

Karanvir Singh Prihar

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SUMMARY

Energy Data Analyst with a mechanical/aerospace engineering foundation (M.Eng, University of Toronto) and three years of hands-on residential energy-efficiency consulting experience under Canada's Greener Homes program. Brings direct experience in SQL, Python, and Power BI (DAX, Power Query) across two published, end-to-end analytics projects, combined with a structured, data-driven approach to problem-solving and a track record of translating technical findings for non-technical audiences across both engineering and consulting work.

HIGHLIGHTS

- Developed a Power BI dashboard analyzing energy and GHG data across ~18,000 properties in Ontario's Broader Public Sector, using a star schema data model, DAX, and Power Query.
- Built and deployed an end-to-end analytics pipeline (SQL Server, Python, Docker) analyzing Ontario's electricity generation mix, with automated data quality checks and interactive visualizations published via GitHub Pages.
- Delivered 250+ residential energy audits and technical retrofit reports under Canada's Greener Homes program, translating complex modelling outputs into clear, actionable recommendations for homeowners.
- Applied structured, data-driven problem-solving (Global 8D, DMAIC) to lift production quality run rate from 85% to 96% in a prior engineering role.

TECHNICAL SKILLS

Energy & Building Science: HOT2000 Modelling | Blower Door Testing | Residential Retrofit Assessment | Canada Greener Homes Program

BI & Visualization: Power BI (DAX, Power Query) | Excel

Languages & Databases: SQL | Python (pandas, seaborn, plotly) | SQL Server

Tools: Git | GitHub

PROJECTS

Ontario BPS Energy & GHG Dashboard

Jul 2026

github.com/ksprihar/ontario-bps-energy-dashboard

- Built a Power BI dashboard on a messy, regulator-published Ontario government dataset (~18,000 properties across 3 years), modeled around a star schema with dedicated fact and dimension tables (DAX, Power Query).
- Designed a 4-page report (plus 3 hidden tooltip pages) with dynamic Field Parameters, custom tooltips, and a two-page navigation architecture solving a structural Power BI drillthrough limitation.
- Diagnosed and resolved multiple non-obvious Power BI bugs (a Desktop-to-Service color-persistence issue, a RANKX ranking-tie edge case) and quantified a real ID-reconciliation data-quality problem rather than silently merging records.

Ontario's Energy Mix: The Accelerating Reliance on Natural Gas

Jun 2026

github.com/ksprihar/ontario-energy-mix

- Built an end-to-end SQL and Python analysis of Ontario's electricity generation mix (2015–2026) using public IESO data, identifying that Natural Gas has shifted from a peaking fuel into a structural baseload fallback, absorbing +1,232 GWh of generation growth against a broader system increase of +1,138 GWh since 2024.

- Automated data ingestion from IESO's public XML/CSV report endpoints using Python (requests, pandas), and designed a SQL Server schema with integrity validation (null, duplicate, and continuity checks) to ensure analysis-ready data.
- Wrote T-SQL queries using window functions and CTEs (DENSE_RANK, rolling 12-month averages, window-of-aggregate patterns) to quantify Gas's rising share of generation during peak-demand periods — from 7.8% in low-demand months to 18.0% in the most extreme.

PROFESSIONAL EXPERIENCE

Independent Analytics Projects – Energy & Sustainability

Jan 2025 – Present

- Designed, built, and published two end-to-end portfolio projects spanning data pipeline engineering and Power BI dashboard development — one analyzing Ontario's electricity generation mix, the other modeling energy and GHG data across Ontario's Broader Public Sector (see Projects for detail).
- Pursuing a self-directed, full-time upskilling program in SQL, Python, and Power BI to bring stronger data capability to an energy and sustainability background.
- Completed Python and Power BI courses online, built a daily SQL problem-solving practice, and achieved the PL-300 certification.

Registered Energy Advisor – Windfall Ecology Centre

Apr 2022 – Jun 2025

- Conducted 250+ comprehensive residential energy audits – including blower-door testing, HOT2000 energy modelling, insulation and HVAC assessments, and building envelope analysis – for homeowners across Ontario under Canada's Greener Homes program.
- Analyzed and interpreted building performance data to identify efficiency upgrade opportunities, translating technical modelling outputs into clear, actionable retrofit recommendations for 250+ households.
- Delivered detailed audit reports and cost-benefit breakdowns, advising homeowners on retrofit prioritization and available incentive programs.
- Maintained up-to-date technical knowledge of HER+ program requirements and evolving construction/retrofit methods through ongoing training.

Operations and Production Manager – Tata Motors Limited

Aug 2016 – Oct 2018

- Improved Quality Direct Run Rate (DRR) from 85% to 96% by applying structured, data-driven problem-solving methods (Global 8D, DMAIC) to identify and eliminate recurring defect trends.
- Reduced production line cycle time by 25% (160s → 120s) over one year through continuous, metrics-driven process improvement (Kaizen).
- Directed daily operations and a team of 100+ employees, delivering 30,000+ vehicles/year (~\$250M in annual sales) while coordinating cross-functionally with supply chain teams.
- Reduced shop-floor safety incidents by 50% through systematic tracking and elimination of hazards.

EDUCATION

Master of Engineering, Aerospace Engineering – University of Toronto

2018 – 2020

Bachelor of Technology, Mechanical Engineering – IIT Ropar

2012 – 2016

CERTIFICATIONS

- [Microsoft Certified: Power BI Data Analyst Associate \(PL-300\)](#) – August 14, 2026