Indus AI
Data Center Hub

Company and Project Overview

BEACON
DATA CENTERS

Overview

About Beacon Data Centers
Beacon Data Centers builds the foundations of the digital economy by bringing land, power, water, and fiber together responsibly, delivering infrastructure that scales with demand and creates lasting value for the communities it touches.

Key aspects of its operations include
- Partnerships with local stakeholders for economic growth.
- Commitment to fostering local talent and work force development.
- Building a tech and innovation ecosystem here in Alberta.

Who we are
Founded in 2023 by Nadia Partners, a specialist investor in AI, digital infrastructure and energy infrastructure, Beacon Data Centers was established to deliver best-in-class digital infrastructure solutions at the convergence of energy and technology, turning constraints into opportunities. Beacon is led by a highly experienced team of professionals from across the data center, technology, power and finance sectors, and is headquartered in Calgary.

Communities first
Beacon treats community engagement the same way it treats power or land: as a first-order input, not an afterthought. Before a project is public, Beacon representatives sit down with local officials, landowners, Indigenous communities and nearby businesses to listen to local perspectives. The approach is simple: arrive early, seek collaboration and partnership, and build projects that fit the communities where people live and work.

Local benefits
Alberta communities' home to Beacon Data Centers' projects will become significant assets to the local area, driving economic growth, enhancing technological infrastructure, and contributing positively to the community while providing careful stewardship of the environment.

Our approach
- Economic impact: local employment at each site will include 1,500+ construction jobs and up to 300 operational jobs, and the region will see transformative supply chain opportunities for local companies with increased demand for construction,mechanical/electrical, landscaping and professional services.
- Partnerships: large-scale data centers help attract other tech companies and startups to the area, fostering a robust tech ecosystem and furthering innovation and research.
- Connectivity: Fiber upgrades provide worldclass telecommunication infrastructure for public services, business and residents.
- Sustainability: Infrastructure solutions integrate best in class conventional and renewable energy generation alongside energy storage and carbon capture and sequestration solutions.

Community benefits
- Significant municipal and provincial revenue generation.
- Partnership opportunities with local educational institutions to offer training programs and internships.
- Dedicated community investment programs for important community initiatives.

FAQs

General

Q: What is a data center?

An AI data center is a piece of critical digital infrastructure that enables a wide range of technology including AI and cloud computing. It houses thousands of advanced computer processes. Together, they act like a supercomputer that can analyze massive amounts of information, allowing AI to learn, make predictions, and support new discoveries.

It combines secure buildings, advanced cooling systems, and fiber-optic connections to create the computing foundation for the application of AI for a variety of uses.

Q: What are the main components of a data center and energy project?

- A large data center typically has three components:
- Power plant (generation facilities that turn fuel into electricity)
- Data center campus: includes data halls, the buildings that contain servers and IT equipment
- Energy Source (a pipeline in this case but could be a substation and transmission lines)

Power Plant: Indus Power Generation LP, by its general partner Northbridge Power GPC Inc., is seeking approval to construct and operate the Beacon Data Centers – Indus Project, a 1,494 MWe (nominal capacity) natural gas-fired power plant under Section 11 of the Hydro and Electric Energy Act (RSA 2000, c H-16) (HEEA).

The Project will consist of two complementary systems;
- 100, 4.6 MWe INNIO Jenbacher J624 lean-burn natural gas-fired reciprocating engines, grouped in 20 Quick Deploy Power and Containerized (QPAC) modules, each containing five (5) engines, for a total of 460 Mwe; and,
- 12, 61.2 MWe Siemens SGT-800 natural gas-fired turbines, with Heat Recovery Steam Generators (HRSGs) supplying four (4), 75.0 MWe Siemens SST-500 condensing steam turbines, operating in 3 combined-cycle units, for a total of 1,034 Mwe.

The total capability of the Project will be 1,494 MWe.

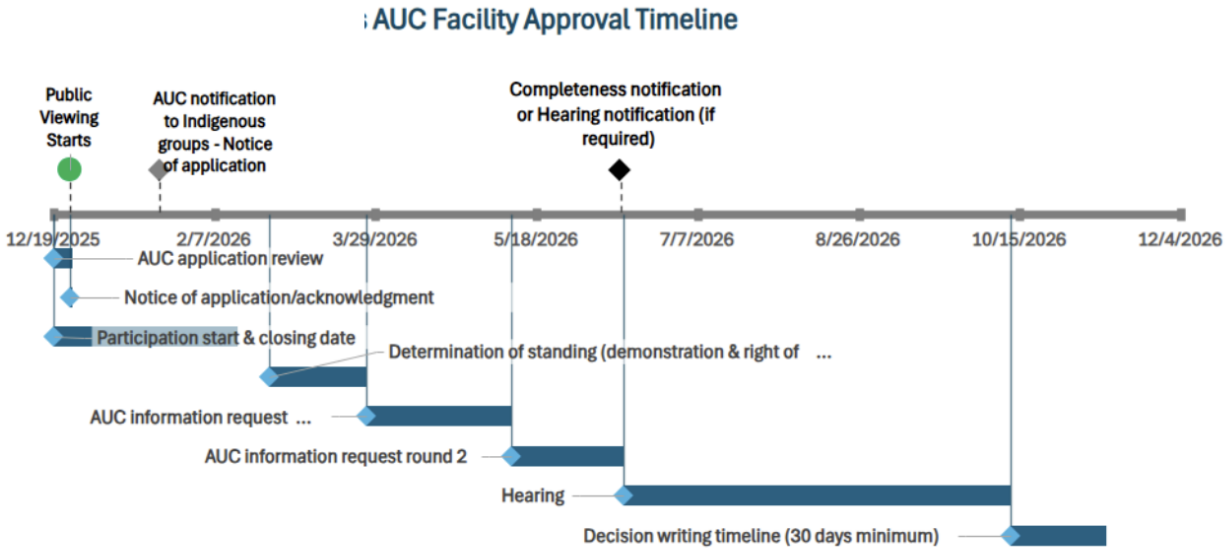
The Project will, under normal operating scenarios, supply ~1,200 MWe of power to co-located, on-site data halls.

Data Center Campus: A data center campus is a large-scale facility designed to house extensive computer systems and associated components, for supporting AI, cloud computing, data security, data storage, management and processing digital media, information and applications. These facilities also encompass ancillary structures, including but not limited to administrative offices, educational and training facilities, maintenance facilities, power generation facilities, substations, and security buildings.

Energy Source: Indus Power is currently exploring natural gas supply options.

These new gas pipeline options are still being evaluated, and the selected provider will obtain all necessary approvals and permits, and construct this new gas pipeline. Natural gas will be supplied at approximately 450 psi (~3,103 kPa), with on-site pressure regulators reducing pressure to the generators, before being distributed to the combined-cycle units, with a parallel natural gas distribution network that will supply the reciprocating engines. All natural gas piping will conform to standard design and operating standards, including the Pressure Equipment Safety Regulation (AR49/2006), administered by Alberta Boiler Safety Association (ABSA). The gas installation contractor has not yet been selected. Indus Power will ensure that qualified contractors will be chosen.

Q: What are the project timelines?



Water consumption and availability

Q: How much water do data centers use?

In a data center, water serves two critical functions. First, cooling systems depend on water to keep computer hardware within the recommended operating range of 18 to 27 degrees Celsius. Second, water is used in generating the electricity that powers these facilities.

Beacon's approach to water usage is twofold: first, engage early and often with the local water authority to accurately assess and model available water and its use; and incorporate state-of-the-art technology. For example, Beacon is investigating ways to use grey water, from sewage systems, to make use of water that is currently wasted as well as pursuing closed loop systems.

It is estimated that daily water use at this data center and energy project will be up to 1500 cubic meters a day across data center operations and power generation.

Power and Electricity

Q: Will data centers raise power prices or cause brown outs?

No. Beacon's sites will have their own on-site power generation and, pending further work with Alberta's Electric System Operator, would be connected to the grid both to contribute back power and in case of emergency.

Q: What is the "bring your own power" approach?

The Alberta government introduced regulatory changes to encourage data centers to generate their own power rather than drawing from the public grid. This approach is intended to prevent additional pressure on Alberta's electricity grids, maintain affordability for residential and business consumers, and avoid compromising grid reliability.

Q: Why is natural gas such an important advantage?

Utilizing natural gas for industries like data centers provides the province of Alberta with a unique opportunity to use natural resources in a local way that adds value to Canada's economy. It also keeps Alberta's natural gas close to home to assist in creating data sovereignty today and in the future. In addition, the province receives royalty payments from the production of natural gas that financially contributes to provincial schools, hospitals and other important priorities.

Environmental impact

Q: What are the emissions concerns associated with data centers?

While natural gas is the cleanest fuel for power generation, there are emissions that must be continuously monitored and reported to ensure they adhere to provincial regulations. Modern gas-fired power generators are incredibly efficient, and their emission profile is extremely low and continuously getting lower. Beacon will meet all emission standards set by the province.

Land use and agricultural impacts

Q: What are the concerns about farmland conversion?

Beacon recognizes that farmland conversion is incredibly important to Albertans and takes the issue very seriously. In fact, on most of Beacon's projects, remaining parcels of land that are adjacent to these projects will remain in agriculture.

It is also important to note that water Beacon plans to use is taken from municipal resources, not agriculture resources.

Q: What construction and operational impacts are expected?

Beacon is committed to close and continuous coordination with local landowners, business owners, and communities to ensure the construction phase is well planned and executed. There will be processes in place to ensure any nuisances are reported and addressed quickly.

Economic opportunities

Q: How many jobs are expected?

For each site, Beacon estimates 1,500 jobs will be required for construction, in a variety of trades and occupations, and roughly 300 permanent jobs once operational. Studies in other jurisdictions indicate these effects will multiply throughout the supply chain and in the local community.

Q: How much tax generation?

Beacon will pay municipal taxes, in addition to the local, provincial, and federal taxes paid by employees through construction and operation. The province will also collect royalties on natural gas extraction and conversations are ongoing surrounding the newly announced data center levy.

Regulatory process

Q: How is Beacon AI consulting Indigenous communities?

Beacon is committed to on-going Indigenous consultation on terms that are defined by local Indigenous communities. It fully supports Alberta's AI Data Center Strategy that includes a commitment to "Economic Reconciliation and Indigenous Partnerships" and promotion of opportunities with Indigenous communities.

Q: What level of public engagement is occurring?

Public engagement in these projects is critical, and Beacon is committed to consulting and communicating with the public at every step of the process. There have been public meetings to share project updates and members of the public are encouraged to ask questions and engage with the Beacon team to share ideas and concerns.

Q: Which regulators are involved, and who does what?

In Alberta, the Alberta Energy Regulator (AER) oversees the fuel and related pipelines, the Alberta Utilities Commission (AUC) and AER jointly oversee the power plant, and the municipality is responsible for land use approvals for the data halls.

For this project, the Federal Impact Assessment Act is triggered because the proposed development will generate more than 200 MW of power. As outlined in the Physical Activities Regulations (SOR/2019-285) a project description must be submitted and posted on the Canadian Impact Assessment Registry, which Beacon has done. The federal government may ask for a more detailed environmental impact assessment.

Q: What is the municipality responsible for?

Municipal development plans, land use bylaws, and subdivision decisions. If a project element falls under AUC or AER approval, municipal bylaws and decisions cannot override those provincial authorizations.

Section 619 of the MGA states that a licence, permit, approval or other authorization issued by the AER, AUC, Natural Resources Conservation Board (NRCB), Energy Resources Conservation Board (ERCB), or Alberta Energy and Utilities Board (AEUB) prevails over any municipal statutory plan, land use bylaw, subdivision decision or development decision.

When a municipal application is consistent with such a provincial approval, the municipality must approve it to the extent it complies with that provincial authorization, and in some cases must do so within 90 days.

Q: Does a power plant still need a municipal development permit?

Yes. A power plant requires a municipal development permit, but section 619 gives the AUC's approval paramountcy over conflicting municipal planning documents.
This means the municipality can attach conditions within its jurisdiction but cannot refuse or undermine a project element that the AUC has already approved.

Q: How does the municipal planning process normally work?

Typical municipal planning steps include:

- Preparing a Municipal Development Plan (MDP) that sets vision, goals, and land use policies.
- Public engagement through open houses, surveys, and feedback sessions.
- Applying zoning through the Land Use Bylaw and issuing development permits consistent with that zoning.
- Reviewing and deciding on subdivision applications for land division.

These tools provide a structured framework for growth, but quasi-judicial bodies like the AUC can override local plans where section 619 applies.

Q: What is the AUC and what is its role?

The AUC is an independent quasi-judicial tribunal created under the Alberta Utilities Commission Act to regulate electricity, natural gas, water, and renewable power generation.

The AUC can hold hearings, set rules, approve or deny projects, and ensure decisions are in the public interest, including for power plants serving data centers.

Q: What key AUC rules apply to data center power plants?

Two major AUC frameworks include:

- Rule 007 -- which governs applications for power plants, substations, transmission lines, industrial system designations, hydro developments, and certain gas utility pipelines.
- Rule 001 -- which sets out the AUC's Rules of Practice for hearings and procedures.

For data center projects, Rule 007 lays out application requirements and public consultation expectations for associated power plants and related infrastructure.

Q: What is the applicant's consultation obligation with the AUC?

Under Rule 007, applicants must run a Participant Involvement Program (PIP) that:

- Notifies potentially affected parties within a defined boundary (e.g., residents, Indigenous communities, municipalities) using mail, email, phone, or other methods.
- Conducts personal consultation where required, which means meaningful engagement, listening, and responding to objections.

Applicants must document objections, efforts to address them, and obtain confirmation of non-objection from those entitled to personal consultation, though the rule does not set a specific formula for when a hearing is required.

Q: How do municipal interests show up in AUC processes?

Municipalities can:

- Participate as stakeholders in the AUC process, raising land use, infrastructure, and community impacts.
- Align their own planning and bylaws with anticipated provincial approvals to reduce conflict and uncertainty.