

TO: Impact Assessment Agency of Canada (IAAC)

ATTN: Tracy Lachine, Project Manager

RE: Technical Information Request – Beacon AI Centers Indus Project (Reference #90121)

Subject: Request for Mandatory Evaluation of Trigeneration and Waste Heat Recovery Alternatives

As a concerned stakeholder regarding the Beacon AI Centers Indus Project, I am formally requesting that the Agency include a mandatory requirement in the **Tailored Impact Statement Guidelines (TISG)** for the proponent to evaluate a **Combined Cooling, Heat, and Power (CCHP / Trigeneration)** architecture as a "technically and economically feasible alternative means" under Section 22(1)(e) of the Act.

RATIONALE FOR THE REQUEST:

The current "Initial Project Description" (IPD) relies on a standard open-cycle design with dry-cooling radiators. This design creates a significant **Parasitic Load Penalty** during Alberta's summer temperature peaks and winter inversions, leading to the reported emission of **1,128 to 1,297 tonnes of NOx annually**. A Trigeneration (CCHP) system would utilize the high-grade waste heat from the 100 natural gas engines to drive **Absorption Chillers**. This technology is widely used in global industrial applications to provide cooling without the massive electrical draw required by standard air-cooling fans.

THE PROPONENT MUST BE REQUIRED TO PROVIDE:

1. **Comparative Emissions Modeling:** A side-by-side comparison of NOx, PM2.5, and CO2 emissions between the proposed dry-cooling design and a Trigeneration/Absorption Chilling design.
2. **Parasitic Load Analysis:** An hourly breakdown of "internal energy consumption" for cooling. Specifically, how many additional engines must be fired solely to power the cooling fans during a +30°C day or a -30°C inversion?
3. **Water-Emission Neutrality Study:** An assessment of how Direct Liquid Cooling (DLC) at the server level would allow the power plant to operate at higher thermal efficiencies, thereby reducing the total natural gas burned and lowering the NOx plume density near Indus School.
4. **Fumigation and Inversion Modeling:** A specific air-dispersion model for the "Fumigation" phase of a ground-based inversion. The proponent must demonstrate the ground-level concentration of NO2 at the Indus Recreation Centre when the plume is trapped below the mixing height.