BEFORE THE LAND AND PROPERTY RIGHTS TRIBUNAL
In the matter of appeals concerning Development Permit DP-26-0028, Project Frost, 56111 Range Road 223, Sturgeon County, Alberta

APPELLANTS' WRITTEN SUBMISSIONS ON PRELIMINARY ISSUES

- **LPRT File**: D26/STUR/CO-051-167
- **Filed by**: Samantha Dobler & all Appellants (see Attachment A – List of Appellants)[1]
- **Date**: September 15, 2026

A. Relief Requested

The Appellants respectfully request that the Tribunal:

- Decline to adopt a blanket 3 km radius as a conclusive test of Affected-Person standing.
- Determine standing by reference to evidence showing whether each Appellant, or an identified category of Appellants, may be affected by the development.
- Find that there is a serious and properly particularized issue as to whether one or more provisions of Land Use Bylaw 1385/17, Sturgeon County Municipal Development Plan Bylaw 1681/25, or Alberta's Industrial Heartland Area Structure Plan Bylaw 1118/07 were relaxed, varied, misinterpreted, or breached in the approval of DP-26-0028, such that the appeals should not be dismissed at the preliminary stage under MGA s. 685(3).
- Permit the appeal to proceed to a merits hearing on the identified LUB, ASP, and MDP bylaw issues and related planning evidence.
- Grant such further procedural directions as the Tribunal considers appropriate.

B. Overview

The preliminary questions before the Tribunal are narrow: first, whether standing should be determined by a fixed 3 km radius proposed by the County or by evidence of potential adverse impacts; and second, whether the permitted-use classification ends the inquiry under MGA s. 685(3), or whether the record raises serious questions that the Land Use Bylaw was misinterpreted in approving this master development framework. The

[1] Please see Attachment A – List of Appellants

Appellants accept for this preliminary stage that Data Processing Facility (Major) is listed as a permitted use in the I5 – Heavy Industrial District. However, permitted-use classification does not exempt an 11-quarter-section (1760 acre) Master Site Development Permit (MSDP) from complying with other governing development standards and bylaws.

C. Preliminary Issue #1 – Standing

1. I**napplicability of a Fixed 0-3 km Radius**:
    - A fixed-radius rule risks excluding persons whose connection to the development arises through impact pathways such as:
        - regional wind/weather patterns & topographic features affecting the dispersion of project-related emissions (ie: light, noise, inaudible sound, dust/particulates, heat, etc.)
        - regional traffic networks,
        - emergency corridors,
        - and altered drainage basins and hydrological connections (ie: shared surface run-off, localized drainage paths, or well-water vulnerability)

    - These impact pathways are expected to extend well-beyond the 3km radius proposed by Sturgeon County and cannot be determined by a straight-line distance alone.

    - Of note, the Tribunal has directed the production of mapping with 3, 5, and 10 km radii including the identification of residences and LUB districts; this forthcoming evidence can potentially aid in confirming a larger, more appropriate area of impact for a project of this magnitude and scale.

2. **Evidence-Based Assessment**:
    - A 10 km spatial scope captures a realistic and foreseeable reach for Project Frost's projected regional impacts. Individual affected-person status should be evaluated based on each Appellant's location, proximity, and connection to documented potential development effects rather than an arbitrary administrative cutoff.

    - In Dr. Brad Stelfox's assessment of the Beacon Indus project's Cumulative Effects Report (CER), AUC Exhibit 30524-X0359, he states that:

        "Though light intensity drops proportionally with distance, beyond the direct line of sight the decrease in intensity is slowed by dust, moisture, and

aerosols, but can remain visible for up to 10 to 30 km." [emphasis added] (page 18, para 2)[2]

- Regarding noise pollution, Dr. Stelfox further states in his report that: *"Industrial noise carries much further than simple distance loss formulas suggest as it has different frequencies and tonalities, including high levels of low-frequency sound and vibration below 500 Hz which can penetrate walls and produce a persistent, fatiguing drone (Žiaran et al., 2025)*[3]*."* [emphasis added](page 20, para 6)

- Because Dr. Stelfox's evidence demonstrates that light and low-frequency noise travel far beyond immediate property lines, a 10 km spatial scope is a practical and necessary radius for capturing the actual reach of the majority of Project Frost's regional impacts.

D. Preliminary Issue #2 – MGA s. 685(3) Threshold

The Appellants submit that the threshold under MGA s. 685(3) has been fully met and that this appeal should proceed to a merits hearing. The master development framework approved under DP-26-0028 cannot hide behind a simple land-use label to bypass mandatory statutory and regulatory standards. Specifically, this threshold is cleared because:

1. **Scope of the MSDP Framework:**
   - Development Permit DP-26-0028 functions as a master framework covering approximately 11 quarter sections (1760 acres) for a 1 GW (1,000 MW) data center campus, backed by massive dual-supply energy infrastructure totaling over 1,800 MW (comprising on-site thermal generation and grid allocation), and governing internal roads, utilities, stormwater routing, electrical infrastructure, and support facilities.

2. **Permitted Use Versus Regulatory Compliance**:
   - The classification of Data Processing Facility (Major) as a permitted use does not exempt the Development Authority from ensuring compliance with mandatory

[2] Please see Attachment B – Dr. Brad Stelfox Assessment of Beacon CER Exhibit 30524-X0359 and CV Exhibit 30524-X0360

[3] Žiaran, Stanislav & Šooš, Ľubomír & Čačková, Iveta & Chlebo, Ondrej. (2025). Low Frequency Sound Generated by Industrial Equipment and its Negative Impact on Human Health. Strojnícky časopis - Journal of Mechanical Engineering. 75. 131-142. 10.2478/scjme-2025-0030.

LUB regulations governing transportation, industrial risk, residential separation, noise & nuisance, and drainage.

3. **Deferred Substantive Determinations**:
    - The record indicates that substantive planning requirements (such as noise limits, traffic mitigation, and stormwater routing) were deferred to future building permits or conditioned compliance phases rather than being addressed and potentially conditioned at the MSDP approval stage.

E. Particularized LUB Interpretation Issues

1. Land Use Bylaw 1385/17, Sections 2.4.3 and 6.6A

To evaluate whether the Master Site Development Plan (MSDP) received the rigorous technical scrutiny required by Sturgeon County Land Use Bylaw 1385-17, this section examines the interplay between the general professional report provisions under Section 2.4.3 and the use-specific mandates for data processing facilities under Section 6.6A.

While these provisions grant the Development Authority discretionary authority to require professional studies, review of the 4,386-page application package demonstrates that the municipality accepted submissions containing critical evidentiary gaps, missing data, and insufficient analysis. Rather than establishing that these optional reports were robustly fulfilled at the master stage, the record reveals a reliance on vague, incomplete, or placeholder documentation, improperly deferring substantive technical determinations to future, less transparent processes.

To systematically unpack these shortcomings, the analysis below focuses on the following key dimensions:

- **Examining the Discretionary Threshold:** Assessing how the Development Authority exercised its discretion under Section 2.4.3 and Section 6.6A, and whether waiving or accepting incomplete technical evaluations for a massive industrial master plan met the standard of reasonable municipal decision-making.

- **Integrating Use-Specific Mandates:** Highlighting the specific requirements for "data processing facility major" developments (such as mandatory noise studies and specialized screening) to establish what baseline evidence the LUB contemplated for this use class.

- **Exposing Evidentiary Gaps in the Record:** Detailing the specific findings from our audit of the application package to show where submitted reports lacked the necessary data, scope, or professional rigor to evaluate the project's true impacts.
- **Challenging Improper Deferral:** Demonstrating how accepting insufficient or missing information at the MSDP approval stage unlawfully bypassed public and regulatory oversight, pushing essential technical mitigation into future compliance phases.

2. Comparison of Permissive Report Requirements vs. Actual Submissions

To test whether the Development Authority's acceptance of the application record was reasonable, Table 1 below contrasts the professional reports contemplated under Land Use Bylaw 1385/17 (Section 2.4.3 and Section 6.6A) with the actual status, sufficiency, or absence of those reports within the 4,386-page MSDP application package.

Table 1: LUB Report Requirements vs. Formal Submissions

LUB Report Category (Sections 2.4.3 & 6.6.a)	Status in Application Record	Evidentiary Audit Findings & Gaps
Biophysical Assessment	*May Require*	Submitted without adequately considering impacts from: • back-up diesel generation, • air emissions other than vehicle exhaust, • emissions from the Greenlight thermal generation facility, • mitigations for the removal of identified raptor nests and the 4 SOCC (Species of Conservation Concern) historically reported, • and accepts the complete destruction of 351 wetlands spread over 85 ha (210 acres)
Emergency Response Plan	*May Require*	Submitted without adequately considering: • potential risks and emergency response requirements associated with 848 back-up diesel generators and diesel fuel

LUB Report Category (Sections 2.4.3 & 6.6.a)	Status in Application Record	Evidentiary Audit Findings & Gaps
		storage tank farm (estimated at approx. 1 million litres on-site) to be proposed in a future AUC application with an undetermined timeline
Environmental Site Assessment	*May Require*	Submitted for both Project Frost and Project Greenlight
Erosion and Sediment Control Plan	*May Require*	Submitted
Geotechnical Report	*May Require*	Submitted without adequately considering: • the potential geotechnical impacts from the pilings and foundations required to mount and stabilize 848 back-up diesel generators • the potential geotechnical impacts from the weight and consequent pressure of 848 back-up diesel generators
Groundwater Report	*May Require*	Not submitted separately; partially submitted within the geotechnical report
Landscape Plan	*May Require*	Not submitted
Noise Impact Assessment, Noise Mitigation & Monitoring (6.6A) / Noise Attenuation Study (2.4.3)	*May Require (Explicitly under 6.6.a)*	• Noise Impact Assessment (AUC Rule 012 compliant) not submitted • Noise Mitigation & Monitoring Plan not submitted • Noise Attenuation Study not submitted • Noise & Vibration Strategy submitted which does not meet AUC Rule 012 requirements.
Parking Assessment	*May Require*	Not submitted

LUB Report Category (Sections 2.4.3 & 6.6.a)	Status in Application Record	Evidentiary Audit Findings & Gaps
Site Grading / Drainage Plan	*May Require*	• Submitted Storm Water Management Plan (SWMP) as substitute • Submitted without a detailed effects assessment of off-site drainage features
Site Servicing Plan	*May Require*	Submitted Off-Site Servicing Assessment as substitute
Traffic Impact Assessment (TIA)	*May Require*	Submitted without ATEC endorsement
Topographical Survey	*May Require*	Not submitted separately; may be partially contained within other reports
Wetland Conservation Plan	*May Require*	• Not submitted as all 351 wetlands within the project area are scheduled for destruction • Submitted Wetland Assessment and Impacts Report as substitute
Any other report, study, plan or information needed	*May Require*	None known as requested. Missing relevant reports include (but are not limited to): • Air Quality & Emissions Report (including the Greenlight facility contributions), • Public Consultation/Engagement Report, • Cumulative Effects Assessment, • Economic & Fiscal Impact Assessment, • AUC Rule 012-Compliant Noise Impact Assessment, • Decommissioning & Reclamation Plan (despite of the fact the project intends to operate into perpetuity), • Weed and Pest Management Plan, • and a comprehensive Health Impact Assessment (HIA)

3. Artificial Segmentation and the Omission of Critical Generation Infrastructure

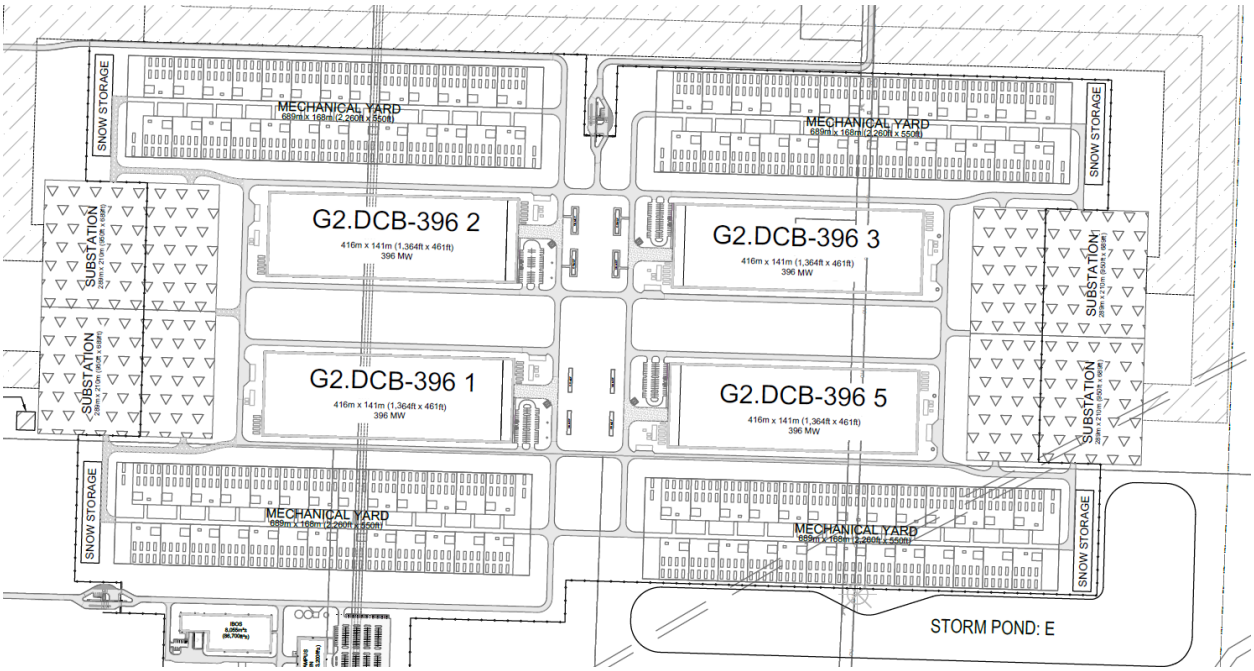
The integrity of the Master Site Development Plan (MSDP) approval is further undermined by the applicant's deliberate exclusion of the project's primary power and backup generation infrastructure from municipal review.

As illustrated in the site layout, the massive mechanical yards bracketing the data hall blocks (including G2.DCB-396 1, 2, 3, and 5) are designed to house an unprecedented fleet of 848 backup diesel generators coupled with a massive associated fuel tank farm with an estimated storage capacity of over 1 million litres on-site. (See Image 1 below)

Despite occupying a vast footprint and representing the most intensive source of industrial risk, noise, and air emissions on the property, these critical pieces of infrastructure were omitted from the municipal development application under the unvetted premise that they fall exclusively under future Alberta Utilities Commission (AUC) jurisdiction.

This artificial segmentation prevents any meaningful cumulative assessment at the master planning stage. By carving out the core operational hazards of a 1,000+ MW facility from municipal scrutiny, the Development Authority approved an incomplete framework, leaving critical land-use compatibilities, emergency response requirements, and environmental safeguards completely unaddressed.

Image 1: Screenshot from Site Layout: Back-Up Diesel Generation (page 4381)



F. Supporting Statutory-Plan Issues (Sturgeon County Municipal Development Plan Bylaw 1681/25)

Once the preliminary gateway under MGA s. 685(3) is engaged, the proper interpretation of the Land Use Bylaw must be informed by the mandatory policy framework established in the Sturgeon County Municipal Development Plan (MDP). Specifically, MDP Policy 5.5.3 dictates that the municipality **"Shall require provision of adequate assessment and study related to the environment, risk, health and safety as part of the development application process for new Non-Residential developments."** [emphasis added]

This statutory requirement directly reinforces the previous LUB interpretation arguments by demonstrating that:

- **Binding Policy Mandates:** The use of "shall" in MDP Policy 5.5.3 establishes a mandatory municipal obligation to secure comprehensive up-front evaluations concerning environmental, risk, health, and safety impacts during the application process itself precluding the unvetted deferral or piecemeal exclusion of critical studies.
- **Harmonizing Master Approval with Regional Standards:** Accepting an 11-quarter-section master development framework that omits essential safety and environmental assessments (such as cumulative risk modeling, comprehensive noise analysis, and the exclusion of 848 backup diesel generators) directly breaches the evaluative threshold contemplated under the MDP.
- **Context for Discretion:** The Development Authority's loose interpretation of permissive LUB provisions cannot be read in isolation; it must be reconciled with the overarching, mandatory directive of MDP Policy 5.5.3, confirming that the approval of Project Frost's master plan without requisite foundational studies was structurally flawed.

G. Supporting Statutory-Plan Issues (Alberta's Industrial Heartland Area Structure Plan, Bylaw 1118/07)

Once the threshold under MGA s. 685(3) is satisfied, the interpretation and application of the Land Use Bylaw must also be evaluated against the regional policy directives set out in Alberta's Industrial Heartland Area Structure Plan (ASP), Bylaw 1118/07.

- **Policy 5.1.2 (Policies, Codes of Practice, Regulations Controls and Standards):** Mandates that any development involving the storage or transmission of hazardous substances *shall* be sited to comply with all relevant federal and provincial standards. Crucially, while it notes that external agency approvals prevail, it restricts the County's automatic approval to instances where the application demonstrates compliance with those external authorizations, preventing the municipality from approving an incomplete master framework that leaves massive fuel storage and hazardous backup infrastructure entirely unvetted.

- **Policy 5.1.3 (Avoiding Duplication and Streamlining Development and Approval Process):** Directs Sturgeon County to avoid unnecessary duplication by coordinating its requirements for comprehensive technical evaluations, specifically identifying an **Industrial Risk Assessment** and an **Environmental Nuisance and Health Impacts Assessment**, by aligning with federal and provincial terms of reference. This directly undermines the municipality's acceptance of an MSDP that completely omitted cumulative risk, health, and comprehensive noise assessments under the artificial excuse of future regulatory segmentation.

- **Policy 5.1.5 (Separation of Heavy Industrial Uses and Other Land Uses):** Mandates that Sturgeon County *shall* adopt a risk-based land use planning approach to ensure adequate, safe separation between heavy industrial developments and other land uses to protect public safety, minimize nuisances, and facilitate emergency response directly contradicting the approval of an 11-quarter-section master plan (Project Frost) that omitted a comprehensive master Risk Assessment and left extensive backup generation and fuel storage unvetted.

- **Policy 5.3.1 (Environmentally Sensitive and Significant Areas):** Mandates that Sturgeon County *shall* require developers to identify and prepare landscape management plans to nurture the evolving character of environmentally sensitive areas directly conflicting with the master approval of Project Frost, which completely omitted landscape plans despite the 11-quarter section site encompassing 351 wetlands and extensive environmental disruptions.

- **Policy 5.4.2 (Environmental Standards):** Establishes that Sturgeon County is explicitly concerned with air quality, noise, light pollution, odour, and surface drainage, and mandates that prospective heavy industrial activities *shall* comply with all environmental regulations, codes of practice, and guidelines pertaining to surface water, wastewater disposal, and airshed maintenance, directly challenging

an MSDP approval that accepted missing noise assessments, unvetted generator emissions, and the destruction of 351 wetlands.

- **Policy 5.4.4 (Requirements for Industrial Risk Assessment):** Dictates that in accordance with the LUB, Sturgeon County *shall* require safety, risk, environmental nuisance, and health impact assessments as part of the development application process for heavy industrial uses unless already completed to the County's satisfaction through a provincial or federal approval directly countering the approval of Project Frost where these mandatory baseline assessments were omitted and improperly deferred under the guise of future regulatory processes.

- **Policy 5.4.8 (Landscape Management Plan for Transition Zone):** Mandates that Sturgeon County *shall* require proponents to prepare a landscape management plan, to the satisfaction of the County, detailing proposed land uses and treatments for the transition zone between the heavy industrial policy area boundary and the processing facility walls further highlighting the structural flaw of approving Project Frost's master plan without a landscape plan or transition strategy.

- **Policy 5.4.10 (Preservation of Better Agricultural Land):** Encourages heavy industrial activities to develop poor land and retain good agricultural land as a buffer, and mandates that development approvals *shall* require prospective heavy industry to address the conservation of Canadian Land Inventory (CLI) Classes 1 and 2 agricultural capability soils, including required stockpiling and soil reuse through the municipal development process directly highlighting the failure of Project Frost's master plan to address continuous agricultural conversion, soil conservation, and buffer retention across its 11-quarter-section footprint.

- **Policy 5.6.3 (Enhanced Landscaping for Site Development):** Recommends that given high-profile highway locations, enhanced landscaping, yard storage screening, attractive signage, and higher-quality architectural treatments *should* be required reinforcing the gap in Project Frost's master approval regarding visual and design mitigation.

- **Policy 5.6.4 (Requirement for a Risk Assessment):** Provides that Sturgeon County *may* require applicants to prepare a Risk Assessment as part of the development application process to ensure proposed land uses remain compatible with nearby heavy industrial operations highlighting how the framework leaves critical compatibility evaluations discretionary rather than ensuring comprehensive upfront safety review.

- **Policy 5.11.1 (Risk Assessment for Heavy Industry Proponents):** Mandates that as a condition of a development permit, Sturgeon County *shall* require proponents of heavy industrial applications to provide a Risk Assessment undertaken by a qualified professional in accordance with LUB provisions directly highlighting that approving Project Frost's master plan without a comprehensive risk assessment violates this explicit mandatory prerequisite.

- **Policy 5.11.3 (Emergency Response Plans for Industry Proponents):** Mandates that Sturgeon County *shall* require Emergency Response Plans of each industry proponent as a condition of the development permit, a mandatory prerequisite that is rendered entirely impossible to satisfy for Project Frost when 848 backup diesel generators and associated large-scale fuel storage networks are omitted from the application and improperly deferred.

- **Policy 5.11.4 (Sturgeon County Emergency Response Planning):** Establishes that Sturgeon County *will* develop and maintain an emergency response plan for the Industrial Heartland and Industrial Park (W4) areas *once site-specific industry plans have been reviewed* directly demonstrating how the omission and improper deferral of 848 backup diesel generators and fuel systems from Project Frost's master application breaks the municipality's statutory duty, making it impossible to formulate a compliant, county-level emergency response plan for the region.

G. Evidence Preservation and Production Requests

To ensure the Tribunal evaluates the appeal based strictly on the record that was before the Development Authority on the decision date, the Appellants request that the Tribunal order the following:

- **Unredacted Contact Disclosure:** An administrative direction or order from the Tribunal directing the registry to release unredacted contact information for the appeal files to the group representatives, as current privacy redactions obstruct necessary participant coordination and preparations for the October 13 hearing.

- **Accounting of Deferrals:** A formal written record or index identifying precisely which sections of the development application document purportedly addressed mandatory requirements (such as noise, risk, and emergency response) versus those that unlawfully deferred them to future permitting phases.

- **Confirmation of Omissions:** Formal confirmation from the Respondent acknowledging whether any independent acoustic, risk, or landscape management

evaluations were conducted by municipal staff outside of the public application package or confirming that those mandatory filings were entirely absent from the approved master framework.

H. Assessment of Appellant Standing and the Flawed 3 km Geographic Limit

The Development Authority's proposal to impose a strict 3 km geographic radius to screen out Appellants is legally arbitrary, procedurally restrictive, and fails to reflect the massive, regional scale of Development Permit DP-26-0028.

1. **Failure to Capture Regional and Linear Impacts:** A rigid 3 km cutoff ignores the physical reality of an 11-quarter-section (1,760 acre) industrial data center campus paired with over 1,800 MW of total energy infrastructure. Cumulative impacts such as low-frequency noise corridors, heavy haul traffic, regional emergency response strain, and watershed-wide drainage shifts do not stop at an arbitrary 3 km boundary.

2. **Alignment with the Tribunal's Expanded Spatial Scope:** The Tribunal itself recognized the necessity of looking beyond the DA's narrow lens by requesting mapping data out to 5 km and 10 km. A comprehensive spatial scope of at least 10 km is required to properly capture the properties directly and indirectly affected by the burdens of this development.

3. **Collective Grievances Arising from Process Deficiencies:** The large volume of community appeals is not a collection of isolated complaints, but the direct and predictable symptom of a fundamentally flawed application process.

The Appellants comprise a broad community coalition of approximately 120 individuals who have independently filed appeals against Development Permit DP-26-0028. Due to privacy redactions, direct communication with these participants is restricted; while the Tribunal graciously facilitated a one-way broadcast of group information, this mechanism relies entirely on intermittent recipient engagement and precludes coordinated legal preparation.

Furthermore, these quasi-judicial proceedings are being forced through during the peak summer agricultural season—a time when rural landowners, farmers, and full-

time workers are stretched to their absolute limits managing livelihoods and scarce family time. This creates an undeniable digital, administrative, and logistical literacy gap: citizens impacted by a massive industrial footprint are structurally disadvantaged against a multi-billion-dollar corporate applicant and Sturgeon County itself, both backed by professional legal teams and significant financial resources.

Specifically, the widespread community concern and shared injury are rooted in:

- **A Complete Failure of Public Consultation:** Meaningful consultation did not occur prior to approval. Residents were kept in the dark, leaving them blindsided by a massive industrial framework unfolding in their region.

- **Missing Baseline Reports:** The application was approved without critical, mandatory professional assessments (such as noise, drainage, and industrial risk evaluations) being properly vetted or disclosed.

- **Forced Reaction to Regulatory Omission:** Because the required studies were missing and public notice was non-existent, residents were forced to interpret the gaps themselves, leading to widespread, entirely justified fear regarding unmitigated environmental, safety, and infrastructure impacts.

The community's desire to see this project halted stems directly from the fact that the application failed to follow the mandatory standards designed to protect them. If the proper statutory procedures, professional reports, and public consultations had been executed transparently from the outset, public trust would not have been shattered, and this mass appeal would not have been necessary. The Appellants submit that standing must be recognized on the basis of these shared, systemic injuries caused by a broken administrative process, rather than screening out residents through procedural hurdles of the system's own making.

Once the Tribunal determines the appropriate spatial participation radius and grants group representatives adequate access to unredacted contact information to coordinate participants, individual Appellants will furnish their specific standing declarations, noting that the Tribunal cannot legally determine who qualifies for standing at this preliminary stage until these foundational spatial and procedural thresholds are properly resolved through the upcoming submission and reply process leading up to the October 13 hearing.

I. Proposed Oral Outline for Preliminary Hearing

1. **Rejection of Arbitrary Cutoffs:** The County's proposed 3 km distance is an administrative cutoff, not a rule grounded in the MGA or Land Use Bylaw. Standing must be evaluated using actual impact evidence and a realistic spatial scope.
2. **Evidence-Based Standing:** Standing should be determined based on concrete, individual effects demonstrated through Appellant-specific evidence supported by scientific documentation regarding low-frequency noise, light dispersion, and other identified off-site potential direct adverse impacts, rather than straight-line distance alone.
3. **Concession on Permitted Use:** The Appellants accept, solely for this preliminary threshold argument, that Data Processing Facility (Major) is listed as a permitted use in the I5 Heavy Industrial District.
4. **Distinction Between Permitted Use and Full Compliance:** Permitted-use classification does not exempt an 11-quarter-section Master Development Framework from complying with governing development standards, mandatory MDP/ASP policies, or LUB regulations.
5. **Scope of the Preliminary Hearing:** The Tribunal does not need to resolve the merits of every technical issue at this stage; it only needs to determine whether the appeal is legally barred or whether a properly particularized misinterpretation, lack of mandatory studies, or improper deferral issue exists.
6. **Particularized Statutory and LUB Violations:** The appeal raises serious, grounded misinterpretation issues involving missing mandatory risk, noise, and environmental assessments, the artificial segmentation of 848 backup diesel generators, and the breach of mandatory MDP and ASP "shall" policies.
7. **Request for Merits Hearing:** The Appellants respectfully request that the matter proceed to a full merits hearing with appropriate directions for focused evidence and submissions.

J. Conclusion

The Master Site Development Permit approval for Project Frost (DP-26-0028) represents a fundamental breakdown in municipal regulatory oversight. By relying on an arbitrary 3 km standing cutoff, ignoring mandatory "shall" policy directives within both the Sturgeon County Municipal Development Plan and Alberta's Industrial Heartland Area Structure Plan, and improperly segmenting 848 backup diesel generators and associated large-scale fuel storage under the guise of future regulatory jurisdiction, the Development Authority approved a structurally deficient framework.

The record confirms that critical foundational evaluations, including comprehensive noise impact assessments, risk studies, emergency response plans, and landscape management strategies, were entirely omitted or unlawfully deferred rather than rigorously addressed at the master planning stage. Because the Appellants have established a proper evidentiary basis demonstrating regional impact pathways that extend well beyond immediate property boundaries, and have raised serious, particularized questions regarding the misinterpretation and misapplication of Land Use Bylaw 1385/17, the AIH ASP Bylaw 1118/07, and MDP Bylaw 1681/25, these appeals easily clear the threshold of MGA s. 685(3).

The Appellants respectfully request that the Land and Property Rights Tribunal reject the County's proposed standing restrictions, direct the registry to release unredacted contact information for participant coordination, and order a formal break-down of application deferrals and mandatory report omissions before proceeding to a full merits hearing.

ALL OF WHICH IS RESPECTFULLY SUBMITTED this 15th day of September, 2026.

Jasona Rondeau

Jasona Rondeau, B.Ed.
(Administrative & Regulatory Support)
*Prepared in cooperation with the Appellants and Group Representative, Samantha Dobler

APPENDIX A

ATTACHMENT A

*excerpted from LPRT 2026-MG0515 dated 2026/08/20 pages 10-12

PARTIES WHO FILED NOTICES OF APPEAL WITH THE LPRT

NAME (APPELLANT NUMBER)	LPRT FILE NUMBER
Jessica Czarnecki (A1)	D26/STUR/CO-051
Samantha Dobler (A2)	D26/STUR/CO-052
Greg Antoniuk (A3)	D26/STUR/CO-053
Kimberly Porlier (A4)	D26/STRU/CO-054
Kirsti Osowetski (A5)	D26/STUR/CO-055
Ailsa Howatt (A6)	D26/STUR/CO-056
Emily Patterson (A7)	D26/STUR/CO-057
Leonard McNeill (A8)	D26/STUR/CO-058
Laurel McNeill (A9)	D26/STUR/CO-059
Amberlea Carter (A10)_	D26/STUR/CO-060
Ben Carter (A11)	D26/STUR/CO-061
David and Linda Shackleton (A12)	D26/STUR/CO-062
Linda Hofstede (A13)	D26/STUR/CO-063
Kristina DeGagne (A14)	D26/STUR/CO-064
Crystal and Mike Hansen (A15)	D26/STUR/CO-065
Larissa Wiley (A16)	D26/STUR/CO-066
Christina Bolton (A17)	D26/STUR/CO-067
Sheryl Shapka (A18)	D26/STUR/CO-068
Marcin Kamrowski (A19)	D26/STUR/CO-069
Sara Eisenzimmer (A20)	D26/STUR/CO-070
Stacey Buga (A21)	D26/STUR/CO-071
Craig Donaldson (A22)	D26/STUR/CO-072
Jaelyn Ryan (A23)	D26/STUR/CO-073
Deanna Yanish (A24)	D26/STUR/CO-074
Marian Briggs (A25)	D26/STUR/CO-075
Perry Fushtey (A26)	D26/STUR/CO-076
Brittney and DJ LeBlanc (A27)	D26/STUR/CO-077
Toinette and Jerry Stacey (A28)	D26/STUR/CO-078
Jess Jelles (A29)	D26/STUR/CO-079
Amber Beaumont (A30)	D26/STUR/CO-080
Nick Betts (A31)	D26/STUR/CO-081
Sarah Larson (A32)	D26/STUR/CO-082
Marci Brown (A33)	D26/STUR/CO-083
Sarah McDougall (A34)	D26/STUR/CO-084
Desirae Brown (A35)	D26/STUR/CO-085
Karel and Gil Hermary (A36)	D26/STUR/CO-086
Kelley McNeill (A37)	D26/STUR/CO-087
Meaghan Russell (A38)	D26/STUR/CO-088
Samantha Wilson (A39)	D26/STUR/CO-089
Neil Mager (A40)	D26/STUR/CO-090
Caitlin Sullivan (A41)	D26/STUR/CO-091
Alvin Fry (A42)	D26/STUR/CO-092
Petrina LaRocque (A43)	D26/STUR/CO-093
Chantal Antoniuk (A44)	D26/STUR/CO-094
Sherri Marienhoff (A45)	D26/STUR/CO-095
Corinne Miserva (A46)	D26/STUR/CO-096

Tracey Robar (A47)	D26/STUR/CO-097
Brittany Vader (A48)	D26/STUR/CO-098
Chelsey Minchau (A49)	D26/STUR/CO-099
Dezarai Ostrom (A50)	D26/STUR/CO-100
Michelle Krywko (A51)	D26/STUR/CO-101
Kayla Hughes (A52)	D26/STUR/CO-102
Bryden Noseworthy (A53)	D26/STUR/CO-103
Kennedy Ball (A54)	D26/STUR/CO-104
Mary Morin (A55)	D26/STUR/CO-105
Tonice St. Jean (A56)	D26/STUR/CO-106
Natasha Cann (A57)	D26/STUR/CO-107
Gail Spenst (A58)	D26/STUR/CO-108
Patricia Thompson (A59)	D26/STUR/CO-109
Lorien Wilson (A60)	D26/STUR/CO-110
Victoria Sturgess (A61)	D26/STUR/CO-112
Marina Shenfield (A62)	D26/STUR/CO-113
Lisa Adams (A63)	D26/STUR/CO-114
Brooke and Jake Bailey (A64)	D26/STUR/CO-115
Trent Vanderspoel (A65)	D26/STUR/CO-116
Nicole Classen (A66)	D26/STUR/CO-117
Felecia Tolsma (A67)	D26/STUR/CO-118
Katherine Postowoi (A68)	D26/STUR/CO-119
Stephanie Deveau (A69)	D26/STUR/CO-120
Ellen Regnier (A70)	D26/STUR/CO-121
Clayton Miller (A71)	D26/STUR/CO-122
Shantelle and Cole Williams (A72)	D26/STUR/CO-123
Cheryl Ganje (A73)	D26/STUR/CO-124
David Ganje (A74)	D26/STUR/CO-125
Angelene Gaulin (A75)	D26/STUR/CO-126
Robin Cox (A76)	D26/STUR/CO-127
Trish Wadson (A77)	D26/STUR/CO-128
Maddie Hoffman (A78)	D26/STUR/CO-129
Ashleigh Flisberg (A79)	D26/STUR/CO-130
Hollie Ward (A80)	D26/STUR/CO-131
Michael Larocque (A81)	D26/STUR/CO-132
Michelle Van De Vliert (A82)	D26/STUR/CO-133
Maureen Amonson (A83)	D26/STUR/CO-134
Harry Amonson (A84)	D26/STUR/CO-135
Courtney Gallatin (A85)	D26/STUR/CO-136
Nicole Frank (A86)	D26/STUR/CO-137
Melissa DePape (A87)	D26/STUR/CO-138
Carmen McElroy (A88)	D26/STUR/CO-139
Neil Postowoi (A89)	D26/STUR/CO-140
Kyle Ewanowich (A90)	D26/STUR/CO-141
Crystal Taylor (A91)	D26/STUR/CO-142
Bryan Cox (A92)	D26/STUR/CO-143
John Mulbery (A93)	D26/STUR/CO-144
Leah King (A94)	D26/STUR/CO-145
Jacquie Jaehn (A95)	D26/STUR/CO-146
Carolyn Carreira (A96)	D26/STUR/CO-147
Harvey Jaehn (A97)	D26/STUR/CO-148

Jessie Parragh (A98)	D26/STUR/CO-149
Daniel Myers (A99)	D26/STUR/CO-150
Hannah Hanna (A100)	D26/STUR/CO-151
Clara Prokop (A101)	D26/STUR/CO-152
Lonnie H (A102)	D26/STUR/CO-153
Grant Raboud (A103)	D26/STUR/CO-154
Clarissa Sarino (A104)	D26/STUR/CO-155
Jennifer Buda MacDonald (A105)	D26/STUR/CO-156
Karry McKinnon (A106)	D26/STUR/CO-157
Cory Wadson (A107)	D26/STUR/CO-158
Danielle Cox (A108)	D26/STUR/CO-159
Tambra Tarasiuk (A109)	D26/STUR/CO-160
Randy Allan (A110)	D26/STUR/CO-161
Paul and Bev Gaulin (A111)	D26/STUR/CO-162
Delores and Normand St. Martin (A112)	D26/STUR/CO-163
Debbie Cook (A113)	D26/STUR/CO-164
Charles Oullete (A114)	D26/STUR/CO-165
Don Klein (A115)	D26/STUR/CO-166
Sherry and Phil Menard (A116)	D26/STUR/CO-167

APPENDIX B

PARTIES WHO ATTENDED THE HEARING

NAME	CAPACITY
S. Dobler	Appellant (A2)
C. Hansen	Appellant (A15)
P. LaRocque	Appellant (A43)
M. Morin	Appellant (A55)
C. Ganje	Appellant (A73)
N. Frank	Appellant (A86)
J. Frank	Appellant (A86)
J. Jaehn	Appellant (A95)
H. Jaehn	Appellant (A97)
D. St. Martin	Appellant (A112)
D. Langen	Applicant Counsel, Stikeman Elliot LLP, Observer
J. Agrios, KC	DA Sturgeon County Counsel, Field Law
J. Sumaylo	DA Sturgeon County Counsel, Field Law Observer
T. McNab	DA Sturgeon County
C. Williams	Sturgeon County Observer
K. Schole	Sturgeon County Observer
M. Asdaghi	Sturgeon County Observer
C. Lane	Observer
E. Delahaye	Observer
J. Rondeau	Observer
P. Collins	Observer
S. Cholewa	Observer
J. Farrell	Observer, Canadian Press

ATTACHMENT B

An Assessment of the Cumulative Effects Review prepared by Stantec for Beacon's Indus AI/Data Center

Prepared by Dr. Brad Stelfox

Citation

Stelfox, J.B., 2026. An assessment of the Cumulative Effects Review prepared by Stantec for Beacon s Indus AI/Data Center. Prepared for the Indus and Area Residents Group.

Author

Dr. Brad Stelfox is a landscape ecologist with the Alces Group who has worked on a wide range of land use issues in Canada and internationally. He is a systems dynamist with a specialty in cumulative effects of land use.

I acknowledge that I have been engaged to be an independent witness to give opinion evidence on issues within my area of expertise and acknowledge that as such I have a duty to provide evidence to the AUC that is fair, objective and non-partisan.

Table of Contents

Executive Summary

My review of Beacon's Artificial Intelligence/Data Center (AI/DC) Indus project focuses on the cumulative effects review completed by Beacon's consultant (Stantec) for the Indus AI/DC project.

The projected frequency and magnitude of the nascent AI/DC sector in Alberta is immense and as such warrants a thorough strategic-level cumulative effects assessment of this transformational and disruptive land use sector. To date, the Government of Alberta (GoA) has not completed such an assessment at either regional or provincial scale and as such Albertans remain largely unaware of the full extent of the environmental and social consequences associated with AI/DCs. While numerous GoA and industry promotional messages have conveyed the projected economic advantages (jobs, GDP, taxable incomes), there is a striking paucity of disseminated information in Alberta about the adverse environmental, social, and health implications arising from individual or multiple AI/DCs. It is the collective sum of benefits and liabilities of individual and collective projects (land uses) that can be defined as cumulative effects assessment.

In a letter dated June 3, 2025, from Minister Nathan Neudorf to Alberta Utilities Commission CEO Bob Heggie, the Minister stated, in part: *The Government of Alberta expects its agencies, including the AUC, to consider cumulative effects and the outcomes associated with them. In addition, the Government of Alberta is committed to managing the cumulative effects of disturbance, including from electricity projects, and remains focused on achieving strategies of Alberta's Land-use Framework*."

Without a provincial level strategic assessment of AI/DC's, its discourse by default appears to reside within the purview of the Alberta Utilities Commission (AUC) and hence discussed at an individual project scale. The AUC Bulletin 2025-12 mandates a proper cumulative effects assessment at an appropriate range of spatial and temporal scales, and inclusive of relevant land uses competing for resources on an overlapping landscape. Assessed against these benchmarks, the cumulative effects assessment prepared by Beacon's consultant is profoundly incomplete.

It is my opinion that Beacon's cumulative effects assessment is generally deficient with respect to key requirements described in Bulletin 2025-12, including but not restricted to the following:

- Ignored relevant land uses at the regional study scale in terms of cumulative interactions for key input commodities (water, land) or exceedances of noise, light, or air emissions.
- Did not include temporal modelling tool analyses (i.e., cumulative effects modelling) to assist stakeholders in understanding key spatial-temporal dynamics that would profile potential conflicts but also provide opportunities for identification of, and deployment of best management practices (BMP).
- Restricted their AI/DC scope to the single Indus AI/DC project even though multiple existing AI/DC and additional proposals already exist within the regional study area. Both industry and the provincial government have delivered strong messaging to Albertans that this is a rapidly growing industrial sector - and as such, Albertans deserve to understand both the short-term and long-term benefits and liabilities.

Preface

Within the rapidly evolving arena of ***Information Technology,*** the global convergence of generative Artificial Intelligence (AI), data analytics, large language models, cloud computing, machine learning, and data centers now represent the single largest investment of global risk capital – estimated cumulatively at $7 trillion US by 2030 (McKinley and Company, 2026), of which most investment is directed to AI projects such as that proposed for Beacon s Indus AI campus (Beacon 2026). This global investment sector is actively seeking receptive cool-climate geographies characterized by abundant and cheap fuel stocks (primarily natural gas), deregulated electrical markets, favourable corporate tax environments, and proximity to large communities in which highly trained workforces prefer to live. The major urban hubs of Alberta excel in each of the criteria listed above.

The Government of Alberta (GoA) is aggressively promoting the province as a premier global hub for artificial intelligence/data centers (AI/DC), aiming to attract $100 billion in infrastructure investments by 2030 (Government of Alberta, 2026a, Government of Alberta, 2026b). A recent (2026) GoA promotionnas document entitled: Alberta s AI Data Centre Strategy sets the path to securing the province's position as the most attractive jurisdiction to build AI/DC in North America. As illustrated in Figures 1 and 2, Alberta has successfully attracted the largest number of AI/DC proposals of all provinces in Canada.

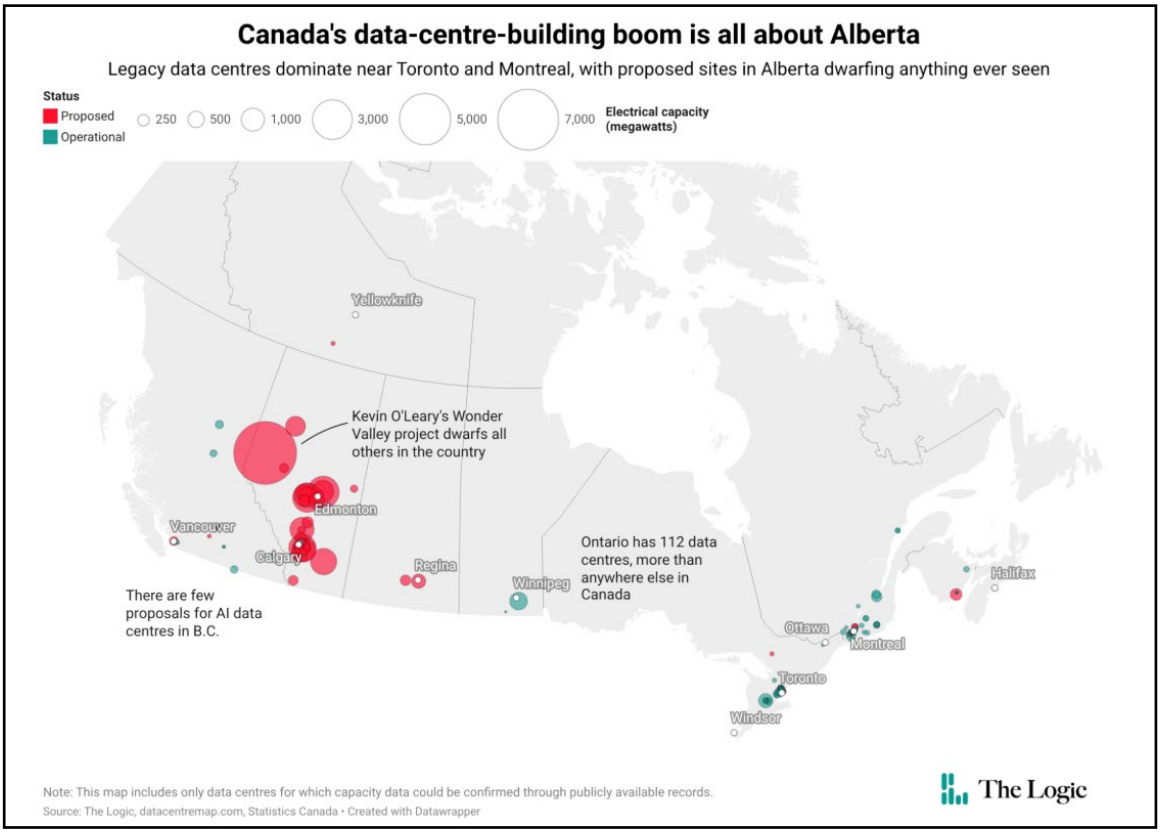


Figure 1. Canada's data center building boom is all about Alberta. Source: https://thelogic.co/news/the-big-read/data-centres-artificial-intelligence-canada-map/.

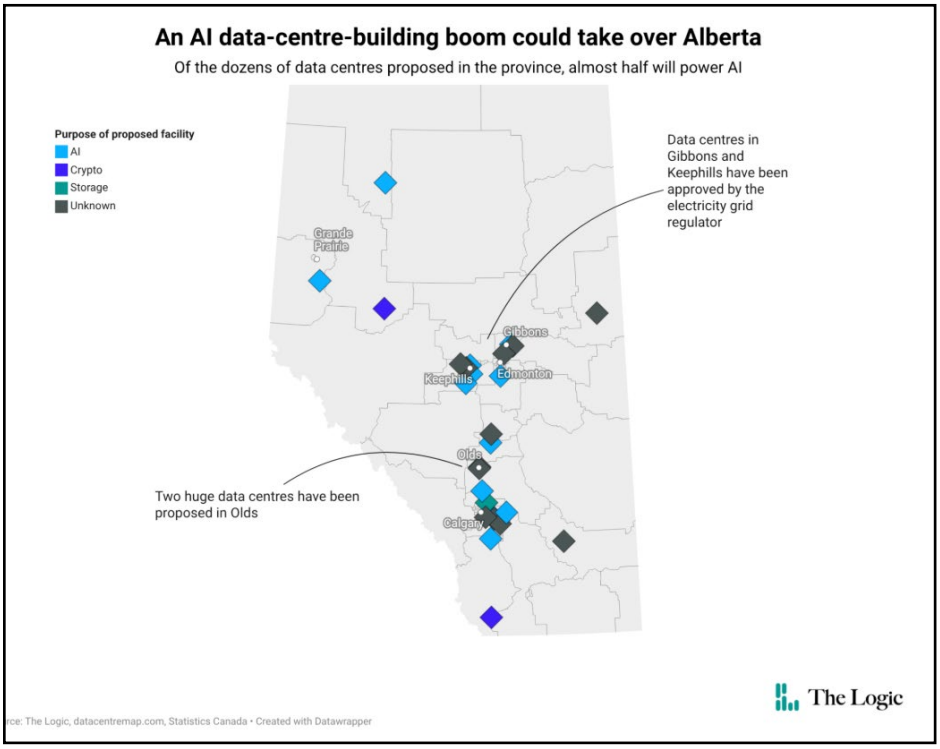


Figure 2. Location of AI data centers within the province of Alberta. https://thelogic.co/news/the-big-read/data-centres-artificial-intelligence-canada-map/.

The global AI/DC dynamic is comparatively new, but one of explosive growth. It will take decades before the full extent of its benefits and liabilities can be fully understood, but numerous studies have revealed significant adverse effects that are well documented in those jurisdictions that have already experienced AI/DC growth trajectories. These risks are comprehensively summarized by a recent report prepared by the United Nations University for Water (Aczel et al., 2026). Although there are regional differences in how these effects manifest themselves, there are a core set of adverse effects that seem universal to all AI/DCs and often generate profound disharmony within local and regional communities. The most common of these documented adverse effects include:

- Increased Water Demand leading to increased water scarcity within natural systems (lakes, rivers, watersheds) and land uses dependent on water
- 24/7 Noise Pollution, including background hum, leading to hearing loss, insomnia, anxiety, cognitive impairment
- Light Pollution leading to loss of dark sky aesthetics
- Air Emissions (NO_x, CO, particulate matter (PM) 2.5) leading to elevated GHG emissions, and health complications (respiratory and cardiovascular disease)
- Depressed Real Estate Values, leading to losses in home equity

It is not surprising that the local landowner/stakeholder Group (Indus and Area Residents Group (IARG)) have expressed grave concerns about the unwanted consequences of an immense AI/DC facility embedded within their community (Impact Assessment Agency of Canada, 2026). Numerous communities elsewhere in North America have already experienced these adverse effects (Mineo, 2026) and are increasingly raising their concerns.

Projects such as Beacon s Indus AI/DC should be viewed as analogous to Alberta's legendary Leduc #1 oil well, which heralded the arrival of a nascent hydrocarbon sector that fundamentally transformed the province's socio/economic/environmental landscape in the 1940 s. During the past several decades, the economic benefits of the oil and gas sector in Alberta have been profound and only equaled by the intensity and magnitude of the environmental liabilities it has created. It took many decades before Alberta's governance and regulatory bodies were prepared to recognize that the hydrocarbon sector created both benefits and liabilities. To many Albertans, a balanced discussion about this sector has still not yet occurred.

What remains to be seen is whether Alberta s regulatory arena will mandate a balanced and thorough dialogue about this fledgling, but rapidly growing AI/DC industry that is highly likely to dominate the province s socio-economic, industrial and natural capital landscape for the next century. Once Beacon has completed its proposed complement of 4500 megawatt $10 B announced AI/DC projects in Alberta, their electrical consumption alone will represent ~1/3rd of the entire electrical load in the province. Moreover, there are over 40 different AI/DC proposals currently being reviewed by the Alberta Electric System Operator (AESO, 2026), which if approved, would double the province's electricity demand and production.

AI/DC are among the most intensive and resource dense industrial features on Earth (Hanwha, 2025) – their local density of concrete, metal, heat, electricity, water, sound, cooling, and embedded investment capital ($/m^2) is almost unparalleled. Given the immense and growing societal appetite for AI technologies, these energy-dense campuses are quickly becoming common industrial features in both urban and rural landscapes.

The myriad consequences (economic, environmental, social) of this new technology are nearly impossible for the average stakeholder to grasp (World Resources Institute, 2026). Only through a robust, systems-based cumulative effects approach, can the full suite of benefits and liabilities of this emergent tech sector be understood at spatial scales that range from local to regional, and temporal scales from now to future (multigenerational). To date, no such analyses has been completed in Alberta. Yet, it is clear that the intent of AUC Bulletin 2025-12 requires a thoughtful, strategic, and integrated approach to cumulative effects assessment when considering proposals such as Beacon's Indus AI/DC project.

Beacon s cumulative effects review generically portrays a single AI/DC event (Indus campus) with minimal or no significant effects with other land uses, valued components (VC), or valued ecosystem components (VECs) when spatially diluted across a large regional study area (Rocky View County). In my view, the narrow and exclusionary approach adopted by Beacon's cumulative effects report limits its value to being a cursory overview, and not a legitimate attempt at addressing the important topic of cumulative effects assessment.

Although the GoA (Alberta Land Use Framework) and AUC (Bulletin 2025-12) mandates cumulative effects assessments for various industrial project types, they do not prescribe detailed methodologies about how these assessments are to be completed. It is left to the discretion of the project proponent, and their consultants, to devise and defend the details and selection of VC, VECs, sampling intensity, spatial scales, and which land uses to include or exclude in their analyses. Equally important, it is at the discretion of the proponent and consultant about what time period (temporal domain) to explore. Although it is explicit that natural capital domains of wildlife, vegetation, air, and water are to be addressed, it is the purview of the proponent (through the decisions of their consultants), to determine the critical decisions about spatial and temporal scale that ultimately determine the results of the analyses, and the messages they convey to stakeholders and regulatory bodies.

In reality, the GoA provides general guidelines to industry concerning cumulative effects assessments, implying that industry has the capacity to complete the analyses in a thorough and unbiased manner. Industry, in turn, completes analyses that are often incomplete and/or misleading, and then defends these analyses by stating they meet the

minimal standards as laid out by the GoA. If critical scoping boundaries, system complexities and spatial and temporal scales are not appropriately determined, then the opportunity for affected stakeholders and the public to become informed about the cumulative liabilities of the project are negated. All too often, biased selection of spatial and temporal boundary conditions magnifies the benefits of proposed projects while minimizing any opportunity for stakeholders to grasp the full magnitude of liabilities.

Conducting a Cumulative Effects Assessments

I agree with the definition of cumulative effects as described by Joseph et al. (2023):

Cumulative effects (CEs) are typically defined as the combined effects of past, present, and potential future human activities and other stress on environmental, economic, social, and other values. CEs have long been a focus of major project impact assessment (IA), with early conceptualization and cementing of their role in project-level IA in the US groundbreaking National Environmental Policy Act (NEPA) of 1970 and following suit in many jurisdictions around the world including Canada (Olagunju et. Some maintain that CEs are ultimately the only effects worth assessing (Duinker and Greig, 2017).

Although the structure and methodologies of proper cumulative effects assessments have been widely described (Joseph et al., 2023), they are seldom endorsed or conducted in Canada by provincial or federal governments/agencies charged with sustainable resource mandates. A recent review by the Council of Canadian Academies (2019) entitled Greater Than the Sum of Its Parts: Toward Integrated Natural Resource Management in Canada, highlights the need for a fundamentally new approach to examining sustainability on regional landscapes shaped by multiple overlapping land uses.

There are several reasons why government and industry likely resist adopting the foundational principles of cumulative effects assessments, but arguably the most important reason is fear that its methodological outcome would reveal the magnitude of environmental liabilities, and that this knowledge might interfere with capital investment or economic growth. Because of persistent tendencies to externalize the economic or intrinsic value of natural capital, many in government and industry struggle to understand that sustainable management of ecosystems is fundamental to securing long-term economic prosperity. This puts them at odds with embracing the principles of rigorous cumulative effects assessments. A contemporary and timely example of the lack of a proper cumulative effects ideology is how the Government of Alberta has framed the conversation about the rapidly growing an AI/DC industry.

Four of the hallmarks of proper cumulative effects assessments relate to systems integration, multi-stakeholder participation, spatial scale, and temporal scale. If assessments of AI/DC do not adequately address all of these interacting benchmarks, then there cannot be an informed conversation about both the benefits and liabilities of this fledgling, but rapidly expanding sector. If these principles are ignored, then the natural capital accounts (air, water, carbon, soils, biodiversity), human health, and other land uses of Alberta are placed at risk.

Systems Integration

The watersheds and landscapes of Alberta are complex biophysical systems, complete with physical, biotic, human, and land-use components and their myriad inter-actions. We often view these systems through the separate and isolated lens of social, economic, and environmental performance. These components interact in ways we understand and in ways we do not. Altering one or more of the system components will invariably cause others to adjust and respond. And there are innumerable lags in how quickly these systems respond and interact. There are

many hundreds of components to these social/economic/environmental systems and many tens of thousands of interactions. To date, a systems-based approach to examining AI/DC against the full suite of land uses has not been completed. Given the important role that watersheds, airsheds and their constituent elements (water quantity, water quality, air chemistry, carbon movement, biodiversity, ecosystem connectivity) it is certain that a rapidly expanding network of AI/DCs will affect most, if not all biophysical components of the natural capital accounts of Alberta. The materials submitted as part of Beacon's Indus AI/DC adopts a narrow silo approach that does not reflect the integrated system in which this proposal intends to be placed. As such, it is not possible to understand how the Indus AI/DC is likely to interact with other land uses (residential, irrigation, crops, livestock, recreation), human health (air, light, and sound pollution), and key ecosystem dynamics that involve air quality, soils, carbon pools, water (quantity and quality), and biodiversity.

Multi-Stakeholder Inclusivity

Cumulative effects assessments recognize and incorporate all land uses (land users) affecting a regional watershed or airshed, and as such all stakeholder groups need to be part of the discussion that identifies performance indicators (social, economic, environmental), to assist in selecting "what-if" scenarios to be explored, and to inform relevant spatial and temporal scales of the project. Should the Government of Alberta fail to recognize this key principle, a loud response from awakened Albertans is a likely outcome. The existing silo, project-by-project consultation process is not in any way a defensible cumulative effects approach, but does hopefully set the stage for initiating one.

Meaningful Spatial and Temporal Scale

What is clear is that the Government of Alberta wishes to see a large AI/DC network emerge within the province. This magnitude of this policy direction has been well documented through an examination of current promotional material on both GoA (Alberta's 'Artificial Intelligence (AI) Data Centres Strategy: Powering the Future of Artificial Intelligence, 2026) and private sector websites. Despite this information, the Government of Alberta and AUC has to date confined its regulatory dialogue on cumulative effects to isolated AI/DC proposals. This narrow focus precludes the broader stakeholder community from a robust opportunity to understand the full suite of benefits and liabilities that would attend such an extensive, transformational and disruptive land use trajectory as that AI/DC. A broader analytical scope, one that considers an appropriate range of space (small to large) and time (short-term to long-term) is critical to ensuring that the full breadth of learnings of cumulative effects is made and conveyed to Alberta's stakeholders.

The appropriate time" scale for robust cumulative effects assessment is one that allows the current and foreseeable projects to unfold in relevant temporal and spatial scale. AI/DC proponents (Government of Alberta, private sector investors) wish to develop and implement a new and expansive AI/DC network that would generate significant employment and tax revenue, and position Alberta in the forefront of the information tech frontier. But in doing so it will also transform hundreds of square kilometers of natural and anthropogenic landscape, consume significant volumes of scarce water, electricity, and fuel, emit large volumes of GHG, particulates and $N0_x$, and generate noise pollution well beyond their physical footprints. This is the classic benefit and liability dynamic that attend all land use considerations.

Spatial/Temporal Optimization and Best Management Practices

A key benefit of a thorough and comprehensive assessment of AI/DC sector would be the spatial/temporal insight into what are the key social, economic and environmental issues, where do these issues emerge, which BMPs would offer greatest mitigative benefit, and how to optimize the spatial and temporal distribution of those AI/DC. Only by

simulating a range of AI/DC scenarios is it possible to quantify its effects on key VCs, and to explore how different BMPs assist (or not) in the performance of VCs.

AUC Bulletin 2025-12

The wording in AUC's Bulletin 2025-12 is clear. Appropriate and robust cumulative effects assessments are a requirement for all large power plants and energy storage facilities. Further, the Bulletin 2025-12 identifies key considerations and refers to the need for careful scoping of space (spatial) and time (temporal) domains. AUC's Bulletin 2025-12 reads as follows:

The AUC has considered the guidance from the Ministry of Affordability and Utilities and is introducing the following interim information requirements for all types of power plants and energy storage facilities that are 10 megawatts or greater, with a new application filed on or after August 26, 2025:

1. *Please confirm whether the applicant is aware of other existing developments in the project area that could cumulatively affect the rural setting/landscape due to their proximity and/or number.*
2. *Please discuss any potential positive or negative cumulative social, economic or environmental impacts or effects that may occur considering the proposed project, existing developments and any other currently planned developments. This discussion may include, but is not limited to, any economic spinoffs, community and employment benefits, visual impacts, proliferation, land fragmentation (including fragmentation of agricultural uses, wildlife habitat fragmentation, etc.), the impact of adherence to municipal planning documents, wildlife, species at risk, air quality impacts, recreational or tourism impacts, impacts to existing or anticipated resource development, wetlands, native grasslands, watersheds and water quality impacts, and surface management.*
3. *3. Please discuss the applicant s alignment, or efforts to align, with Alberta s Land-use Framework and the economic, orderly and efficient development of industrial facilities including efficient land use principles.*

With respect to requirements #1, #2, and #3 above, the following deficiencies in the Beacon/Stantec cumulative effects review have been identified.

1. Deficiencies relating to Requirement #1, where the proximity of Calgary to the Indus is not meaningfully discussed in either a spatial or temporal manner.

    - The Proponent chose the airshed of Lethbridge and Brooks as a more favourable comparison for their air quality analyses involving the Indus plant. This decision does not make sense as these are much smaller communities and do not reflect the regional airshed dynamics of the Indus site and its position within the Greater Calgary region. Calgary is primarily upwind of the local study area and as such the local study area would be subjected to air emission dynamics from both local and upwind sources of emissions. Equally, the City of Calgary will be affected by the suite of emission types produced at the proposed Indus site.

    - The Proponent's submissions fail to meaningfully recognize that the proposed Indus site is geographically proximal to the City of Calgary, the largest of Alberta's cities with an urban footprint (~900 km^2) that has grown spatially at ~2%/year over the past several decades. As described in the document "Guiding Calgary's Growth; Area Structure Plans (2026), Calgary is expected to continue to grow at an exponential rate and the southeast region will experience significant new community growth. Given the annexation history of Calgary into adjacent Rocky View County lands, it only stands to reason that the City of Calgary will eventually consume the land around the proposed Indus AI/DC. At this point, the Indus AI/DC will be functionally inside Calgary's boundary. This high probability reality deserves in-depth cumulative effects analyses with respect to the following dynamics:

        1. Heat Island Effect
        2. Residential Property Value and Viewscape

3. Noise Pollution
4. Competitive Water Demand
5. Water Quality
6. Air Quality
7. Light Pollution

2. Deficiencies relating to Requirement #2, where the full suite of existing land uses are not addressed meaningfully in either a spatial or temporal manner.

    - The Beacon Indus site is situated within a large and busy regional landscape that includes a broad suite of existing land uses (urban residential, acreage residential, agricultural residential, croplands, livestock pastureland, recreation, light industry, mining, oil and gas). Each of these land uses contains a land footprint, requires a large set of input streams (air, water, electricity, fuel, services, transportation, public and private infrastructure) and generates an equally large set of outputs (commodities, waste streams, expired capital). By all measures, the AI/DC dynamic is an explosive and new trajectory. The Indus campus alone will affect both input and output dynamics of all surrounding and regional land uses. It is the job of a robust cumulative effects assessment to quantify and describe these interactions. Only by doing this work in a comprehensive manner can the full suite of benefits and liabilities be understood. If the full extent of spatial and temporal liabilities are not identified, it is impossible to consider a full complement of mitigation measures intended to optimize the benefits and minimize the liabilities. I see no evidence that Beacon and Stantec have completed this important work.

3. Deficiencies relating to 3. *No meaningful efforts made to align with the South Saskatchewan Land Use Framework*.
    - The Alberta Land-use Framework (LUF) and its South Saskatchewan Regional Plan (amended 2025) identifies the South Saskatchewan Region as facing severe growth pressures from rapidly increasing human population and expanding land uses. Key environmental challenges include acute water scarcity and allocation limits, habitat fragmentation from linear infrastructure, wetland and riparian degradation, and cumulative impacts on air and water quality. The Alberta Land Use Framework explicitly states that cumulative effects assessments should be completed to assist locals, regional, and provincial stakeholders in comprehending the full breadth of benefits and liabilities associated with land uses.

To emphasize the limitations described above in greater detail, and to suggest BMP recommendations, I offer additional comments referring to deficiencies of Beacon's cumulative effects review below.

Temporal Scale

- Beacon's analyses did not consider any future AI/DC projects even though there is abundant published information that there will be numerous other AI/DC proposed projects at the scale of the selected regional study area (Rocky View County). Nor did they consider existing AI/DC (E-Struxture 2 and E-Struxture 3) in the regional study area. These omissions negate any opportunity for stakeholders to appreciate how the known or anticipated growth trajectory of AI/DC will affect VCs.

For example, if the AI/DC trajectory grows within the regional study area at a rate promoted by the GoA and the industrial sector, how does it adversely affect the following key environmental VCs:

    - Water Availability Index for other key water users (in-stream, domestic human, crops, livestock, recreation, other industrial sectors).

        - Key Questions:

- Given the growth trajectory of each of urban residential, rural residential, agriculture, heavy industry, light industry, recreation, and AI/DC, how quickly may water shortages emerge, and which land uses are most likely to experience water shortages?
- How does a rapidly expanding network of AI/DC affect water availability for scenarios that incorporate climate change predictions?

- Air Quality Index through Heat Island Effects leading to increase frequency and magnitude of heat stress to local and regional populations.
  - Key Questions:
    - What is the total cumulative heat load of all land uses in the regional landscape? What is its spatial distribution?
    - To what extent does a growing population of AI/DC contribute to increased heat load over the next 2-3 decades.
    - As the Indus and other AI/DC located adjacent to, and within the Greater Calgary region grow in number, do they acerbate concerns of urban heat stress?
    - How is this elevated heat island dynamic likely to affect the health of people residing in the Greater Calgary region?
- Ambient Noise Quality Index through increased frequency and magnitude of noise pollution (primarily low-frequency) that reduces quality-of-life metrics
  - Key Question:
    - Given the anticipated number (low, medium, high) of new AI/DC in the regional study area, what is the combined acoustic load and what is the spatial distribution of that load?
- Landbase Index for wildlife habitat and productive cropland, through loss from land conversion
  - Key Question:
    - To what extent has natural habitat, and connectivity of habitat been lost by all land uses to date? What is the spatial distribution of the remaining habitat that provides connectivity? How might the anticipated number (low, medium, high) of new AI/DCs in the regional study area affect the remaining vestiges of unfragmented habitat? Which wildlife species are most affected by an increasingly fragmented landscape? And how well might BMPs alleviate habitat loss?

Exploring meaningful temporal boundaries can also reveal consequences to non-environmental VCs, such as economic, social and aesthetics:

- Property Values of nearby neighbourhoods
- Employment (both construction and permanent jobs)
- Human Health and Community Well-being

Dilution of Spatial and Mathematical Scale

The documents provided by Beacon's consultant adopt spatial decisions that are misleading in terms of allowing stakeholders to appropriately understand the magnitude of adverse effects of this project. Below are a few examples. Although the commodity consumption rates (water, electricity, land area) and output rates ($C0_2e$, NO_x, PM 2.5) are provided by the proponent in their submissions, these metrics are generally profiled in summary comments as a minor or insignificant level when compared to the full suite of other land uses occurring on a large regional study area (generally Rocky View County) or other regional study area). This wording fails to capture the magnitude of the local effect and leaves the reader with the understanding that additive effects are insignificant.

One of many examples includes messaging around air emissions that highlight this written bias. Table 1 lists the existing NO_x, CO, and PM 2.5 loads (tonne/day) from emitters currently in operation or approved in the regional study area, with values (tonne/day) of 7.18, 1.93, and 0.235, respectively. As shown in Table 4.9, the additive new emissions of NO_x, CO, and PM 2.5 from the Indus Project alone are 3.09, 2.14, and 0.491 tonne/ day, respectively. These are profoundly large additions to the background levels. Rather than stating mathematically the relative increase of these emissions relative to background levels (i.e., stating the % increase that these new additions would create; for example, adding a value of 1.0 to an existing level of 1.0 equals a 100% increase), the Beacon submission

Table 1. Comparison of air emission loadings.

Emission Loads (tonne/day)			
	N0x	**CO**	**PM2.5**
Base Case	7.18	1.93	0.235
Project Case	3.09	2.14	0.491
Application Case	10.26	4.08	0.726
Contribution of Project to Application Case	30.1%	52.6%	67.6%
Actual Increase in Emission Load	43%	111%	209%

choses to add background levels to project case first, and then reflect on what "fraction" the new value adds, which suggests a much lower increase. Which is the same as saying a 1.0 addition to an existing 1.0 value only reflects 50% of the total load. A 50% value sounds much less adverse to the reader than 100%, and while mathematically correct, I believe it is misleading. A comparison of the Beacon approach and a more informative approach is highlighted above in Table 1. To the average stakeholder, 30% sounds less adverse than 43% (for NOx), 53% sounds less adverse than 111% (for CO), and 68% sounds less adverse than 209% (for PM 2.5)). Both approaches are mathematically correct but convey entirely different messages to a public who wishes to be informed about the magnitude of new emissions associated with this proposal.

Curiously, these large increases in combined local and regional emission loading from the addition of the Indus project were not included in the Executive Summary dealing with air quality. Instead, the authors chose to focus on maximum emission concentrations, which reflect a spatial dilution dynamic associated with plume modelling:

The maximum predicted NO_2, CO, and PM 2.5 concentrations for all averaging periods associated with the Base Case and Application Case are below the AAAQO. A comparison between maximum predicted concentrations for the Base

Case and Application Case indicates small increases (up to 0.8%) to the maximum predicted NO_2, CO and PM2.5 concentrations with the addition of the Project. The modelling results show that overall maximum concentrations in the study area are primarily attributable to emissions from the existing regional industrial facilities. This summary in no way conveys the large additive loading for each of *NO_x, CO, and PM 2.5 from the Indus project, and nor does it reflect any scenarios where there is more than one AI/DC being developed*.

AI/DCs, Climate Change and Global Heating

Perhaps the ultimate cumulative effects questions to be pondered by governance and regulatory bodies regarding AI/DC should focus on its potential contributions to climate change and its encompassing threats to humanity. The driving force behind climate change is the vast volumes of hydrocarbons combusted to fuel human land uses. Climate change is driving significant weather extremes in Alberta, including hotter and more frequent heatwaves, intense droughts, severe flash floods, and larger, more volatile wildfire seasons.

The Canadian Climate Institute (2026), Alberta Climate Futures (2019), and ABMI (Schneider (2013) have published regional assessments of climate change futures for Alberta. These publications underscore the increasing magnitude and frequency of heat waves and water scarcity that await Alberta in the decades to come. The GoA leadership and its ministries now recognize the gravity of the climate change challenge being experienced at all spatial scales. Given that the majority of Albertans reside in urban centers (such as Calgary), how will the rapid increase in number of AI/DCs interact with, and contribute to, high temperature climatic events within existing urban heat islands? What are the health and electrical (cooling) implications of these events?

While AI/DCs are currently responsible for ~1-2% of global electricity consumption and GHG emission, they are currently growing their electricity demand at 30%/yr (International Energy Agency, 2026). Globally, if this sectoral growth rate persists for the next few decades, AI/DC would quickly become an insurmountable obstacle to achieving existing international GHG emission reduction goals (Center for Biological Diversity, 2025). At a provincial scale Alberta is already struggling with public concerns relating to AI/DCs and their demands/intake/emissions of GHG, electricity, water, heat production, and harmful noise.

If Alberta's AI/DC growth trajectory unfolds at these hyper-exponential rates, its adverse effects would be massive, as would be the vocal opposition of affected communities. Given the spectre of rapid AI/DC growth in the Greater Calgary region, it would be advisable for the AUC to recommend a cumulative effects assessment strategy to seek answers to the following issues and questions:

1. Surging Greenhouse Gas Emissions

- **Massive Energy Draw:** Modern hyperscale AI/DC consume vast amounts of electricity. Alberta is proposing some of the largest AI/DC ever considered. Training and operating large language models require computing power equivalent to the needs of tens of thousands of homes. [Lincoln Institute of Land Policy (2026), Penn State Institute of Energy and the Environment, 2026]
    - What are the likely projections of electricity consumption, and related GHG emissions, associated with the training and operating of LLMs proposed by Beacon's Indus project and other AI/DC currently proposed in the region?
- **Fossil Fuel Reliance:** Many AI/DC are built in regions where the electrical grid is still powered by coal and natural gas. This is the situation that occurs in Alberta. This fuel dependence directly releases large quantities

of carbon dioxide, exacerbating climate change. Many proposed facilities, including those in Alberta intend to install on-site gas turbines for continuous, independent power. From a climate change perspective, it would be preferable to locate AI centers in cooler regions or areas with low-carbon, renewable power grids (such as areas utilizing hydropower; David Nutt, Cornell Chronicle 2025).

- Is it within the mandate of AUC to consider issues relating to the optimal geographic location of AI/DCs? If so, how does the proposed location of the Indus AI/DC rank relative to other sites?

2. High Water Consumption and Scarcity

- **Cooling Demands:** Enormous volumes of water are required to absorb the heat generated by AI servers. Large facilities can consume millions of litres of water daily, equivalent to the usage of a small to medium sized town. Even with closed loop glycol systems to cool computer components, it is necessary to generate vast quantities of electricity to power the movement of the cooling fluids.
- **Local Strain:** Many AI/DC are situated in water-scarce regions, creating direct competition with local communities for dwindling freshwater resources. The Indus AI/DC is located within the South Saskatchewan watershed, a basin closed to additional water allocations and one in which water scarcity is expected to become more pronounced. (Government of Alberta, 2009).
    - The South Saskatchewan River watershed is already fully allocated with respect to water demand. What assurances exist that future AI/DC in this watershed will not lead to higher cumulative water demand across all land use sectors, and place further demands on a watershed struggling to meet its existing water allocation commitments?

Exploring Temporal and Spatial Dynamics

The current Indus AI/DC project is contextualized in Beacon's Indus AI/DC submissions primarily as a single event with minimal or no significant cumulative effects at the scale of Rocky View County. While it is true that its projected individual footprint and resource demands and emission streams may be comparatively less than combined industrial activities currently in Rocky View County, this comparison is not instructive to stakeholders such as the IARG and other stakeholders in understanding how the emerging AI/DC sector contributes (adds to) cumulatively the existing full complement of other land uses (croplands, pasture lands, oil and gas, mining, residential, recreation, light

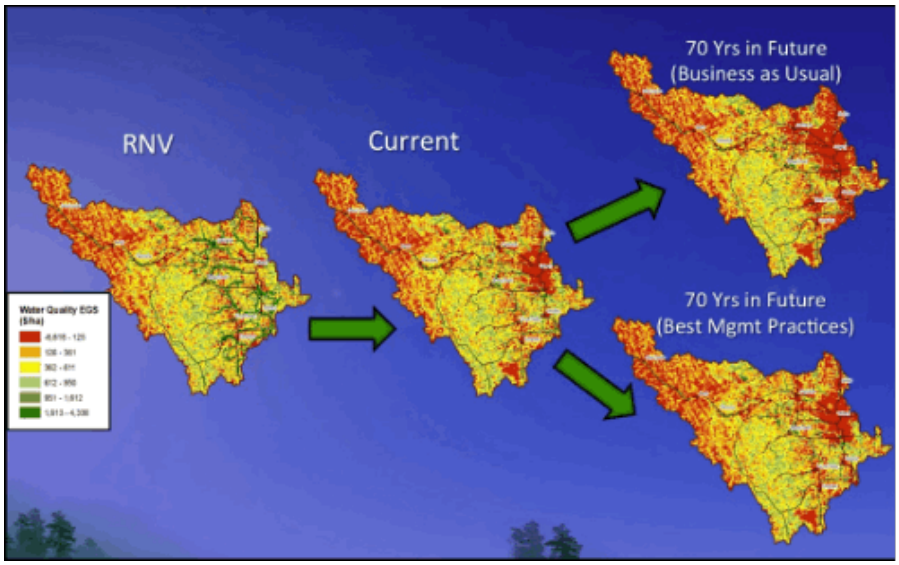


Figure 3. The Upper Bow River Basin in Alberta. This map illustrates changes in water quality, which is a reflection of land use intensity. The proposed Indus data center is at the very lower reach of this watershed. Source: Alces Group.

industry), with respect to the key VCs of water, land, GHG emissions, electricity load, and transmission network - both now and in the future.

The Indus area is located at the very downstream extent of the Upper Bow River Basin (Figure 3), a high-profile provincial watershed that currently contains an exceptionally busy matrix of people and land uses (urban residential, rural residential, croplands, grazing lands, light and heavy industry, oil and gas, logging, transportation, recreation, mining, etc.). It has experienced profound land use and landscape changes in the past century and is expected to undergo additional population land use growth in the next 70 years. Each of these land uses produces commodities (homes, wood, fuel, food, aggregate, recreation, transit), and each requires energy. The production of that energy requires land, water, an upstream energy source, infrastructure, and affects key natural capital categories (water quality, water quantity, biodiversity, air quality. What might this trajectory look like under a variety of "what-if" scenarios relating to the future of AI/DCs? Careful consideration of an AI/DC trajectory needs to minimally consider the following questions:

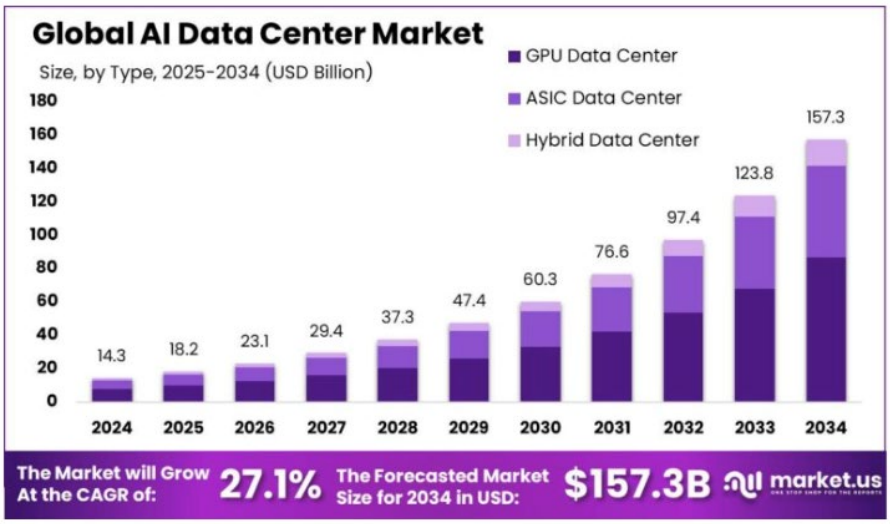


Figure 4. Historical global AI Data Center Market. Source: https://market.us/report/ai-data-center-market/

- What are the natural and human capital input requirements for electricity, land, water, transportation, work force, ..., required for a typical AI/DC campus, such as the one proposed by the Beacon for Indus?
- Does the Indus AI/DC project represent a "one-off" event, or is the Indus proposal a harbinger of numerous proposals in the next few decades? What is a likely growth rate of this sector over the next 20-30 years? - the timespan for our children to attain our age. That Beacon has proposed 3 AI/DC for the Greater Calgary region provides some relevant insight into this question. This sector is growing at 24-28%/yr globally, 23%/yr in North America, 25%/yr in Canada (Fortune Business Insights, 2026), and even higher hyper-exponential growth in Alberta. These growth trajectories will manifest themselves both qualitatively and quantitatively in water consumption, sound and light emissions, land occupation, electrical load, and GHG emissions. Key questions that need to be answered include:
    - At a range of spatial scales (municipal, provincial) what regions in Alberta are best suited to meet these requirements? For example, is a BYOE (bring your own electricity) strategy likely to be successful in all regions? And if not, what existing electrical use clients and sectors are likely to be adversely affected?
    - What are the key conflicts (water quantity, water quality, land, noise pollution, aesthetics, GHS emissions, wildlife conservation) between AI/DCs and the existing matrix of land uses? Which spatial regions do these conflicts occur with greatest intensity? What are the best management

practices that alleviate key issues, and to what extent do these mitigation work? How costly are these mitigation and do the requisite technologies even exist to allow industry to implement them?

IARG members understand the importance of conducting cumulative effects assessment, as revealed in the words of landowners Arnold and Johanna Heuver in their AUC submissions:

> *"The project is close to a big city that is already producing and sending pollutants into the air. How many power plants, including AI data centers, are we going to have in very close proximity? The combined pollutants are a very big concern for us. Chestermere Beacon AI Center, which will include another gas fired power plant, is only about 5 km away. Now there is another proposal from Wild Rose West AI which is about 5 km east of this project. The cumulative effects of these projects should be carefully considered"*

A rapidly increasing number of Albertan's are asking the same question about AI/DCs. And their questions remain unanswered. So, let us try to gain a preliminary insight into the Heuver's reasonable question with a simple exercise in cumulative effects assessments that explores the spatial and temporal magnitude of this nascent land use.

Starting with just a single AI/DC similar in scale to the Beacon Indus project (10.5 M MWH/yr, 500,000 m^3 of water/yr, 350 ha of landbase, 4.78 M tonne of CO_2e/yr) how might a no-growth (0%/yr), medium growth (7%/yr), and high trajectory (15%/yr) affect a regional study area of the scale of the Greater Calgary Metropolitan region and its surrounding Rocky View County.

The no growth, medium and high growth trajectories are presented in Table 2 for a few key VCs. A 0% growth in AI/DC is reflected in the first row of each spreadsheet, and these numbers would not change with time. At year 20, a 15% annual growth rate (which is lower than the actual rate Alberta is currently receiving new AI/DC proposals), projects in 20 years a total of 14 AI data centers occupying 5,000 ha (~20 sections) of land, consuming 150 million MWH of electricity/year, emitting 68 million tonne of CO_2e/year, and consuming over 7 million m^3 (7 billion liters) of water/year.

These are staggering large values. In comparison, in 2025, the City of Calgary consumed ~182 M m^3 of water and 18 M mwh of electricity and emitted about 15 M tonne of CO_2e/yr.

- This means that a 15% growth rate in AI/DC (i.e, 14 data centers in 20 years) would lead to an outcome where AI/DCs would be consuming more than 8 times the current electricity consumption of the City of Calgary, would emit more than 4 times their amount of GHG, and would be consuming nearly 5% of the water currently used by the City of Calgary. This exercise underscores the importance of running "what-if" AI/DC scenarios across meaningful time (multiple decades), meaningful space (Greater Calgary region) and assessing meaningful growth envelopes of AI/DCs (low to high). The results make clear that the Indus project, and the ones that are likely to follow, will have a significant adverse effect on loss of remaining wildlife habitat and high-value agricultural land, availability of an already scarce water supply, and will represent a massive increase in the emissions of GHGs and consumption of electricity.

Table 2. Projected changes in selected VCs under a low (7%/yr; left) and high growth (15%/yr; right) trajectory

	Growth rate	0.07			
Year	# AI/DC	Water (m3/yr)	Electricity (MWH)	Land Area (ha)	GHG Emissions (t CO2e)
1.00	1.00	500,000.00	10,500,000.00	350.00	4,780,000.00
2.00	1.07	535,000.00	11,235,000.00	374.50	5,114,600.00
3.00	1.14	572,450.00	12,021,450.00	400.72	5,472,622.00
4.00	1.23	612,521.50	12,862,951.50	428.77	5,855,705.54
5.00	1.31	655,398.01	13,763,358.11	458.78	6,265,604.93
6.00	1.40	701,275.87	14,726,793.17	490.89	6,704,197.27
7.00	1.50	750,365.18	15,757,668.69	525.26	7,173,491.08
8.00	1.61	802,890.74	16,860,705.50	562.02	7,675,635.46
9.00	1.72	859,093.09	18,040,954.89	601.37	8,212,929.94
10.00	1.84	919,229.61	19,303,821.73	643.46	8,787,835.04
11.00	1.97	983,575.68	20,655,089.25	688.50	9,402,983.49
12.00	2.10	1,052,425.98	22,100,945.50	736.70	10,061,192.33
13.00	2.25	1,126,095.79	23,648,011.68	788.27	10,765,475.80
14.00	2.41	1,204,922.50	25,303,372.50	843.45	11,519,059.10
15.00	2.58	1,289,267.08	27,074,608.58	902.49	12,325,393.24
16.00	2.76	1,379,515.77	28,969,831.18	965.66	13,188,170.76
17.00	2.95	1,476,081.87	30,997,719.36	1,033.26	14,111,342.72
18.00	3.16	1,579,407.61	33,167,559.72	1,105.59	15,099,136.71
19.00	3.38	1,689,966.14	35,489,288.90	1,182.98	16,156,076.28
20.00	3.62	1,808,263.77	37,973,539.12	1,265.78	17,287,001.62

	Growth rate	0.15			
Year	# AI/DC	Water (m3/yr)	Electricity (MWH)	Land Area (ha)	GHG Emissions (t CO2e)
1.00	1.00	500,000.00	10,500,000.00	350.00	4,780,000.00
2.00	1.15	575,000.00	12,075,000.00	402.50	5,497,000.00
3.00	1.32	661,250.00	13,886,250.00	462.88	6,321,550.00
4.00	1.52	760,437.50	15,969,187.50	532.31	7,269,782.50
5.00	1.75	874,503.13	18,364,565.63	612.15	8,360,249.88
6.00	2.01	1,005,678.59	21,119,250.47	703.98	9,614,287.36
7.00	2.31	1,156,530.38	24,287,138.04	809.57	11,056,430.46
8.00	2.66	1,330,009.94	27,930,208.74	931.01	12,714,895.03
9.00	3.06	1,529,511.43	32,119,740.06	1,070.66	14,622,129.28
10.00	3.52	1,758,938.15	36,937,701.07	1,231.26	16,815,448.68
11.00	4.05	2,022,778.87	42,478,356.22	1,415.95	19,337,765.98
12.00	4.65	2,326,195.70	48,850,109.66	1,628.34	22,238,430.87
13.00	5.35	2,675,125.05	56,177,626.11	1,872.59	25,574,195.50
14.00	6.15	3,076,393.81	64,604,270.02	2,153.48	29,410,324.83
15.00	7.08	3,537,852.88	74,294,910.53	2,476.50	33,821,873.55
16.00	8.14	4,068,530.81	85,439,147.11	2,847.97	38,895,154.59
17.00	9.36	4,678,810.44	98,255,019.17	3,275.17	44,729,427.78
18.00	10.76	5,380,632.00	112,993,272.05	3,766.44	51,438,841.94
19.00	12.38	6,187,726.80	129,942,262.86	4,331.41	59,154,668.23
20.00	14.23	7,115,885.82	149,433,602.28	4,981.12	68,027,868.47

for AI/DCs in the Greater Calgary region.

Health Effects of AI/DCs

While the Alberta Utilities Commission (AUC) does not mandate a formal, stand-alone Health Impact Assessment (HIA) for proposals such as Beacon's Indus AI/DC application, the AUC is required by law to determine if a project is in the public interest, which inherently means including assessments of health impacts. The issues discussed below were raised by the IARG and deserve quantitative assessment in a thorough cumulative effects framework. The health implications of air, light, and noise pollution are well documented. The emissions associated with the Indus plant will be additive to the existing background levels at all spatial scales (local and regional). As emphasized previously in this report, a proper cumulative effects assessment should consider the implications of a larger network of AI/DCs expected to emerge on the regional landscape over the next few decades.

Light Pollution

Light pollution is a global issue. Hyperscale data centers require 24/7 security and maintenance illumination which creates a light dome harmful to diurnal and nocturnal organisms and human health, even when mitigated by best practices. Though light intensity drops proportionally with distance, beyond the direct line of sight the decrease in intensity is slowed by dust, moisture, and aerosols, but can remain visible for up to 10 to 30 km (National Geographic, 2026. Using historical satellite imagery, the World Atlas of Night Sky Brightness, built an online computer-generated map series based on thousands of satellite photos that measures night sky light emission and intensity. Increasing nocturnal light emission increases from low (black) to high (red). The maps in Figure 5 below showcases a portion of the Greater Calgary region and includes the Indus and Langdon. The Indus community can be seen using the arrow at the bottom left-hand corner of the legend. These analyses from this Atlas indicate that nocturnal light intensity in the Indus community has increased at an average annual rate of 9.33% between 2012 and 2025.

Best practices propose amber light rather than blue, motion sensors and green roofs; however, even if facilities restrict lumens (total light output) and lux (light hitting a surface), mitigation is limited due to safety regulations, liability and security considerations, exposed industrial equipment such as rooftop fans, and the albedo from reflective industrial surfaces. The result is that if a hyperscale campus uses 500,000 lumens of tightly controlled downward security lighting, approximately 50,000 to 150,000 lumens will still bounce upward, hitting the atmosphere and generating a visible skyglow dome (Dark Sky, 2026).

Hormonal interference caused by exposure to artificial light at night disrupts circadian rhythms and melatonin production which can cause serious adverse health effects, including severe insomnia and other sleep disorders, higher rates of obesity and type 2 diabetes, stress related activity in the brain which contributes to arterial dysfunction and risk of heart attack, higher risk of depression and anxiety, and an increased risk of breast and prostate cancer (Chepesiuk, 2009).

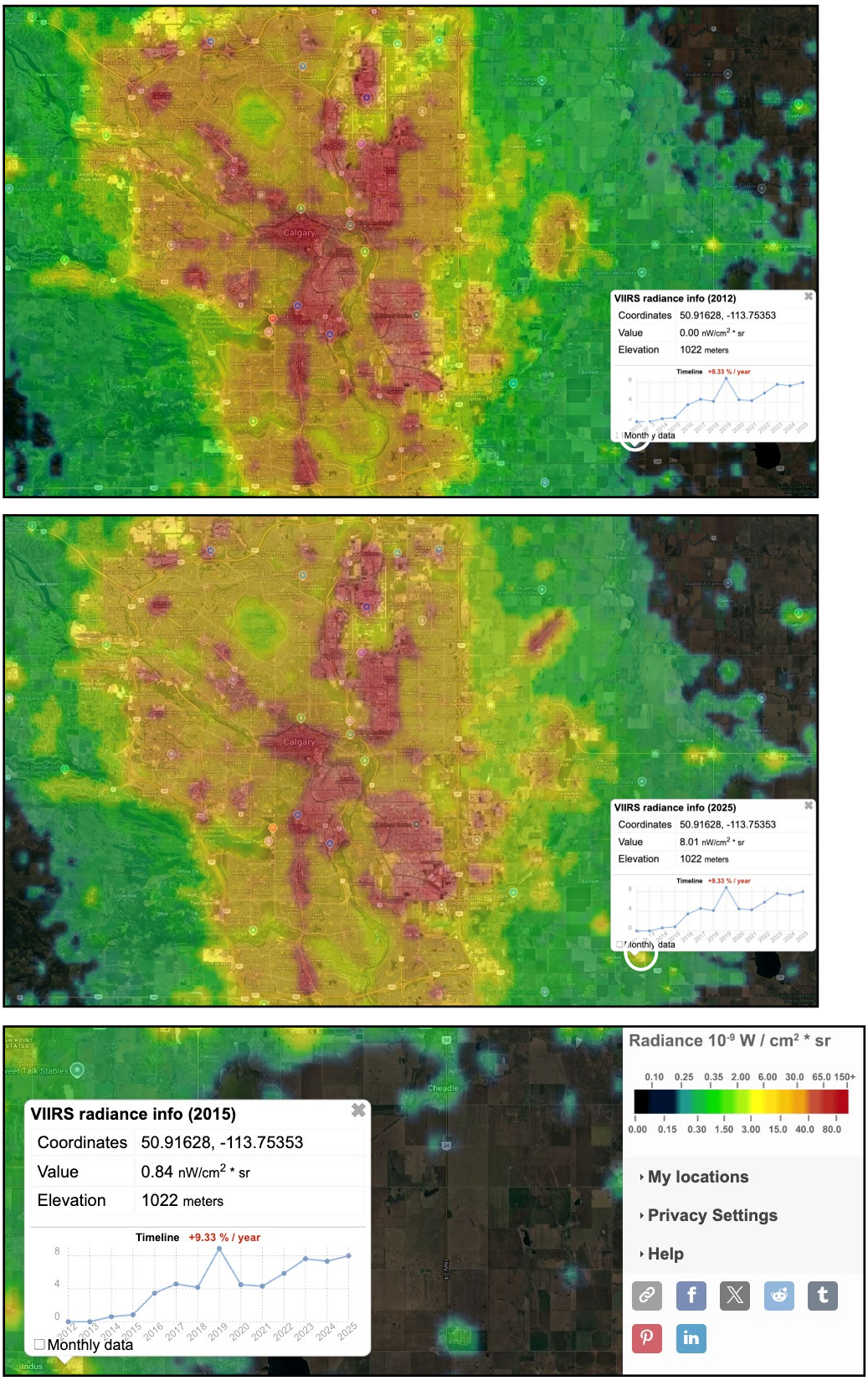


Figure 5. Changes in nocturnal light intensity in the Indus and Greater Calgary region between 2012 and 2025. Source; World Atlas of Night sky Brightness. The immediate area around the community of Indus is shown within a white oval.

Air Pollution

Hyperscale AI/DCs powered by fossil-fueled power plants and diesel backup generators emit pollutants such as nitrogen oxides, carbon monoxide, methane, volatile organic compounds, and fine particulate matter. A recent study found that these pollutants increase risk of respiratory diseases, cardiovascular conditions and cancer in nearby communities, and that U.S. data centers in 2028 could cause an additional ~600,000 asthma symptom cases and 1,300 premature deaths, exceeding 1/3 of asthma deaths in the U.S. each year, resulting in a public health burden of more than $20 billion (Han et al, 2026).

In addition to respiratory, cardiovascular and cancer risks, evidence suggests that finer fractions of PM, especially fine (PM 2.5) and ultrafine (PM 0.1) particles, adversely affect the central nervous system by penetrating the blood brain barrier which appears to increase risk of cerebrovascular and neurodegenerative diseases and cognitive dysfunction. Fine particles can accumulate and propagate longer distances, remain longer in the atmosphere and become persistent compared to larger particles (Gimeno-Ferrer et al. 2026).

Health agencies acknowledge that PM 2.5 is highly toxic and can enter the bloodstream directly and that there is no true "zero-risk" threshold. The World Health Organization considers 5 μ g/m^3 (annual average) and 15 μ g/m^3 (24-hour average) as the maximum safe levels for PM 2.5. The Canadian Ambient Air Quality Standards limit the annual average to 8 μ g/m^3 and the 24-hour average to 23 μ g/m^3. The US EPA annual standard is 9.0 μ g/m^3 and the 24-hour standard is 35 μ g/m^3.

In comparison, Alberta s allowable levels are high; the 24-hour allowable limit for PM 2.5 having been set at 29 μ g/m^3, with a 1-hour guideline of 80 μ g/m^3. The 2024 PM 2.5 data from the nearest monitoring station to the Indus AI/DC site indicates an annual average of 9.6 to 12.5 μ g/m^3, and a peak level of 20.1 to 45.8 (GoA. 2026. Fine Particulate Matter Monitoring Initiative). While these existing background levels are well within Alberta s allowable limits, they are already close to the acceptable limits of the World Health Organization, the Canadian Ambient Air Quality, and the US EPA standards.

Noise Pollution

A single INNIO Jenbacher J624 engine is a massive reciprocating machine, while clustering 20 modules proposed would create a significant cumulative noise footprint. One module (five engines) without mitigation would produce 117 decibels, and with heavy-duty acoustic baffling, industrial intake/exhaust silencers, and insulated steel walls generally emits around 75 to 85 decibels at 10 meters. Twenty modules would generate sound that will easily carry across long distances (Jenbacher, 2024). Noise emissions from a Seimens 1,034 MWe combined-cycle plant of the scale proposed will typically exceed 140 decibels at the source which can be aggressively suppressed by acoustic enclosures and exhaust silencers to 85 decibels at a distance of 1 meter from the machinery (Herring Storer Acoustics, 2025).

Industrial noise carries much further than simple distance loss formulas suggest as it has different frequencies and tonalities, including high levels of low-frequency sound and vibration below 500 Hz which can penetrate walls and produce a persistent, fatiguing drone (Žiaran et al., 2025).

World Health Organization guidelines note that nighttime noise exceeding 40 to 45 decibels inside bedrooms can cause sleep disturbance, elevated stress levels, and long-term cardiovascular risks, and continuous exposure to 55 to 65 decibels outdoor is associated with high annoyance and reduced quality of life in surrounding communities (World Health Organization, 2011).

A 2025 meta-analysis revealed that noise exposure significantly impairs cognitive performance in children and adolescents (Fernandez-Quezada et al., 2026). Another analysis of data from the China Health and

Retirement Longitudinal Study (Zhang et al., 2025) examined 3,459 individuals aged 45 and above to assess the association between noise pollution and cognitive function. The study indicated that each unit increase in the noise pollution index corresponded to a 0.41-point reduction in overall cognitive scores.

Synergistic Health Effects

Artificial Intelligence (AI) data centers generate a synergistic public health crisis. The combination of air pollution from backup generators/fossil-fuel power plants, continuous industrial noise, and intense light pollution from 24/7 exterior lighting causes compounding cardiovascular, respiratory, and neurological damage to nearby communities.

Given that all land uses emit noise, and some like AI/DCs emit extremely loud noise plumes, it would be reasonable for the AUC to request of Beacon a comprehensive cumulative noise assessment of the full matrix of local and regional land uses, and to explore the temporal consequences of the single Indus AI/DC and also a growth trajectory of AI/DCs. The health effects of this growth trajectory of noise pollution should be assessed.

Conclusions

This report focused on Stantec's cumulative effects review of Beacon's Indus AI/DC project.

It is my opinion that the expected frequency and magnitude of the nascent AI/DC sector in Alberta is immense and as such necessitates a thorough strategic-level cumulative effects assessment of this transformational land use sector. The Government of Alberta (GoA) has not completed such an assessment at either regional or provincial scale and as such Albertans remain uninformed of the full extent of the environmental and social consequences associated with AI/DCs. While numerous, promotional messages (government, industry) have conveyed the projected economic advantages (jobs, GDP, taxable incomes), there is a striking absence of information in Alberta about the adverse consequences (environmental, social, and health) caused by individual or multiple AI/DCs. It is the collective sum of these benefits and liabilities of individual and collective projects (of all land uses, properly placed in spatial and temporal scales) that constitute a proper cumulative effects assessment.

The wording of Minister Nathan Neudorf's letter (dated June 3, 2025) to Alberta Utilities Commission CEO Bob Heggie, makes clear that proper cumulative effects assessments are to be completed. Minister Neudorf stated, in part:

> *The Government of Alberta expects its agencies, including the AUC,* to consider cumulative effects and the outcomes associated with them. In addition, the Government of Alberta is committed to managing the cumulative effects of disturbance, including from electricity projects, *and remains focused on achieving strategies of Alberta's Land-use Framework*."

Without a provincial level strategic assessment of AI/DCs, its discourse by default appears to reside within the purview of the Alberta Utilities Commission (AUC) and hence discussed at an individual project scale. The AUC Bulletin 2025-12 mandates a proper cumulative effects assessment at an appropriate range of spatial and temporal scales, and inclusive of relevant land uses competing for resources on an overlapping landscape. Assessed against these benchmarks, the document prepared by Stantec does not represent a cumulative effects assessment. Rather, their document reflects a brief high-level and cursory review of the subject matter.

It is my opinion that Beacon's cumulative effects review is generally deficient with respect to key requirements described in Bulletin 2025-12, including but not restricted to the following:

- Ignored Relevant land uses at the regional study scale in terms of cumulative interactions for key input commodities (water, land) or exceedances of noise, light, or air emissions.
- Did not include temporal modelling tool analyses (i.e., cumulative effects modelling) to assist stakeholders in understanding key spatial and temporal dynamics that would profile potential conflicts but also provide opportunities for identification, and deployment of, best management practices.
- Restricted their AI/DC Scope to the single Indus AI/DC project even though multiple completed AI/DCs and additional proposals already exist within the regional study area.

Both industry and the provincial government have delivered strong messaging to Albertans that this is a rapidly growing industrial sector. The implications of this rapidly expanding AI/DC sector will be immense and felt at a full range of spatial (small to large) and temporal (short-term to long-term) scales. As such, Albertans deserve to understand the full complement of benefits and liabilities.

Recommendations

The most appropriate forum for completion of a comprehensive and strategic-level cumulative effects assessment of AI/DCs is the Government of Alberta - specifically a public process under the auspices of the Alberta Land Use Framework. And since this strategic assessment has not been completed, its dynamic and uncertain consequences (both favourable and adverse) are being addressed ad-hoc at the project level (i.e., Indus AI/DC).

In the absence of a provincial level assessment, it is my recommendation that AUC require Beacon to adopt and compete a systems-based cumulative effects modelling framework to explore an inclusive range of “what-if” scenarios that robustly examine the interface between an emergent network of regional AI/DCs and key VCs (natural capital (air, land, water, biodiversity) and socio-economic components at appropriate spatial and temporal scales.

Glossary

AAAQO	Alberta Ambient Air Quality Objectives
ABMI	Alberta Biodiversity Monitoring Initiative
AESO	Alberta Electric System Operator
AI/DC(s)	Artificial Intelligence / Data Center(s)
BMP	Best management practices
BYOE	Bring your own electricity
AI	Artificial Intelligence
AI/DC	Artificial Intelligence / Data Centers
AUC	Alberta Utilities Commission
CE	Cumulative Effects
CEA	Cumulative Effects Assessment
CER	Cumulative Effects Review
CO	Carbon Monoxide
CO_2e	Carbon dioxide emission equivalency
DC	Data Center(s)
GHG	Greenhouse gases
GoA	Government of Alberta
HIA	Health Impact Assessments
IA	Impact Assessment
IARG	Indus and Area Residents Group
MD	Municipality
NO2	Nitrogen Dioxide
N0x	Nitrogen Oxide
PM 2.5	Particulate Matter 2.5
VC	Valued Component
VEC	Valued Ecosystem Component

Units

B	billion
gW	gigawatt
kW	kilowatt
km^2	1 square km
M	million
mW	megawatt
mWh	megawatt hour
$\mu g/m^3$	micrograms per cubic meter
m^3	cubic meters

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J. Brad Stelfox, Ph.D.

Systems Dynamist and Watershed Ecologist

Principal, ALCES Landscape and Land-Use Ltd.

Adjunct Professor (University of Alberta, University of Calgary)

Professional Expertise

Regional Planning, Sustainable Resource Management, Watershed Dynamics, Food Production Dynamics, Food Security, Herbivore/Grassland Dynamics, Life Cycle Dynamics, Protected Areas Design and Management, Cumulative Effects Analyses, Ecological Modeling, Carbon Pool Dynamics, Disturbance Regimes, Climate Change, Forest Ecosystem Management

Education

Ph.D. Agricultural Productivity. 1985. University of Alberta, Department of Animal Science, Faculty of Agriculture, Edmonton, Canada. Title: Mixed-species game ranching in Kenya, East Africa.

B.Sc. Zoology 1980 University of Alberta, Department of Zoology, Edmonton, Canada

Experience

2013- 2017 **Lead Landuse Analyst / Regional Planning Initiative of the Curtin University, International Institute of Agri-Food Security (IIAFS)**

In collaboration with colleagues at the International Institute of Agri-Food Security, Dr. Stelfox is conducting projects from Canada to customize ALCES toolkit (Integrator, Mapper, Online) to assist regional governments with sustainable planning and development

2013-2014 **Lead Landuse Analyst / Cumulative Effects of Overlapping Landuse on the DND Suffield Military Reserve**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the DND Suffield Base in southeast Alberta. Client: DND Suffield. Ms. Delaney Boyd.

2010-2014 **Lead Landuse Analyst / Food Security and Upper Bow Basin Cumulative Effects Study.**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the Upper Bow Basin upstream of Calgary, Alberta, Canada. A major focus of this project was the quantification of change in food security and ecological goods and services. Client: Bow River Basin Council and Action for Agriculture. Mr. Harvey Buckley.

2010-2014 **Lead Landuse Analyst / Food Production Systems, WOTR, Pune, India**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the Akole Region, India. A major focus of this project is exploring alternative land use trajectories on triple bottom line indicators with a focus on sustainable food production systems. Client: Watershed Organization Trust (WOTR). Lead client: Dr. Crispino Lobo, Pune.

2012-2014 **Lead Application Development / ALCES Online**

Lead development, in collaboration with Noah Purves-Smith, the development of a fast, interactive, online landuse simulator called ALCES Online.

2012-2014 **ALCES Lead Landuse Analyst / ALCES Model Component, West Kimberley Region, WAMSI II**

Science Project, Western Australia.

Lead development, in collaboration with Dr. Michael Hughes, of a user-friendly version of ALCES Landscape Simulator and Mapper that could be used interactively by stakeholders of Kimberley Region of NW Australia. The Kimberley ALCES model is to be used in an integrated manner with other model tools being developed by colleagues Dr. Fabio Boschetti, Dr. Hector Lozano Montes, and Dr. Michael Hughes.

2011-2013 **Wildlife Habitat and Population Analyst /Fort McKay Cumulative Effects Study.**

Lead the wildlife and population dynamics component of the Moose Lake Buffer Project for the community of Fort McKay. Project examined the consequences of alternative protected areas options in the traditional territory of Fort McKay.

2011-2013 **Landuse Analyst /Province of Alberta Land Use Scan for the Alberta Land Use Framework.**

Provide broad oversight into the interpretation of historical, current and future land use trends in the Province of Alberta. Client: ALUF, Crystal Damer.

2011-2013 **Simulation Lead, Mine Reclamation, Syncrude Canada**

Responsible for simulation of historical, current and future landscape and ecological indicator changes to Syncrude's Mildred Lake Mine Site. Client: Integrated Ecology Group. Mr. Justin Straker.

2010-2012 **Lead Landuse Analyst / Ghost River Watershed Effects Study.**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the Upper Bow Basin upstream of Calgary. Client: Ghost River Watershed Council. Marina Krainer

2012 **Lead Landuse Analyst / Cold Lake First Nations Cumulative Effects Study.**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the Cold Lake First Nations. Client: Witten Law

2010-2012 **Lead Landuse Analyst / Alberta Land Use Management Framework. Lower Athabasca Regional Plan.**

Lead analysts for conducting regional scale land use and cumulative effects assessment for the Alberta Land Use Management Framework. Client: Alberta Land Use Framework. Crystal Damer.

2011-2012 **Lead Landuse Analyst / Watershed Organization Trust (WOTR), Pune, India.**

Lead analysts for conducting regional scale land use and cumulative effects assessment for pilot project for WOTR. Client: Watershed Organization Trust. Mr. Crispino Lobo

2010-2012 **Lead Landuse Analyst / Alberta Cumulative Landuse Effects Study for the Institute of Land Use Innovation (ILUI), University of Alberta.**

Lead analysts for conducting provincial scale land use and cumulative effects assessment for the ILUI. Client: Alberta Land Institute. Andre Tremblay.

2010 **Lead Landuse Analyst / West Kimberley Region, Western Australia, Cumulative Effects Assessment Pilot Project.**

Lead analysts for conducting regional landuse effects assessment for the West Kimberley Pilot Project Region of Western Australia. Client: Australia Sustainable Development Institute. Dr. Charlie Thorn.

2010 **Lead Landuse Analyst / Blood Indian Reserve Water Supply and Demand Study**

Lead analysts for conducting regional scale water supply and demand assessment for the Blood Indian Reserve.

2009- 2010 **Lead Landuse Analyst / Northwest Saskatchewan Cumulative Effects Project**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces. Providing disciplinary leadership in water dynamics, plant community structure, forestry, energy, agriculture, and residential sectors.

2008- 2010 **Lead Landuse Analyst / Alberta Landuse Management Framework for Lower Athabasca Regional Plan**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces. Providing disciplinary leadership in water dynamics, plant community structure, forestry, energy, agriculture, and residential sectors.

2005- 2008 **Landscape / Landuse Systems Dynamics and Modeling (ALCES); Southern Foothills Study**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces. Providing disciplinary leadership in water dynamics, plant community structure, forestry, energy, agriculture, and residential sectors.

2004- 2008 **Landscape / Landuse Systems Dynamics and Modeling (ALCES); CEMA, Alberta**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces.

2004- 2006 **Landscape / Landuse Systems Dynamics and Modeling (ALCES); NEI North Yukon**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces.

2004- 2006 **Landscape / Landuse Systems Dynamics and Modeling (ALCES); Kenai, Alaska**

Responsibilities include development of a landuse/landscape modeling approach for the client, and the modification of the ALCES model to incorporate relevant indicators, scenarios and response surfaces.

2004- Current **Adjunct Professor, Department of Biological Sciences, University of Alberta**

Responsibilities include membership on graduate student committees and invited lecturer on issues of landuse management and wildlife biology.

2003 - Current **Advisor, Integrated Resource, Integrated Land Management Program, Alberta Research Council**

Responsibilities include training ARC personnel in the use of the ALCES landscape model, and in guiding the development and implementation of ARC ILM Program.

2003 - Current **Adjunct Associate Professor, Faculty of Environmental Design, Univ. of Calgary**

Responsibilities include membership on graduate student committees and invited lecturer on issues of landuse management and wildlife biology.

2002 – Current **Southern Alberta Sustainability Strategy Cumulative Effects Initiative**

Responsible for the implementation of the ALCES model as a landscape simulator to assess the risks and opportunities associated with different landuse scenarios for the southern Alberta regional landscape.

2001 – 2003 **North-East Slopes Regional Cumulative Effects Initiative**

Responsible for the implementation of the ALCES model as a landscape simulator to assess the risks and opportunities associated with different landuse scenarios for the north-east slopes regional landscape.

1998 - Current **Developer of ALCES (A Landscape Cumulative Effects Simulator)**

Funded by WEPA (Western Economic Partnership Agreement), the Government of Alberta, and Alberta-Pacific Forest Industries, Stelfox has continued development of the ALCES model. This model is becoming widely adopted by government, industry and the environmental community as an effective tool for exploring issues of landscape and resource use sustainability.

Awards and Recognitions

2011	Recipient, **William Rowan Award**, The Wildlife Society; Alberta Chapter
2009	Recipient, **Outstanding Leadership – Individual**; Canadian Boreal Initiative
2004	Recipient, **Alberta Emerald Award** in the "Research and Innovation" Category
2002	Recipient, Al-Pac/**ASTech** Innovation in Integrated Landscape Management Prize
1997	**Distinguished Service Award**, The Wildlife Society, Alberta Chapter
1987	Stelfox Scholarship Fund, School for Field Studies, Beverly, Massachusetts
1985	Province of Alberta Graduate Scholarship.
1981-1983	National Sciences and Engineering Research Council Graduate Scholarship.

Publications (only current to 2014)

Matthew Carlson, Brad Stelfox, Noah Purves-Smith, Justin Straker, Shanti Berryman, Tim Barker, Barry Wilson, 2014. ALCES Online: Web-delivered Scenario Analysis to Inform Sustainable Land-use Decisions. *International Environmental Modelling and Software Society (iEMSs), 7th Intl. Congress on Env. Modelling and Software, San Diego, CA, USA, Daniel P. Ames, Nigel W.T. Quinn and Andrea E. Rizzoli (Eds.),* http://www.iemss.org/society/index.php/iemss-2014-proceedings

Matthew Carlson, Terry Antoniuk, Dan Farr, Shawn Francis, Karen Manuel, John Nishi, Brad Stelfox, Mika Sutherland, Cornel Yarmoloy, Craig Aumann, Daiyuan Pan. 2010. Informing Regional Planning in Alberta's Oilsands Region with a Land-use Simulation Model. International Environmental Modelling and Software Society 2010 International Congress

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Stelfox, J.B., M. Sullivan, and M. Spafford. 2004. The role of integrated landscape management to assist with exploring the past, present, and future effects of landscape activities on Alberta's boreal fish communities. Pp: 9-10. In Proceedings of: Forest Land – Fish Conference II: Ecosystem Stewardship Through Collaboration. Edmonton, Alberta, Canada, April 26-28th, 2004.

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Walker, D., Stelfox, J.B., Wasel, S. and Hebert, D. 1995. Natural disturbance regimes as templates for boreal forest harvest. Pp.. 3–18. In: Proceedings of Bats and Forests Symposium. October 19-21, 1995, Victoria, B.C. Edited by R. Barclay and M. Brigham.

Stelfox, J.B. and Lee, P. 1993. Old growth forests in the boreal mixedwoods of Alberta: patterns and processes. International Union of Game Biologists XXI. Halifax, Nova Scotia, August 15-20, 1993.

Stelfox, J.B. (editor) 1993. Alberta's Hoofed Mammals; their ecology, management and status. 250 pages. Lone Pine Press, Edmonton.

Stelfox, J.B. 1993. Boreal Forests, Biodiversity, and Logging. pp. 33-36. In: Forestry on the Hill. Special Issue #5.

Stelfox, J.B. 1989. Experimental systems. Section G. pp. 363-369. In: Wildlife production systems: economic utilization of wild ungulates. Cambridge University Press, Cambridge, UK. Edited by Hudson, R.J., Drew, K.R. and Baskin, L.M.

Stelfox, J.B. 1988. Game ranching in Kenya, East Africa. pp. 38-48. In: Proceedings of 3rd Annual Alberta Game Growers' Association Conference. Renecker, L.A. (ed.). Red Deer, Alberta. October 23-24, 1987.

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Stelfox, J.B. 1985. Mixed-species game ranching in Kenya. Ph.D. dissertation. University of Alberta, Edmonton, Canada. 159 pages.

Stelfox, J.B., R.J. Hudson, and N. Groer, 1984. Relationships among physical traits, age and social status in Thomson's and Grant's gazelles. Applied Animal Behavioural Science, 13, 347-357.

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Hudson, R.J., J.B. Stelfox, and D. Hopcraft, 1982. Wildlife production systems and programmes in Kenya. Acta Zoologica Fennica, 172, 225-226.

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Stelfox, J.B., Cornel Yarmoloy, and Matt Carlson. 2013. Cumulative Effects of Overlapping Land Uses in the Upper Bow River Basin. Submitted to Action for Agriculture. Publication available on ALCES website: www.alces.ca.

Stelfox, J.B. 2010. An Overview of Alberta's Landuses and a Critique of the Alberta Land-use Framework. (Tackling the Cumulative Effects Issue). A Green Paper prepared for the Annual Meeting of the Alberta Institute of Agrologists.

Carlson, M, Bayne, E., and Stelfox, B. 2008. Seeking a Balance: Future Conservation and Development in the Mackenzie Watershed. Canadian Boreal Initiative, Canadian Boreal Initiative. Ottawa, Ontario.

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TeraWestland, 2005. Environmental assessment report for the Terasen Pipelines (Trans Mountain) Inc. TMX – Anchor Project. Prepared for Terasen Pipelines (Trans Mountain) Inc., Calgary, Alberta.

Farr, D., Kennett, S., Stelfox, B., Ross, M., Weber, M. 2004. Conserving Canada's Natural Capital. The Boreal Forest. Alpac FMA Case Study Report. Prepared for the National Round Table on the Economy and Environment.

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Stelfox, J.B. 2004. Calgary's urban footprint: when does growth become sprawl. Page 12-16. Springbank Park Patter. Mid-March 2004.

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