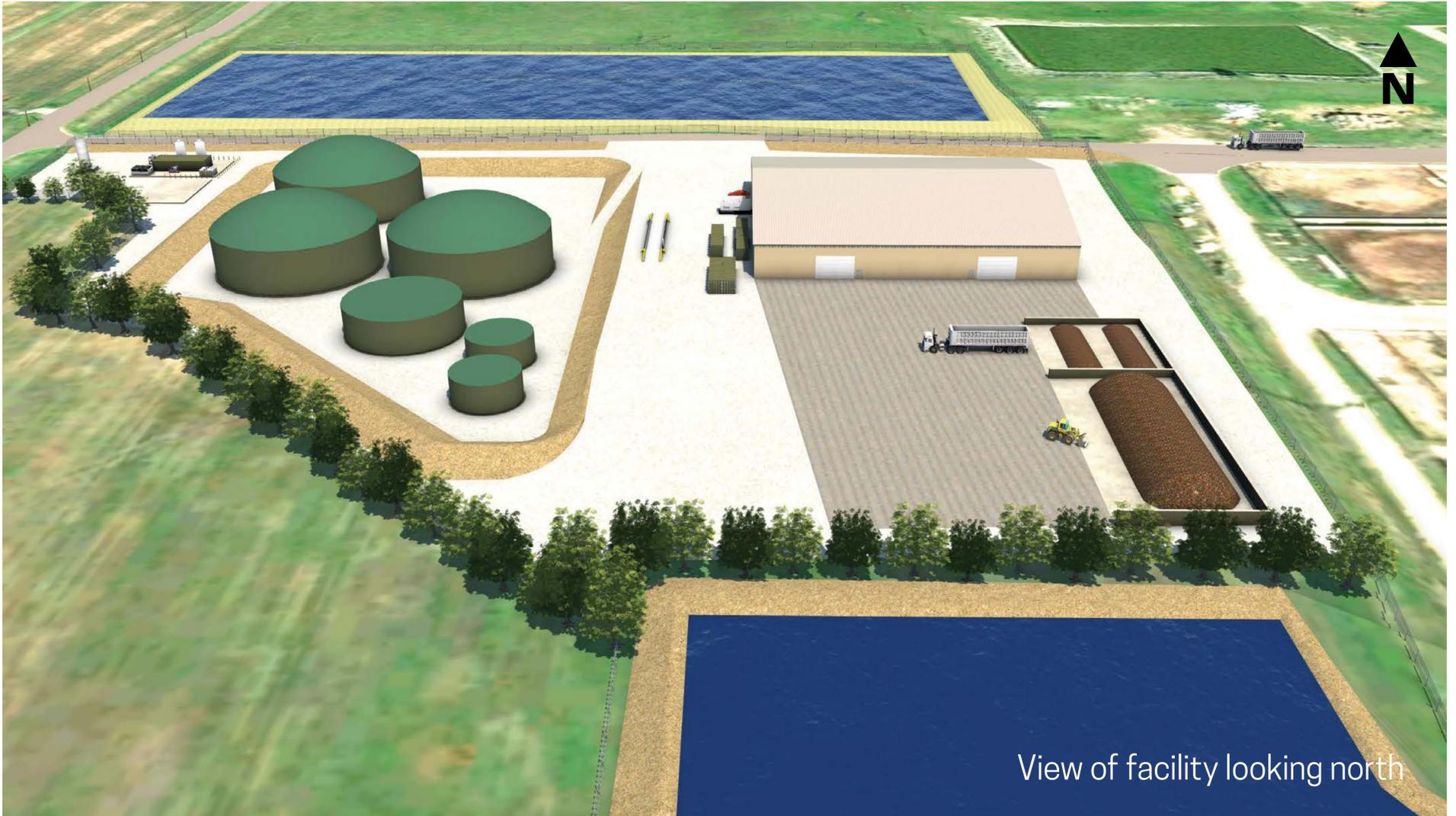
Activated carbon filtration systems and membranes will remove carbon dioxide (CO₂) and other impurities from the biogas to produce RNG that will meet the specifications for injection into the existing natural gas pipeline system, where it will be used just like conventional natural gas.

Step 6: Preparing the Digestate

The digestate will be pumped from the anaerobic digestion system into machines that dewater the material to form both solid and liquid digestate. The solid digestate will be spread onto agricultural land by Cattleland, as is currently being done with livestock manure. Excess liquid digestate that is not recycled will be land applied. The volume of solid digestate will be 40% lower than the manure that was used as feedstock, reducing the amount of material that will need to be spread.

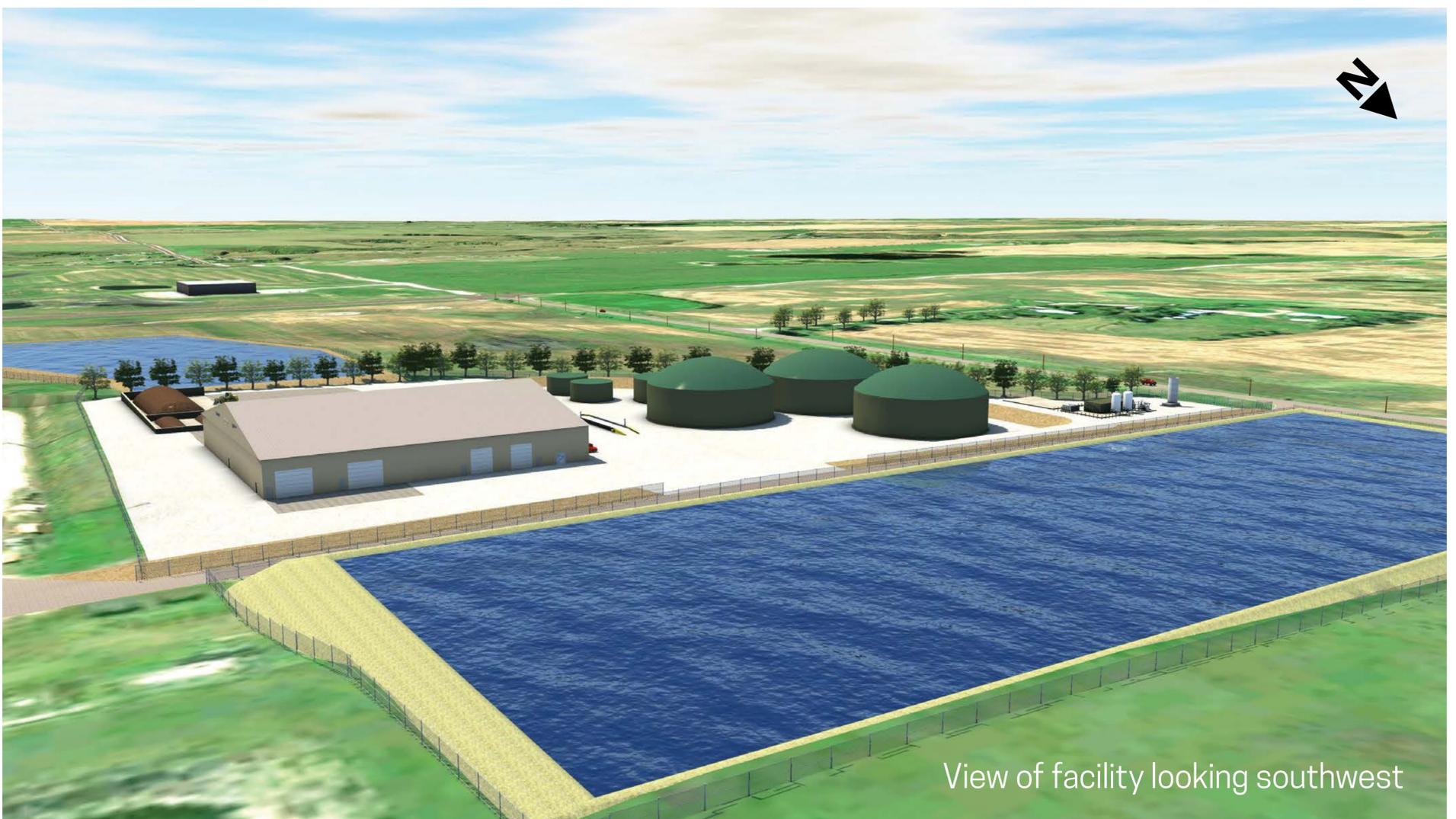
The liquid digestate will be collected in an on-site lined pond and a portion of this liquid will be recycled for use as process water to create the slurry (Step 3). Liquid digestate that cannot be recycled will be used by Cattleland to irrigate its agricultural land through the existing irrigation system.

WHAT WILL THE FACILITY LOOK LIKE?



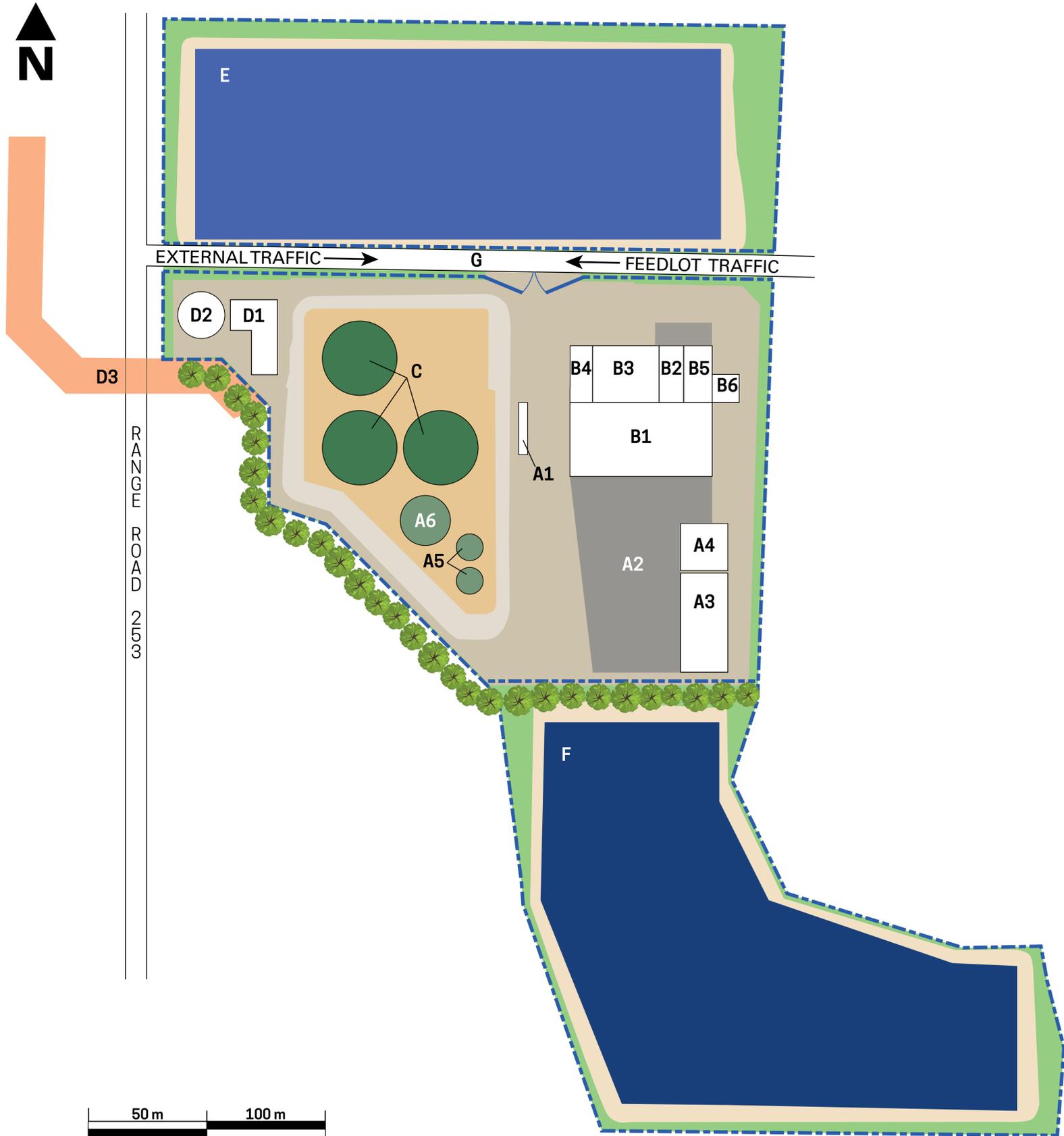
View of facility looking north

Architect Rendering of the Facility



View of facility looking southwest

PROPOSED SITE LAYOUT



LEGEND

Facility Boundary and Fence Line	Trees	Concrete Pad
A - Feedstock Receiving	B - Operations & Feedstock Processing Building	D - Biogas Upgrading & RNG Injection
A1 Truck Weigh Scale	B1 Feedstock Pre-Processing	D1 Biogas Upgrading & RNG Injection
A2 Feedstock Truck Delivery Area	B2 Pasteurization Room	D2 Biogas Flare
A3 Manure Short-Term Storage	B3 Operations Room	D3 RNG Offtake Network
A4 Off-Site Short-Term Storage	B4 Administration Room	E - Fresh Water Storage Pond
A5 Liquid Feedstock Storage & Receiving Area	B5 Dewatering Room	F - Liquid Digestate Storage & Reuse Pond
A6 Buffer Tank	B6 Odour Mitigation	G - Feedlot Service Road
	C - Anaerobic Digestion & Biogas Capture	

WHAT REGULATORY APPROVALS ARE REQUIRED?

Wheatland County

- Site specific land-use re-designation
- Land subdivision
- Development permit
- Building permit

Alberta Environment and Parks (AEP)

- Design, construction, and operations of the facility
- Environmental considerations

Natural Resource Conservation Board (NRCB)

- Raw materials coming to the facility
- Storage of solid digestate and land application of all digestate

Alberta Energy Regulator (AER)

- Interconnection into existing pipeline infrastructure

Supporting Studies for Approvals

- Traffic impact assessment (TIA), bio-physical impact assessment (BIA), geo-technical assessment, storm water management report, landscape plan, market feasibility study, and odour modeling.

Alberta

 **NRCB** | Natural Resources Conservation Board

 **Alberta Energy Regulator**

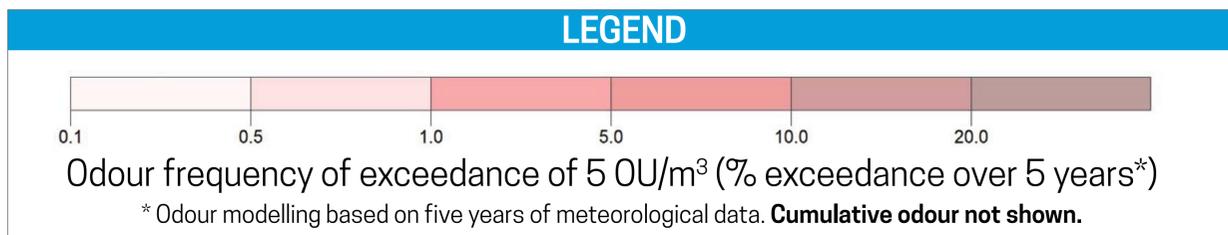


PREDICTED ODOUR CONDITIONS

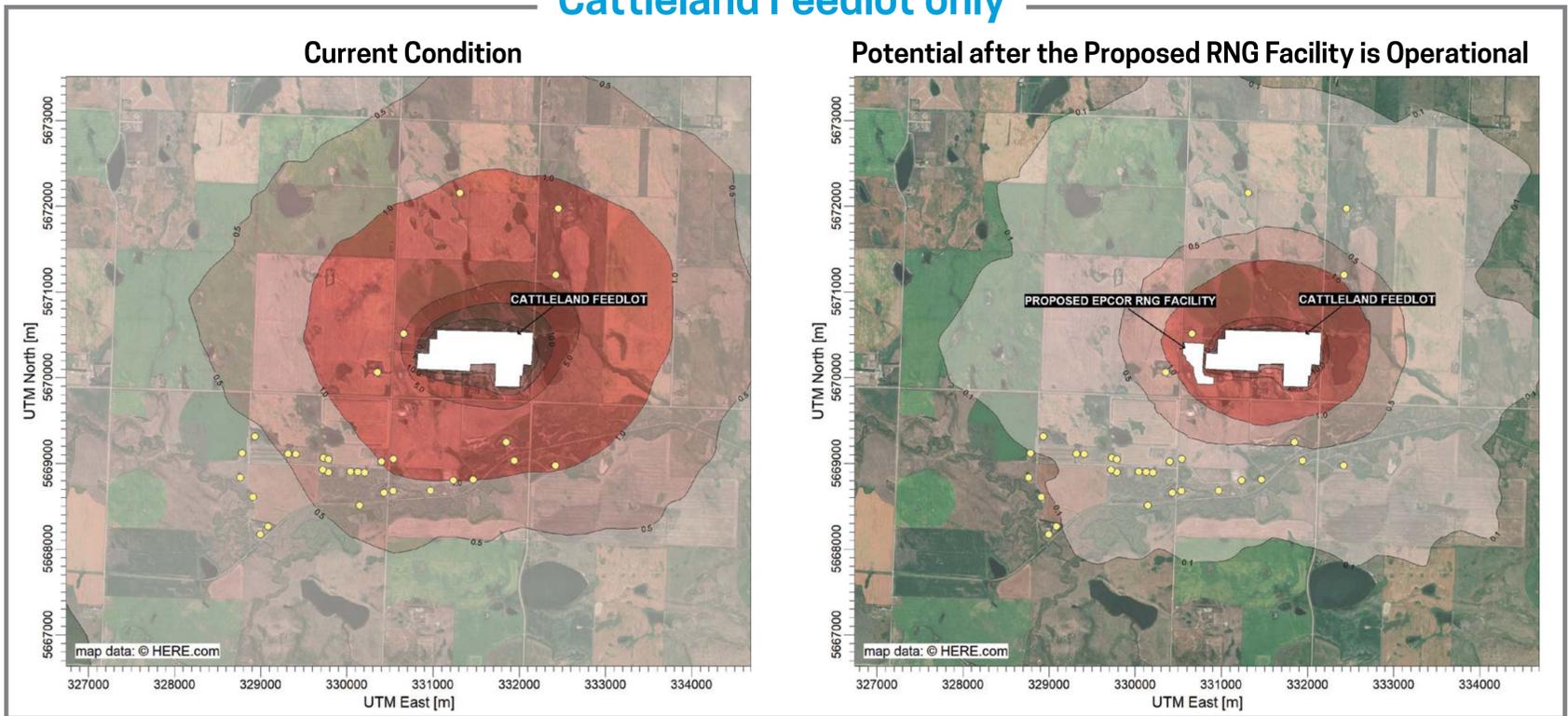
What is an Odour Unit (OU)?

Detection Threshold: The concentration of an odour where 50% of individuals will be able to detect the presence of an odour. By definition, this detection threshold level occurs at 1 OU (Odour Unit).

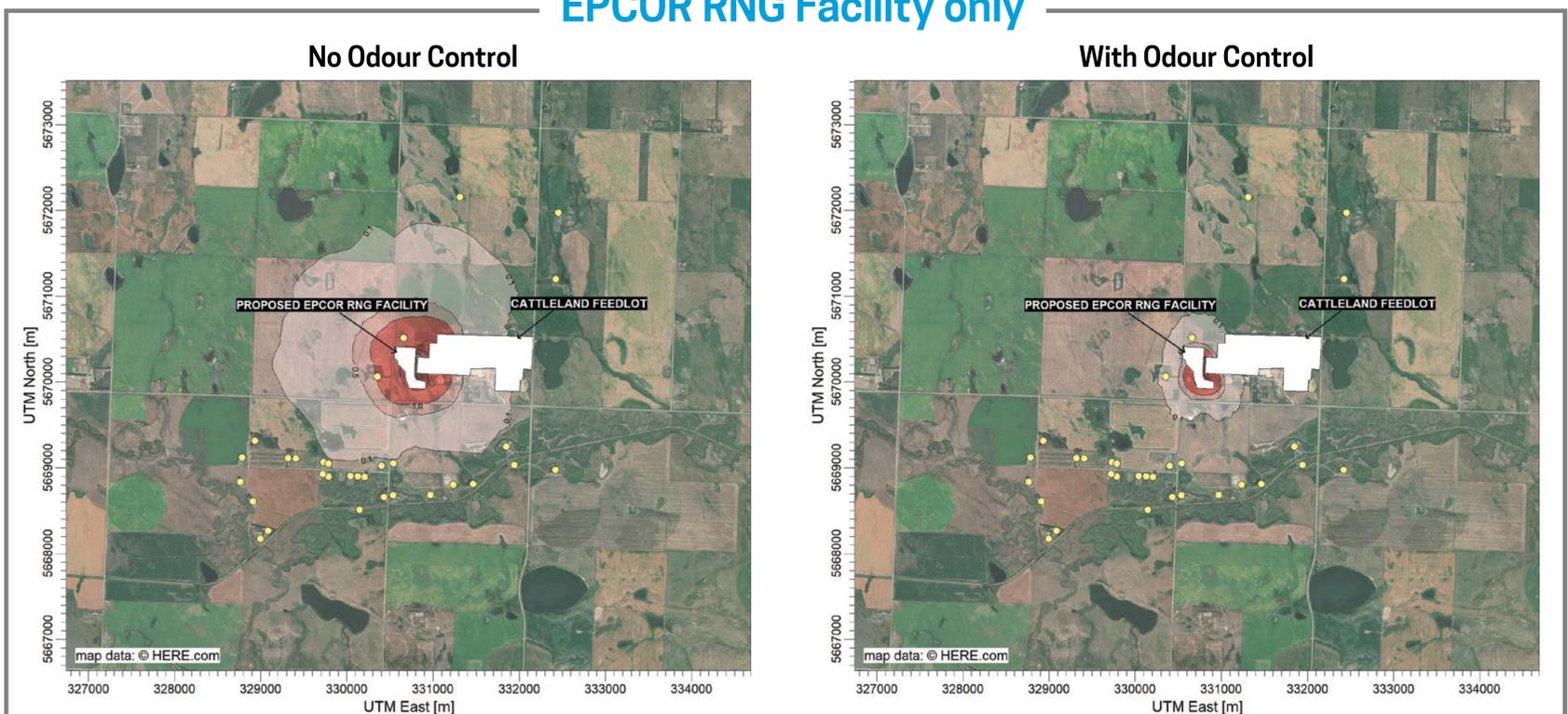
Recognition Threshold: The concentration of an odour where most individuals will be able to recognize and characterize the odour. Generally, recognition occurs when odour concentrations reach the range of 5 OU to 10 OU; however, this is dependent on the type of odour and the sensitivity of the receptors.



Cattleland Feedlot only



EPCOR RNG Facility only



BEING A GOOD NEIGHBOUR

EPCOR wants to be a good neighbor. A big part of that is ensuring communities know what we're doing and have an opportunity to engage with us. See what we're proposing to reduce the impacts of the facility.



Facility Operations

- The facility will be operational 24hrs, 7 days per week.
- The facility is expected to require 2-3 staff for regular operations.
- Staff will be onsite during the operating hours of Monday to Sunday 8:00 a.m. and 6:00 p.m.



Odour

- The two main potential sources of odour are those arising from (1) the feedstock brought to the facility (during transit, offloading and short-term storage), and (2) the pasteurization and dewatering process (which are housed inside the building).
- At least 50% of the feedstock processed at the facility will be livestock manure which is already located and prevalent at the feedlot.
- External feedstock, once onsite, will be unloaded as quickly as possible and stored in an odour-tight storage tank or on the receiving pad nearest the facility receiving area for quick input into the digestion process.
- EPCOR will work with its suppliers of external feedstock and where possible, mitigate odours that may arise from the transit of the feedstock to the facility.
- The feedstock in the receiving area will be actively managed and storage volumes will be kept as low as possible to reduce potential for odours.
- Odours from the dewatering and pasteurization processes will be mitigated by treating the air from this area of the building using odour control equipment.



Traffic

- Entry to the facility is off Range Road 253 by a private roadway located on the feedlot.
- At full operations, 12-16 trucks to deliver feedstock to the facility and remove dewatered digestate are anticipated per day. It is expected that:
 - 50% to 75% of the truck traffic will arrive from the feedlot through internal property roadways (not requiring travel on public roadways).
 - 25% to 50 % of the remaining truck traffic will travel via public roadways and arrive via Range Road 253.
- Regular traffic to the facility will only be during the operating hours of the facility, which are 8:00 a.m. and 6:00 p.m. daily.



Liquid Digestate and Storage

- A portion of the liquid digestate resulting from the dewatering process will be re-used in the anaerobic digestion process.
- The liquid digestate not redirected into the process will be stored in a lined pond designed to meet regulatory requirements. Ground water monitoring around the lagoon will be in place to detect any leaks should they occur. Any leaks detected will be actioned.
- Excess liquid digestate not used in the process will be removed from the storage lagoon via the feedlot's irrigation network and will be applied to Cattleland's farmland, similar to the collected runoff water from the feedlot, reducing the need for synthetic fertilizer. Application of this liquid digestate to farmland will follow Natural Resources Conservation Board (NRCB) regulations.

BEING A GOOD NEIGHBOUR, CONTINUED



Solid Digestate

- The solid digestate will be spread on to agricultural land by Cattleland, as is currently being done with livestock manure.
- The solid digestate will be removed from the facility by Cattleland regularly and will be stored on the feedlot or farmland until it is applied to the farmland.
- Just as is the case with livestock manure, the storage and application of the solid digestate will be regulated by the NRCB.



Process Water and Storage

- The facility will be able to recycle water from the digestion process for use as process water by reusing the liquid digestate. This will reduce the amount of additional water that will need to be sourced for the process.
- As well, certain types of liquid feedstock, including the water from the feedlot's runoff water ponds can be used as process water in the facility.
- Additional process water required (to an expected maximum of 50,000 m³ per year) will be from fresh water from the Bow River under a water license (EPCOR is currently in negotiation for the purchase of a license) which will be delivered to site via the Western Irrigation District waterline.
- The fresh water storage pond will be designed to meet regulatory requirements. This will include fencing to prevent animals, people, and vehicles from accidentally accessing the pond.



Animals/Pests

- Facility-wide fencing will prevent larger animals from coming onsite.
- The feedstock in the receiving area will be actively managed and storage volumes will be kept as low as possible to prevent attracting birds or other pests.
- Pest control measures will be used, as required.



Noise

- Noise from the site may arise during operating hours from truck traffic coming and going to deliver feedstock and remove digestate, and use of equipment on site such as mobile equipment to transfer feedstock.
- Speed limits on site will be strictly enforced to prevent excess noise.
- Equipment used onsite will be regularly maintained to ensure it is operating within recommended noise limits.
- Process system flare will occasionally operate. Flare design chosen to minimize audible noise and visible light.



Dust

- Dust generated from truck traffic will be monitored. If necessary, water application will be considered in high traffic areas.
- Traffic speeds onsite will be limited and strictly enforced to minimize dust.



Facility Lighting

- External lighting will be required for operation of vehicles onsite during operating hours in low-light periods during the fall and winter months.
- In addition, some external lighting will be required outside of regular operating hours for security purposes.
- Outdoor lighting fixtures will be approved by the International Dark-Sky Association to limit light pollution.



Precipitation and Runoff Management

- As much as possible, precipitation will be collected and reused on site.
- Precipitation that comes into contact with feedstock material at the receiving area will be treated as leachate, collected, and re-used within the digestion process.
- Site design will manage clean precipitation runoff to direct drainage to mimic the pre-development flow patterns so as to minimize impact to nearby wetlands.

WHAT ORGANIC MATERIAL WILL THE FACILITY ACCEPT?

The Project's Provincial permitting will outline the types of organic material that can be processed by the facility.

- Livestock manure (50% or greater of total organic material processed)
- Fats, oils, and greases (e.g. grease trap fat from restaurants, food processors, and cafeterias)
- Food processing residues (e.g. paunch manure, brewery wastewater, oil seed processing residues, and pet food)
- Kitchen and market residues (e.g. candies and cookies, dough and vegetables, fruits and grains from food processors, restaurants, and cafeterias)
- Other organic materials (e.g. silage, damaged/rejected crops)





SAFETY MATTERS TO US. BECAUSE YOU MATTER.

HEALTH, SAFETY & ENVIRONMENT (HSE) POLICY

Nothing is more important to us than the health and safety of our employees, contractors, and the public. Getting home safely and protecting the public and the environment are responsibilities we all share.



Stuart Lee

President & Chief Executive Officer, EPCOR Utilities Inc.
February 2022

EVERYONE IS EXPECTED TO UNDERSTAND, PROMOTE, AND SUPPORT THE IMPLEMENTATION OF THIS POLICY.

WE BELIEVE

- All incidents and injuries are preventable
- Everyone has the right to work in a physically and psychologically safe workplace, and to be accepted and treated with respect and dignity
- All employees and contractors are accountable for ensuring the safety of the public and each other, and for working in an environmentally responsible manner
- Health, safety, and environmental aspects must be considered when establishing processes
- Employee involvement, training, and communication are essential to achieve health, safety, and environmental excellence
- Action is needed to both mitigate and adapt to climate change, support community sustainability and health, and protect the integrity of utility operations

OUR COMMITMENTS

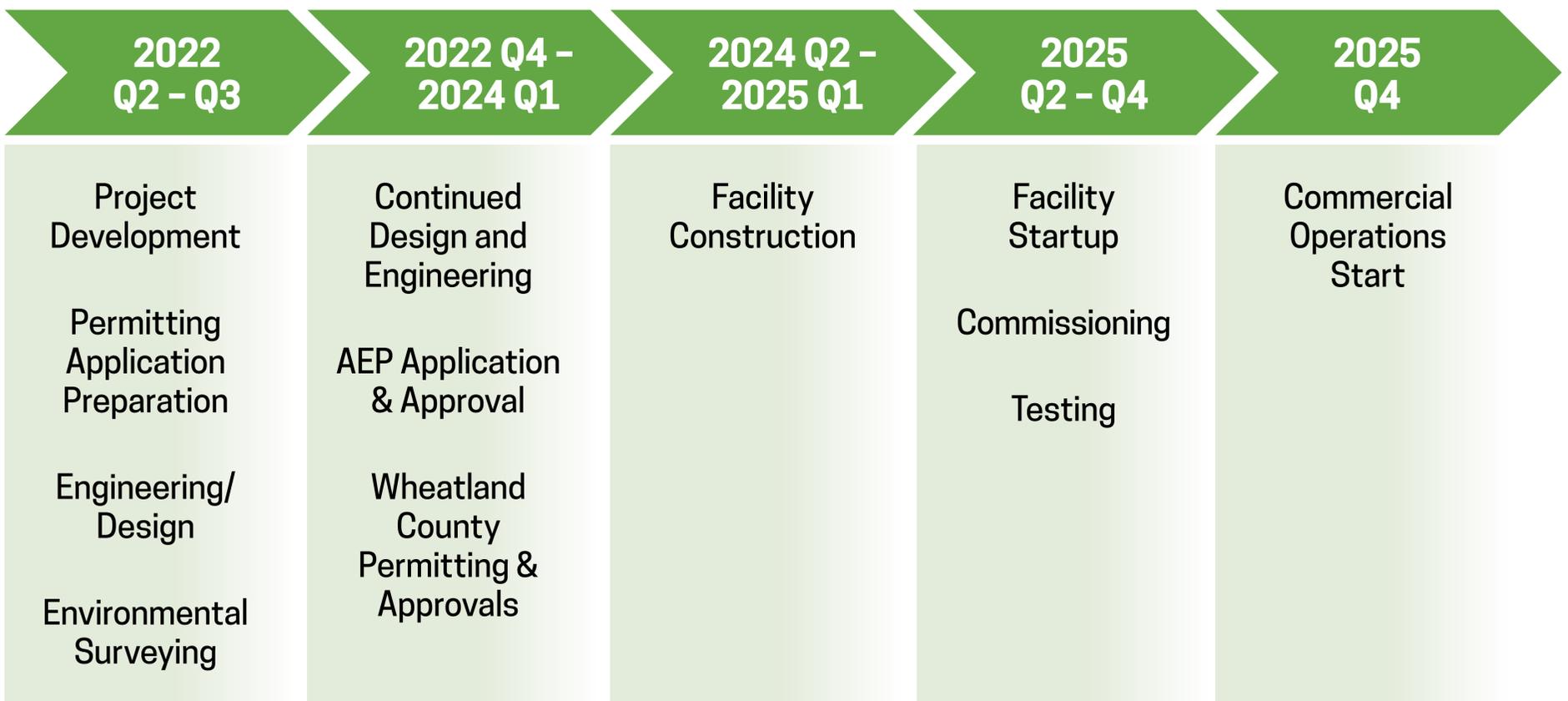
- Create and sustain a positive culture that supports the prevention of all work-related injuries and illnesses, and supports the psychological well-being of our employees
- Identify and evaluate hazards and their associated risks, and implement controls to eliminate or reduce them
- Provide timely and effective training, resources, and equipment
- Maintain an effective HSE management system and continually improve our performance by setting objectives and targets and engaging employees and stakeholders
- Prevent pollution and reduce our environmental impacts affecting the ecosystems in which we operate
- Mitigate our direct climate impact by establishing a pathway to significant reductions and ultimately net zero greenhouse gas emissions
- Implement climate adaptation initiatives that protect the resilience of utility infrastructure and enhance community resiliency
- Meet or exceed all applicable legal requirements, industry standards, and societal expectations
- Measure and share our HSE performance, learn from our incidents and apply corrective actions to prevent reoccurrence

NEXT STEPS

Consultation

- We believe in listening to and engaging with the people and businesses within the communities in which we operate.
- Community input and involvement is an important part of our decision making and we want to share information about our project and gather your feedback.
- We will continue to engage stakeholders over the coming months and provide more detail on the proposed Project.
- We will listen to feedback received from our neighbours when developing mitigation strategies and operating practices.

PROPOSED PROJECT TIMELINE



YOUR FEEDBACK IS IMPORTANT

We will use the feedback received from our neighbours when developing mitigation strategies and operating practices.

You can provide us with your feedback in two ways:



Fill out a questionnaire and give it to a staff member before you leave.

OR



Fill out the questionnaire online by scanning the QR code below with your smartphone.



THANK YOU

On behalf of EPCOR, thank you for attending this Open House for the EPCOR Ardenode Renewable Natural Gas Facility. Your input is appreciated.

Input received during the engagement process will be summarized and shared in an Engagement Report.

CONTACT US

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Web: epcor.com/ArdenodeRNG



Scan this QR code with your smartphone to visit the project website.



**BUILDING
SUSTAINABLE
COMMUNITIES.**