Chris Pulfer, P.Eng.

Principal

EXPERIENCE OVERVIEW

Chris brings a collaborative approach to his work, leveraging client knowledge and resources to ensure sound, actionable results. He has spent his career working to identify opportunities for energy efficiency, characterize barriers, and implement solutions.

Chris has contributed to the successful completion of several major jurisdictional energy conservation and demand management studies, including key roles in energy conservation potential reviews in six provinces and territories. Through these assignments Chris has provided technical analysis, conservation potential modelling, model development and project management focused primarily on the commercial and institutional sectors.

Chris has also led or contributed to more than a dozen smaller scale market and prefeasibility studies focused on energy market characterization for efficient equipment, technical assessment of energy impact, and conservation & program potential.

Chris holds a B.Eng. (Mechanical) and B.Sc. (Ecology) and is registered as a Professional Engineer in the Province of Ontario.

PROJECT EXPERIENCE

Energy Efficiency Technology and Market Research

Year 8 Building Energy Benchmarking: City of Edmonton (November 2024 – October 2025). Posterity Group's ongoing success in the eighth year of supporting the City of Edmonton's Building Energy Benchmarking program highlights our strong client relationship and effective administration of the initiative. Through our collaboration with the client, we identify energy-saving opportunities, track performance, engage stakeholders, and promote sustainability initiatives. Chris was an Advisor on the project.

Building Controls Program Design Support: Fortis BC (June 2024 – November 2024). FortisBC engaged Posterity Group to support its program development work and provide key inputs and informed assumptions for the HVAC and Building Controls program to support commercial and industrial customers.

The main objectives of the project were to:

1) Develop Long List of Potential Measures,
2) Technical and Market Assessment and
3) Develop Program Strategy and Recommendations.

PG conducted web-based and program research with targeted interviews/discussions as required to meet the projects objectives. Chris was an Advisor for this project.

2024 Conservation Potential Review: FortisBC (May 2024 – March 2026). FortisBC Energy Inc. (FEI) and FortisBC Inc. (FBC) (the Utilities) hired Posterity Group to complete their 2024 Conservation Potential Review. The Study scope includes energy efficiency, demand management, electrification, and electric

vehicle technology assessment, and stakeholder engagement within the residential, commercial, industrial and transportation sectors.

PG will deliver the following study outputs:

- A transparent and thoroughly documented **electronic technical reference manual** (eTRM) that includes the inputs, assumptions, and calculation algorithms for the energy efficiency, demand management and electrification measures in scope.
- Technical, economic, and achievable **potential assessments** of energy efficiency, demand response, electrification for the Utilities' service territory. This work will be completed in Navigator, PG's Energy and Emissions Suite.
- Complete potential study reporting and method documents so that the inputs can be easily updated as new information emerges over time.

In addition to these outputs, Posterity Group will consult with external (market) stakeholders to inform the achievable potential. The Utilities will use the results of the Study to support conservation and demand management planning and supply resource planning. Chris is an Advisor for this project.

Resilience Technologies Market Study: Canadian Mortgage and Housing Corporation (May 2024 – October 2024). Canadian Mortgage and Housing Corporation (CMHC) has engaged Posterity Group to conduct a market study on housing technologies to improve resilience against climate change and climate related events on Canadas Housing Stock. CMHC requested extra focus on Overheating and flood prevention technologies.

The main objectives of the project are to:

4) Outline relevant technologies currently available in Canada with extra focus on Overheating & Flood Prevention technologies,
5) Provide applicable data on the technologies, in relation but not limited to applicable dwelling types, regions, affordability, and barriers to their implementation and
6) To draft an Inventory of current programs available and provide guidance for preliminary program interventions for CMCH.

We will conduct web-based technology and program research with targeted interviews/discussions as required to meet the project's objectives.

Chris is an Advisor for this project.

Energy Efficiency Retrofit Case Studies: NRCan (April 2025 – September 2025). Natural Resources Canada (NRCan) contracted Posterity Group to develop six case studies showcasing successful energy efficiency retrofits supported by their suite of programs. The case studies, developed in both official languages, highlighted successful energy efficiency strategies implemented in commercial and institutional building types across Canada and demonstrated the effectiveness of NRCan's programs and tools. They serve both external and internal audiences, including building owners, industry stakeholders, and NRCan policymakers.

Posterity Group developed the case studies from conception to the final published documents. Major components included the development of a common case study framework; completion of desktop research and structured interviews with subject matter experts and project proponents to elicit both

technical and process highlights; and drafting, layout, and translation of the final documents. Chris was an Advisor on the project.

Measure Library Maintenance: FortisBC (March 2024 – September 2025). Posterity Group developed a new measure library for FortisBC's gas and electric DSM measures and is conducting ongoing upkeep and maintenance.

PG is in the process of executing upkeep and maintenance of the measure library on an ongoing and long-term basis, involving measure updates on a quarterly basis.

Chris was the Project Director.

Deep Retrofit Program Market Validation: City of Windsor (March 2024 – June 2024). The City of Windsor has engaged Posterity Group to conduct a market validation analysis for the proposed Residential Deep Energy Efficiency Retrofit (R-DEER) program business case. Through the R-DEER program, the City of Windsor aims to achieve a 30-50% increase in energy efficiency in 80% of Windsor's existing homes by 2041 through property-assessed financing.

We will perform an independent "stress test" of the R-DEER program design and business model that will validate forecast program participation and costing. Chris is the Project Director.

2025 Long-Term Gas Resource Plan (LTGRP) and Long-Term Electric Resource Plan (LTERP): FortisBC (FBC and FEI) (March 2024 – ongoing). FortisBC hired Posterity Group to help develop the 2026 Long-Term Gas Resource Plan (LTGRP) and Long-Term Electric Resource Plan (LTERP). PG is developing end-use models of FortisBC's gas and electric service territories and will develop demand forecasts of annual consumption, peak demand, and GHG emissions under various scenarios. The scenarios will estimate the impact on FortisBC's systems and customers from changes to building codes and equipment standards, adoption of technologies like solar PV and electric vehicles, uptake of low-carbon fuels like hydrogen and renewable natural gas, the impact of provincial and federal regulations, and changes to the province's building stock. PG is working closely with FortisBC's Integrated Resource Planning team to engage with internal subject-matter experts and external stakeholders to develop scenarios that address a variety of unknowns about the future of energy use and use a robust analysis approach to treat uncertainty.

PG's end-use models will support FortisBC to plan their energy systems under these possible futures by informing system infrastructure plans, rate impact analysis, gas supply planning, and electricity supply portfolio optimization. PG will provide FortisBC with model results via an interactive data visualization platform to communicate the results of the scenario modelling and a detailed method document explaining the data inputs and analysis approach.

Posterity Group will support FortisBC to file the 2026 LTGRP and LTERP with the British Columbia Utilities Commission (BCUC) and respond to information requests from intervenors, including the BCUC and several energy stakeholders in the province of B.C. Chris is the Project Director.

CANMET Residential DER Cost Benefit Analysis and Impact Forecasting: CANMET Energy (March 2024 – March 2025). CANMET Energy hired Posterity Group to prepare a benefit cost analysis into how peak demand of newly constructed electrified high-performance buildings can best be mitigated by distributed energy resources (DER). The analysis compared grid-side with behind-the-meter DER. The results were used to help inform power system planning for about 15,000 new homes that are planned to be constructed in the Regional Municipality of Durham in Ontario. As part of the project, Posterity Group also engaged the local electricity transmission and distribution utilities as well as the provincial bulk system operator about the extent of which integrated planning is supporting growth in the region.

Posterity Group used its expertise in DER and benefit cost sensitivity analysis to deliver the following key outputs:

- An electrification peak load mitigation cost benefit analysis tool that enables examining a variety of sensitivities around the central analysis results.
- A summary report that describes Posterity Group's methods, the results from the analysis, and potential uncertainties that would benefit from additional research.

Chris was the Project Director.

Integrated Gas and Electric Heating System Study: FortisBC (March 2024 – April 2025). FortisBC Energy Inc (FEI) and FortisBC Inc. (FBC) (collectively, "FortisBC") is analyzing the impacts on gas and electric infrastructure and rates from the implementation of dual fuel (gas/electric) hybrid heating systems. The Integrated Gas and Electric (IGEH) System Study is evaluating how gas and electric energy delivery systems can be increasingly integrated, with the goal of decarbonization while providing the greatest value of shared ratepayer assets against other capacity acquisition options. FEI and FBC's shared service territory (SST) is the scope of the analysis, serving as the initial 'playground' for how to integrate province-wide strategies for combined electric and gas planning.

FortisBC asked Posterity Group to provide model inputs and advice to the IGEH System Study. PG will help FortisBC to understand the potential ranges of adoption for customers switching their space heating equipment from gas to electric. Specifically, PG is:

- Characterizing of fuel switching and distributed energy resource (DER) load drivers, and gas DSM activity, under different decarbonization pathways.
- Developing 8760 load profiles.

PG is well positioned to support FEI on this project based on our extensive experience working with FEI and FBC on several projects that involved characterizing energy use, forecasting load at a granular level, assessing impacts to peak from changes to building stock and energy choices, technology characterization, and demand-side management measures and programming. PG will use the Navigator model to assess energy savings potential and peak demand impacts from adoption of measures under different decarbonization pathways. The Navigator model will also be used to develop 8760 load profiles for gas end uses that can switch to electricity. Key outputs from PG's work include:

- Adoption levels by customer type under different decarbonization scenario
- Measure characterization details for heat pump with gas backup, air-source heat pumps, and distributed energy resource measures.
- Gas 8760 load shapes for heating end uses by customer type

Chris was the Project Director.

Grid Integration for Medium and Heavy Duty Vehicles (MHDEV): Transport Canada (January 2024 – August 2024). Transport Canada hired Posterity Group to identify grid integration archetypes for electric vehicle charging infrastructure for medium and heavy duty vehicles (MHDV) to help inform federal government modelling and policy/program development. Additional federal government project participants are ECCC and NRCan. PG brought expertise in electric vehicle market characterization and scenario analysis as well as techno-economic modelling to this project in order to develop a MHDV grid integration cost analysis and sensitivity tool. The tool will provide inputs into Transport Canada's TCSim model and will be used by NRCan for MHDV incentive program updates. In addition to the sensitivity tool, PG delivered a

presentation to the federal government EV Council and a final report that documents project results. Chris was an Expert Advisor for this project.

Deep Retrofit Study: Natural Resources Canada (NRCan) (January 2024 – June 2024). NRCan wished to conduct a market study to fill knowledge gaps about the deep retrofit market in Canada. The study included research, analysis, case studies, and expert interviews. NRCan will distribute the results of this market study to deep retrofit stakeholders nationwide to help boost Canada's deep retrofit rate and achieve net-zero goals for 2050. Chris was an Expert Advisor.

Ontario Insulation Market Study: Enbridge Gas Inc. (December 2023 – April 2024). Enbridge hired Posterity Group to conduct a market analysis of the residential insulation market in Ontario. Enbridge administers the Low-Income Home Winterproofing Program (HWP) in Ontario through third parties that direct-install insulation and air sealing measures (among other measures) for low-income customers. Enbridge is experiencing that insulation costs for this program have increased considerably since 2020, and the number of program participants has been decreasing. The goal of this study is to review the residential insulation market, technology, and cost trends, as well as the current structure of the HWP in order to provide data-driven and informed recommendations on the program design and incentive levels of the HWP. Chris is an Expert Advisor for the project.

Zero-Emission Freight Strategy: New Brunswick Power (November 2023 – March 2025). New Brunswick Power hired Posterity Group to develop a Zero-Emission Freight Strategy consistent with the requirements of the *New Brunswick Climate Change Action Plan*. This first part will be comprised of a Market and Technology Assessment. The results of this assessment will feed into a Zero Emission Vehicle Adoption Forecast and an accompanying Infrastructure Needs Assessment in Part 2.

Newfoundland Energy Solutions Potential Study: Newfoundland Power Inc. (November 2023 – May 2025). Newfoundland Power and Newfoundland Hydro (the Utilities) hired Posterity Group to complete their 2025-2040 Energy Solutions Potential Study. The Study scope includes the residential, commercial, industrial and transportation sectors for the Island Interconnected System (IIC). Posterity Group (PG) brings expertise in the following areas to the Study: energy efficiency, demand management, electrification, and electric vehicle technology assessment; baseline development and potential study analysis; stakeholder consultation; and project management. PG will deliver the following Study following outputs:

- A transparent and thoroughly documented **electronic technical reference manual** (eTRM) that includes the inputs, assumptions, and calculation algorithms for the energy efficiency, demand management and electrification measures in scope.
- Technical, economic, and achievable **potential assessments** of energy efficiency, demand response, electrification for the IIC. In addition, PG will complete an electric vehicle potential assessment under various scenarios. This work will be completed in Navigator, PG's Energy and Emissions Suite.
- Complete potential study reporting and method documents so that the inputs can be easily updated as new information emerges over time.

In addition to these outputs, Posterity Group will consult with large industrial sector customers and complete achievable potential workshops to strengthen the high-level analysis completed for the 2020-2035 Potential Study. The Utilities will use the results of the Study to assist in conservation and demand management planning and supply resource planning. Chris was the Project Director.

Technical Reference Manual (TRM) Jurisdictional Review: Enbridge Gas Inc. (November 2023 – April 2024). Enbridge Gas Inc. hired Posterity Group to conduct a brief review of the current commercial sector measures included in the OEB TRM. The consulting team gathered additional research on commercial sector TRMs from other jurisdictions and identify potential measures that could be included in the OEB TRM. Chris was an Advisor for this project.

Prescriptive Measure Costing: Enbridge Gas (September 2023 – March 2024). Enbridge Gas Inc. hired Posterity Group to develop and substantiate updated incremental material/equipment and installation costs for several prescriptive DSM measures offered under the Home Efficiency Rebate Plus (HER+) Program. Measures included Air Sealing (standalone measure), Windows and Doors, and Mechanical systems.

Posterity Group brought expertise in data analysis, and primary and secondary research to inform the substantiation of updated measure incremental costs. Chris s an Expert Advisor for the project.

Northern Energy Advantage Program: Ontario Ministry for Northern Development and Mines (July 2023 – ongoing). The Ontario Ministry for Northern Development and Mines hired Posterity Group to support the delivery of the Northern Energy Advantage Program (NEAP). Since 2010, the NEAP has provided electricity rebates to eligible large industrial companies in Northern Ontario to reduce their electricity costs. These rebates help participants sustain jobs and maintain global competitiveness.

Posterity Group brought program implementation, project management, and industrial sector energy management expertise to this assignment. Posterity Group's responsibilities included:

- Reviewed participants' quarterly reports to ensure progress they are progressing towards their energy management plan goals;
- Met with participants annually to review the progress and upcoming electricity savings projects;
- Conducted annual site visits to build relationships with NEAP participants, and to verify the implementation of projects;
- Reviewed energy management plans and NEAP applications from prospective participants to confirm their eligibility.

The Ministry used the results of Posterity Group's work to distribute rebates to participants, and to add new participants to the program. Chris is the Project Director.

Data Development: Building Decarbonization Alliance (May 2023 – January 2024). Posterity Group is developing a variety of inputs for an open-source energy forecast model that BDA is developing. This data includes dwelling counts, end use details, unit energy consumption, energy rates, forecast wholesale energy prices, forecast carbon costs, forecast heating and cooling degree days, and forecast renewable gaseous fuel costs. Chris is in the role of Project Director.

Measure Library Development and Maintenance: FortisBC (May 2023 – March 2024). Posterity Group developed a new measure library for FortisBC's gas and electric DSM measures and is conducting ongoing upkeep and maintenance.

FortisBC pursued a review and update of its internal measure library, accounting for new and updated measures included in the recent Conservation Potential Review and Demand Side Management Expenditure Plan. FortisBC also wanted to optimize the organization of the measure library for ease of maintenance and usability.

PG is in the process of executing upkeep and maintenance of the measure library on an ongoing and long-term basis. Chris was a Senior Advisor for this project.

Fireplace Controls Prefeasibility Study: FortisBC (March 2023 – July 2023). Posterity Group conducted a prefeasibility study to assess the technical and market opportunities for fireplace controls. FortisBC was interested in finding out the potential energy and GHG emission savings from these technologies, demand response, as well as their non-energy benefits. The scope of this assignment included both market and technology characterizations in the residential and MURB sectors in BC. Chris was an Advisor.

Industrial EE Meta-study: NRCan (February 2023 – July 2023). NRCan required an estimate of energy efficiency and GHG mitigation potential for Canada's industrial sector to inform future federal programming.

This task required estimates of baseline energy consumption, and energy efficiency and GHG emission mitigation potential by segment (i.e. NAICS code), province/territory and fuel for Canada's industrial sector. In the short term, NRCan hired Posterity Group to address this gap by collecting and summarizing the results of past energy efficiency potential studies conducted in Canada. This meta-analysis will serve as a high-level estimate of technical and economic potential until more detailed modelling and analysis is conducted. Chris was the Project Director.

Cost and Impacts of Modelled Energy Savings Phase I & II: CMHC (Feb. 2023 – May 2023). CMHC's Evaluation Services team is conducting an evaluation of environmental sustainability outcomes of its NHS programs, with a focus on greenhouse gas reductions and energy savings.

In support of this evaluation, CMHC engaged Posterity Group to complete an analysis of costs and benefits of energy performance requirements of the NHS programs, which will fit into an overall assessment the evaluation is undertaking to understand the effort it takes to meet energy efficiency requirements and corresponding benefits (energy savings, GHG reductions, and other non-energy benefits). CMHC will also explore potential changes to program requirements to help meet GHG targets. Chris was the Project Director for this assignment.

SCIEU Review – NRCan (Feb. 2023 – June 2023). Based on previous work for assessing available data sources on energy use in buildings, NRCan commissioned Posterity Group to examine current, emerging, and potential future data needs for the Survey on Commercial and Institutional Energy Use and make recommendations for potential SCIEU enhancements to better meet such needs. Chris was the Project Director for this assignment.

Market Engagement Strategy – Mid-Rise MURBS: NRCan (December 2022 – June 2023). Posterity Group supported NRCan to undertake program design and market engagement for a new Local Energy Efficiency Partnerships ("LEEP") initiative in the Commercial Sector, focusing on steel and concrete framed mid-rise multi-unit-residential buildings ("MURBs"). Chris was in the role of Advisor for this project.

Interrogatory Support: Pacific Northern Gas (November 2022 – December 2022). Posterity Group (PG) helped Pacific Northern Gas (PNG) respond to BC Utilities Commission and intervener Information Requests (IRs) regarding its 2021 Conservation Potential Review (CPR) and 2023 Demand Side Management (DSM) Plan. PG provided PNG with information and analysis in support of inquiries related to measure development, potential forecasts, and cost-effectiveness modelling.

Climate Change Planning Impacts: IESO (September 2022 – May 2023). In this project, Posterity Group supported the IESO in understanding the potential impacts of climate change on electricity demand and on the electrical grid. The first component of the project involved studying how climate change is expected

to affect the climate in Ontario, specifically, rather than rely on global averages or historical trends. The second component involved end-use demand modeling to explore how trends in electricity demand will be affected as a result of both the changing climate and the collective response to addressing climate change through decarbonization. The third component includes characterizing risks to the electric grid and understanding them from time scales ranging from long-term planning to real-time operation. Chris was the Project Director.

Building Energy Benchmarking Program Year 6: City of Edmonton (September 2022 – June 2023). After supporting the first year of the pilot program, the City of Edmonton asked Posterity Group to support the launch and delivery of Years 2 through 6 of their Large Building Energy Reporting and Disclosure Project. The program aimed to collect annual information on whole building energy performance across Edmonton's large building stock, including commercial, light industrial, municipal, institutional, mixed-use, and multi-unit residential buildings. Posterity Group supported the City by providing benchmarking support services to help participants to submit their data via Portfolio Manager. Posterity Group performed data cleaning and verification services to City-owned buildings and analyzing the benchmarking data to create both individual participant reports as well as program-level reports. Finally, Posterity Group was called on to develop the criteria and supporting materials for an awards program to celebrate the successes of participants. Chris was an Advisor for the project.

Virtual Energy Audit Software Market Scan: BC Hydro (September 2022 – February 2023). Posterity Group completed a market study to identify virtual energy audit and virtual site inspection products suitable for commercial buildings in North America. The scope of work included a literature review to identify products and understand their features, and to identify case studies to support customers' feedback. Posterity Group also conducted more than 20 interviews with software providers to better understand each product's features and with customers to understand their experience with the products.

Study findings were summarized in a final report and presentation to the client team, which included a product comparison, ranking, and short-list for BC Hydro's consideration. Chris was the Project Director for this assignment.

Potential Study Meta-Analysis: NRCan (August 2022 – October 2022). The Canada's Green Building Strategy Secretariat within the Office of Energy Efficiency (OEE) will act as the "gatekeeper" for the 2023 budget submission to the Department of Finance for the Canada's Green Building Strategy which will be underpinned by various policy measures, programs, codes, regulations. As OEE is developing the first phase of the Canada's Green Building Strategy, they are tasked with assessing the impact of the programs administered by various departments in preparation of the 2023 budget process.

This task requires estimates of energy efficiency and GHG emission mitigation potential in the built environment but lacks suitable information of this type. In the short term, NRCan hired Posterity Group to address this gap by collecting and summarizing the results of past energy efficiency potential studies conducted in Canada. This meta-analysis will serve as a high-level estimate of technical and economic potential until more detailed modelling and analysis is conducted. Chris was acting as Project Director.

Market Stakeholder Map: FortisBC (August 2022 – February 2023). Posterity Group conducted a market study to develop a Stakeholder Market Map for FortisBC. The research's objectives were to enhance the FortisBC C&EM team's understanding of the market, identify strategic opportunities to advance its decarbonization and diversification goals, and determine all relevant and influential stakeholders and determine proactive approaches to partnerships with them. Chris was an Advisor for the project.

Commercial Market and Potential Studies: Enbridge (June 2022 – October 2022). Posterity Group conducted studies on six commercial energy efficient technology groups to assess their technical and market opportunities in Enbridge's jurisdictions in Ontario. Enbridge was interested in finding out the potential energy and GHG emission savings from these technologies and their possible inclusion into the utility's DSM activities. The six commercial sector measures that were explored and characterized in these studies were Rooftop Units (RTUs), Domestic Hot Water Demand Control, Building Recommissioning (RCx), Building Envelope Improvements, Adaptive HVAC Controls, and Boiler System Optimization. Chris was a Project Director for this assignment.

Long Term Resource Planning Support and Navigator Implementation: Southern California Gas Company (April 2022 – December 2023). Posterity Group has developed an end use model to support SoCal Gas with ongoing long-term planning activities in both SoCal Gas' and SDG&E's service territories. PG built a model to "mirror" the results from SoCal's existing End Use Forecaster (EUF) model and add enhanced capability allowing users to accomplish modeling tasks that were either not currently possible (e.g., scenario analysis) or completed outside of the EUF model (e.g., policy impact analysis or electrification analysis).

With an end use model to support regulatory reporting and internal analysis, SoCal Gas:

- ✓ Has a flexible platform to assess the impacts of various policies/actions/future states, and to assess pathways to reach specific performance or GHG targets.
- ✓ Has access to the same model that is being leveraged by two of North America's largest gas utilities (Enbridge and FortisBC), and is actively supported by Posterity Group's dedicated, ongoing R&D investments.
- ✓ Can develop outputs that are more clearly understood because Navigator is a transparent end use model rather than a black box model.
- ✓ Avoids using the end use forecast as an intermediate forecast, through the integration of functions such as efficiency impact that are housed outside of the current end use modeling tool
- ✓ Has the flexibility to update key input data when new market information is available (e.g., when residential and commercial saturation studies are updated, or when changes to building codes/minimum energy performance standards occur)

Chris was acting as an Advisor on this project.

Prefeasibility Study: Engine-driven Gas Heat Pumps: FortisBC (April 2022-July - 2022). Posterity Group conducted a prefeasibility study to assess the opportunity for engine-driven natural gas heat pumps in commercial and industrial applications in British Columbia. FortisBC is interested in potential natural gas and GHG savings due to these technologies, with specific emphasis on potential benefits resulting from cogeneration and trigeneration applications. The scope of this assignment included both market and technology characterizations in the residential sector. Chris acted as Project Director for this assignment, with overall responsibility for project design, high level execution guidance and support, and quality control. Chris was an Advisor on this project.

Prefeasibility Study: Integrated and Connected Homes: FortisBC (April 2021 - September 2021). Building on our 2018 study for FortisBC, Posterity Group conducted an updated prefeasibility study to assess the opportunity for Connected Home systems that meet the BC's Innovative Technologies definition. FortisBC is interested in potential electricity and natural gas savings due to these technologies, with specific emphasis on potential benefits resulting from integrating various technologies. The scope of this assignment included both market and technology characterizations in the residential sector. Chris acted as Project Director for this assignment, with overall responsibility for project design, high level execution guidance and support, and quality control. Chris was the Project Director.

Multifamily and Single Family Natural Gas Deep Retrofits Prefeasibility Study: FortisBC (September 2020 - December 2020). FortisBC explored natural gas driven deep retrofits as a conservation and energy management solution for single family and multifamily customers. The goal of this study was to determine if there is a Demand Side Management (DSM) business case for natural gas driven deep retrofits and to recommend potential pathways for uptake if a business case exists and identify and recommend opportunities and structures for future rebate programs. This prefeasibility study is supporting decision-making for an internal steering group made up of technical and program staff. This group will work to secure funding, socialize program concepts with external stakeholders and interveners, and launch pilot programs over the next several months. Posterity Group leveraged our ongoing measure assessment and end use modelling work with FortisBC to assess potential energy and GHG savings and worked with Harbourgreene Consulting to develop program pathways to overcome the market barriers evident in BC. Chris acted as Project Director.

Prefeasibility Study and M&V Best Practices: Gas Heat Pumps and Dual-Fuel Heat Pumps: ConEdison via CEATI International Inc. (May 2020 - December 2020). Posterity Group conducted a technical, economic and market potential study for natural gas heat pumps (GHP) and dual-fuel heat pumps (Dual-Fuel HP) in Con Edison's and Orange and Rockland's residential, multi-family and commercial sectors for both retrofit and new construction applications. Technologies were compared to two reference cases: electric air source heat pumps, and most efficient in-kind replacement. Phase 2 of the project involves developing Measurement and Verification (M&V) best practices for natural gas heat pumps technologies. Chris acted as Technical Advisor.

Prefeasibility Study: Residential Water Heater Controls: FortisBC (April 2020 - August 2020). Posterity Group conducted a prefeasibility study to assess the technical and market opportunities for smart residential water heater controllers. FortisBC was interested in finding out the technology's potential energy savings, demand response, and non-energy benefits. Posterity Group conducted literature reviews, jurisdictional scans, interviews with market actors to gather market and technical information. The information was then used to develop technical resource manuals, scenario analysis, and energy saving models. Chris acted as Project Director.

Fenestration Market Study Cost Benefit Support: Natural Resources Canada (NRCan) (April 2019 - June 2019). Posterity Group gathered detailed costing information about fenestration products and calculated energy impacts in support of NRCan's Cost Benefit Analysis of potential Minimum Energy Performance Standards for these products. Posterity Group obtained precise costing through tear down analyses and discussions with manufacturers, and modelled the fenestration products in different climate zones across Canada using the Housing Technology Assessment Program (HTAP). Chris acted as project director and technical analyst, with responsibility for methodological oversight, quality control and guidance.

High-Efficiency Buildings: Case Studies: NRCan Office of Energy Research and Development (February 2019 - July 2019). NRCan's Office of Energy Research and Development engaged Posterity Group to undertake literature review, interviews, and technical case-study development for the purpose of gathering information about high efficiency buildings in Canada and to better quantify the costs, energy usage, and ensuing greenhouse gas emissions of high efficiency buildings. This work combined two of Posterity Group's core competencies: The assessment of markets for energy efficient and low carbon technologies and services; and technical assessment of energy performance in the built environment. Our team developed an inventory of high performing Canadian buildings, undertook market research and interviews with leading builders and developers, assessed and developed building energy simulation models and Class D estimates of incremental costing for high performance buildings, and developed a series of case studies covering both technical and market-related aspects of high-

performance building development. Chris acted as project director, with responsibility for methodological oversight, quality control and guidance.

Assessment and Development of Fireplace Program Savings Assumptions: FortisBC (July 2018 - February 2019). Posterity Group worked with FortisBC to develop updated savings assumptions for their EnerChoice Fireplace program. Project scope included savings assumptions for fireplaces installed in residential detached housing and MURB buildings, with particular interest on isolating behavioral and technical components affecting energy use for upgrade fireplaces. PG staff conducted technical and market research, reviewed current and proposed changes to federal and provincial energy performance standards, and modelled upgrade performance using multiple HOT2000 archetypes. Chris acted as Project Director, with responsibility for overall study methodology and work product quality review.

Prefeasibility Study: Connected Home Technologies: FortisBC (February 2018 - August 2018). Posterity Group conducted a prefeasibility study to assess the opportunity for Connected Home systems that meet the BC's Innovative Technologies definition. FortisBC is interested in potential electricity and natural gas savings due to these technologies, potential benefits resulting from provision of data back to the customer via home energy reports, and the potential for demand response activities. The scope of this assignment included both market and technology characterizations in the residential sector. Chris acted as Project Director for this assignment, with overall responsibility for project design, high level execution guidance and support, and quality control.

ENERGY STAR Skylight Market and Options Analysis: NRCan (May 2018-July 2018). Following a broader assessment of the Canadian fenestration market, NRCan engaged Posterity Group to conduct a more detailed assessment of ENERGY STAR technical criteria options for the unit skylight market. Work included detailed energy savings and GHG modelling and analysis for alternate U-factor compliance options. Chris acted as Project Director, with responsibility for study design, guidance and quality control.

Prefeasibility Study: Residential Micro Combined Heat and Power Technologies: FortisBC (March 2018-November 2018). Posterity Group conducted a prefeasibility study to assess the opportunity for Micro CHP systems that meet the BC's Innovative Technologies definition. FortisBC is interested in potential electricity displacement and examining scenarios where natural gas savings may be achieved using these technologies. The scope of this assignment included both market and technology characterizations in the residential sectors. Chris acted as Project Director for this assignment, with overall responsibility for project design, high level execution guidance and support, and quality control.

Market Study and Participant Forecast for Fenestration and Insulation Measures: Independent Electricity System Operator (September 2017-October 2017). Posterity Group provided market characterization and program design support to for the development of building envelope measures. This work was led by the IESO for the Ontario Ministry of Energy and Climate Change Low-carbon Technology Rebate Program. Specific areas of work included: A review of current programs in other jurisdictions and programs previously run in the Ontario market; a market overview with major market actors (manufacturers, distributors and contractors) and market structure/value chain mapped specifically for the renovation market; and participant forecast for the period between November and March 31, and for the following 3 fiscal years, by measure. Chris managed this assignment and acted as lead consultant.

Solar Thermal Market Scan: Independent Electricity System Operator (November 2017-December 2017). Posterity Group helped IESO and the GreenON Fund to understand the current market for residential solar thermal technologies in Ontario for both air and water heating. Posterity Group provided: a description of the products currently available in the Ontario market for both solar thermal water heating, a characterization of the Ontario value chain, market actors and their relationships, including a market structure diagram; a description of market actor roles, a listing of active firms; a characterization of market failures and barriers, with a focus on barriers that

may be addressed by a future program; a summary of similar programs that are currently active or that operated in the past. Chris acted as project director for this assignment with overall responsibility for project scoping and deliverables.

Analysis of Fenestration Products in Support of Canadian Market Transformation Activities: NRCan (July 2017-June 2018). NRCan engaged Posterity Group to analyze the residential low-rise fenestration market (windows, doors and skylights) in Canada as part of a broader strategy to decrease their impact on low-rise building energy use. This assignment included technical and market analysis of proposed changes to ENERGY STAR criteria and proposed incoming Minimum Energy Performance Standards.

Posterity staff examined the impact of these proposed standards on energy use and GHG emissions; and market actors including manufacturers, consumers, dealers and homebuilders. We also developed a stakeholder database, and critiqued proposed standards, and suggested modifications. Chris acted as Project Manager and Lead Analyst.

Development of Emerging Technologies Profiles: Energy Solutions Center (July 2017-November 2017). Posterity Group provided measures research and analysis, and ultimately produced prioritized lists of emerging natural gas technologies for ESC for their residential and commercial working groups. These prioritized lists are intended to help ESC member utilities identify opportunities and prioritize funding for further market research. Technology research for this project, which included manufacturers, market readiness of the technology, lifetime and warranty information, general costing information (where available) and how the technology is expected to save natural gas, is expected to be relevant for all members. Stage II of this project is expected to include detailed market research to determine the feasibility of these technologies for a prescriptive or deemed savings program. Chris acted as Project Director for this assignment, with overall responsibility for project design, high level execution guidance and support, and quality control.

Gas Heat Pump Prefeasibility Study: CEATI International (July 2016-June 2017). Recent R&D has positioned gas heat pumps (GHP) as a high efficiency alternative to conventional boiler or furnace equipment, providing justification for a pre-feasibility study of the technology in British Columbia's residential and commercial building sectors. Chris Pulfer led Posterity Group's work with CEATI and FortisBC to: identify commercially available technologies, assess technology risks and market barriers, estimate the achievable potential of relevant technologies, and provide scenario specific technical resource manuals.

Residential HVAC Zone Control Prefeasibility Study: CEATI International (February 2016-February 2017). While the market for forced-air gas furnaces has been largely transformed through minimum energy performance standards, technological advances and cost savings of residential HVAC zone controls represent a potential energy savings strategy. Chris Pulfer led Posterity Group's work with CEATI and FortisBC to: identify commercially available residential zone control technologies, assess technology risks and market barriers, estimate the achievable potential of relevant technologies, and provide scenario specific technical resource manuals.

Greenhouse Construction Industry Standard Practice Study: Enbridge Gas Inc. (formerly Union Gas) (August 2016-June 2017). Posterity Group helped Union Gas establish a defensible energy performance base case for greenhouse new construction and expansion projects in Union Gas' service territory by employing a study methodology that aligns with the California Public Utilities Commission's Industry Standard Practice Guide. The study findings allowed Union program staff, the Ontario Energy Board and their evaluation contractor to accurately assess impacts resulting from DSM program activities targeting the greenhouse subsector. Chris acted as Project Director for this assignment, with high-level study design and quality control responsibilities.

Indirect-Fired Domestic Hot Water Heater Technology Study: Enbridge Gas Inc. (formerly Union Gas) (February 2016-May 2017). Posterity Group assisted Union Gas to develop an in-depth market characterization and energy savings potential analysis for indirect-fired water heaters in commercial and residential applications within their service territory. Chris oversaw technical and savings potential analysis to allow Union to assess the potential for a prescriptive or quasi prescriptive DSM program. This included the development of DSM measures inputs and supporting substantiation documents, estimating conservation potential, and characterizing market barriers and intervention opportunities.

Conservation Fund Investment Strategies: Independent Electricity System Operator (January 2016-May 2016). Posterity Group was retained by the Independent Electricity System Operator (IESO) to study the potential impact of investing Conservation Fund resources in a variety of technologies in the building envelope and glazing sectors. Involving research on secondary materials as well as interviews with key market actors, each report synthesized how the various available technologies conserve energy, assessed the current market structure and existing penetration, and analyzed the likelihood of each technology making a significant impact in the near term. Chris acted as Project Director for this assignment.

RETScreen Expert Measure Costing: Natural Resources Canada (October 2015 – January 2016). As part of a team led by TdS Dixon, Posterity Group helped NRCan to review and quantify base and upgrade equipment and installation costs for a variety of energy efficiency measures. This project was undertaken to support the development of RETScreen Expert, specifically the development of a set of comprehensive facility archetypes for the Ontario market. Chris oversaw project efforts and undertook scoping and costing for several measures.

High Efficiency Natural Gas Laundry Dryers Pre-feasibility Study: FortisBC (June 2014-December 2014). As lead analyst and project manager, Chris developed methodologies to assess high efficiency laundry drying equipment as a potential DSM measure. He undertook interviews and secondary research, including interviewing researchers and performing patent searches to characterize emerging technologies, and is led modelling activities to estimate conservation potential within FortisBC's residential and commercial customer base.

Combination Units Pre-feasibility Study: FortisBC (December 2013-May 2014). As lead analyst and project manager, Chris developed methodologies to assess combination space and water heating equipment as a potential DSM measure, undertook interviews and secondary research to characterize the BC market and supply chain for combination units, and led modelling activities to estimate conservation potential within FortisBC's residential customer base. Chris' tasks included in-depth modelling of natural gas savings potential for numerous baseline and upgrade scenarios including end-of-life and early replacement, new construction and retrofit applications, and across various service regions.

Energy Saving Potential Using Occupancy Based Controls: CEATI International (December 2011-June 2012). As project manager, Chris developed methodologies for the estimation of energy consumption which may be affected by the increased uptake of occupancy-based controls within the service territory of several Canadian electric and natural gas utilities. He also developed base case profiles, upgrade scenarios and modelled the electricity and natural gas savings potential for occupancy-based controls in lighting and HVAC applications.

Characterization of the Solid-State Lighting Industry in Canada: Natural Resources Canada Office of Energy Efficiency (January 2012-August 2012). Chris led research and analysis for this study of the LED lighting market in Canada. Tasks included identifying market actors, designing and deploying data collection tools, performing interviews with senior management in a number of Canadian firms involved in the SSL industry and building projections of future sales and revenue and reporting results to both the client and industry stakeholders.

High Efficiency Commercial Washing Machine Potential Study: Union Gas (August 2010-August 2011). As project manager, Chris developed methodologies for the estimation of energy and water consumption by commercial clothes washers within the Union Gas service territory and developed base case profiles, upgrade scenarios and modelled of the electricity, water and natural gas savings potential of high efficiency commercial clothes washers.

Energy Efficiency Program Design, Administration, and Support

Virtual Home Labelling Validation & Pilot Design: NRCan (September 2025 – March 2026). NRCan hired Posterity Group to create a validation method for virtual home energy labelling in order to position themselves for greater national adoption of home energy labels. PG provided insight into grey literature (i.e. regulatory filings and other utility reports that are not as widely available or known as academic publications) related to virtual labelling, conducted engagement and outreach to virtual labelling companies and electricity/gas utilities, and created a method to compare the accuracy of virtual labels with metered utility data. PG was able to deliver the following:

- A comprehensive literature review of utility generated publications sourced from our document library, utility contacts, and publicly available sources.
- Viable business cases for virtual home energy labels, and potential validation partnerships with utilities discovered through approximately 30 interviews with a wide variety of home labelling companies, electric/gas utilities, and energy efficiency players (E.g. Efficiency Nova Scotia)
- A qualitative method for establishing the accuracy of home labels through comparison with metered data and viable pilot partnerships with utilities willing to facilitate the data
- Broad distribution of the study findings to various stakeholders, as selected by NRCan

NRCan will use the results of the project to promote mass adoption of virtual home labels and to transform the availability of data available to homeowners for decisions around buying, selling, retrofitting, and operating their homes

Custom Efficiency Program (CEP) Update: FortisBC (November 2023 – November2024). FortisBC hired Posterity Group to help review and update their Custom Efficiency Program in light of the amended DSM regulation which came into effect on 30 June 2023. Specifically, FortisBC requires recommendations to support dual fuel systems under the program, updated program guidelines and eligibility criteria that are transparent and easily understandable to participants and implementation partners, and advice on long-term customer retention. PG will deliver the following study outputs:

- Outputs of the review of the current CEP, requirements under the updated DSM Regulation, and results of a jurisdictional scan on dual-fuel custom programs
- Results of review of dual-fuel measure assessment and applications relevant to the CEP
- Memo and reports outlining potential program changes, Draft CEP recommendations, criteria and guidelines

Chris is the Project Director.

Achievable Potential Study Support: Enbridge Gas (August 2023 – October 2023). Enbridge hired Posterity Group to perform ad hoc tasks to support the review of the Achievable Potential Study prior to filing. Chris is in the role of Project Advisor.

Resource Plan and Long Term DSM Plan: Pacific Northern Gas (February 2023 – October 2024). Pacific Northern Gas selected Posterity Group to help develop PNG's 2023 Consolidated Resource Plan and Long-

Term DSM Plan. The resource plan development involves the development, analysis, and reporting of energy consumption forecasts (for 20 years from 2023-2042) under various scenarios and modeling different critical uncertainties. The project also involves developing and incorporating into the resource plan a long-term DSM plan including draft sector DSM portfolios. Chris is the Project Director.

2024-2027 Demand Side Management Plan: FortisBC (September 2022 – September 2023). FortisBC assigned the development of its next five-year DSM Expenditure Plan (for both FortisBC natural gas and electricity utilities) to Posterity Group. The scope of work involved program and portfolio development, cost effectiveness modelling and reporting and filing of the 2024 – 2027 DSM plans. Chris was the Project Manager as well as a senior advisor for this project.

Assessment of Additional Energy Savings from DSM Measures: FortisBC (June 2021-June 2022). Calculating the impact of building level energy and emissions reductions can be subjective. At a project level, the value can be subject the baseline, early replacement considerations, calculation methodology, spillover attributions, and free ridership attributions. The subjectivity of these factors ultimately impacts the way the FortisBC can communicate the impact of their DSM program as part of their emissions reductions efforts and tracking for their 30 By 30 targets. To assist FortisBC, Posterity Group is investigating FortisBC's current DSM programs, the provincial CleanBC Funds, and other DSM jurisdictions for new methodologies and best practices on building level emissions reductions calculations. Chris is acting as Project Director.

Residential Prescriptive Program Research: Enbridge Gas Inc. (May 2021-November 2021). Posterity Group provided Enbridge with technical and market information to support the development of prescriptive and quasi-prescriptive insulation measures for inclusion in the Ontario Technical Resource Manual. Measures were developed based on an analysis of baseline and upgrade states included in over 2000 custom program applications and associated HOT2000 models, and independent cost analysis. Measures developed included various attic insulation, wall insulation, foundation insulation, floor header insulation and exposed floor insulation. Chris acted as Project Director.

Community Buildings Retrofit Program Support: Federation of Canadian Municipalities (FCM) (March 2021-May 2021). Posterity Group supported FCM ahead of the launch of their new Community Buildings Retrofit Support program by assessing training and support tools available to municipal practitioners and identifying and assessing potential partners to support program rollout. Special focus was placed on tools, training, and partners to support small and medium municipalities, including those that would integrate with current provincial or utility initiatives. Chris acted as Project Director.

Sustainable Affordable Housing Innovation Program Development: Federation of Canadian Municipalities (FCM) (October 2019-March 2020). As a sub consultant to Dunsky Energy Consulting, Posterity Group supported the development of this program to provide funding and capacity building to municipal and non-municipal organizations in support of energy-efficient affordable housing. The new program's goal was to catalyze action through both innovation and replication. The program was scheduled for implementation in Spring 2020. Posterity Group supported the research and design tasks to support the program definition report, including conducting literature review and data collection and developing modelling tools to assess potential program impact. Chris is acting as the Posterity Group Project Director.

District Energy System GHG Accounting and Reporting: Public Services and Procurement Canada (September 2019-March 2020). Stratos, in partnership with Posterity Group, is supporting Public Services and Procurement Canada to develop a greenhouse gas accounting and reporting guidance document for their Energy Services Acquisition Program (ESAP). One of ESAP's main objectives is to reduce the GHG intensity of the district energy system currently serving a portfolio of buildings in the national capital region. As GHG reductions are a key metric for ESAP to measure and report on, Stratos and Posterity Group are helping

to design corporate- and project-level GHG accounting and reporting methodologies that align with existing federal policies on GHG accounting and reporting requirements. Chris is acting as Senior Technical Advisor.

Development of GHG Inventory and Lifecycle Analysis Tools – Canadian Mortgage and Housing Corporation (Phase 1: November 2018-March 2019, Phase 2: June 2019-October 2019). CMHC reached out to Posterity Group to scope and develop two tools: an energy and GHG assessment and inventory tool that will allow CMHC to track and assess the energy and GHG impacts of National Housing Strategy – funded projects and a lifecycle assessment tool that will allow builders to evaluate the Net Present Value and lifecycle costs of energy efficiency in their affordable housing projects.

In Phase 1, completed by Posterity Group in Q1 2019, PG designed the two products and developed the scope of work. Phase 2 involved the software development, testing and deployment of the two tools. Chris acted as Project Director and Technical Advisor.

Commercial and Industrial Prescriptive Measure Development: FortisBC (October 2018-March 2019). Posterity Group worked with FortisBC to further develop and optimize energy saving measures under the Commercial and Industrial Product Rebate Program (PRP). This assignment built on Posterity Group's understanding of FortisBC's customer base to develop measure characterizations for proposed products and determine product-specific considerations that should be included in PRP. Tasks included interviewing market actors, reviewing program assumptions in other jurisdictions, conducting secondary research, and developing detailed program parameters and business case inputs for prescriptive demand side management rebates in both retrofit and new construction applications. Chris acted as Project Director and Technical Advisor.

FortisBC Ad-Hoc Measure Update: FortisBC (November 2018-May 2019). Posterity Group is pleased to provide our expertise to FortisBC to further provide expert consulting services to review and update measures on an ad-hoc and as required basis. The project team will help FortisBC to explore the merits of various measure ideas or questions, and where appropriate, undertake the research that may be required to appropriately substantiate a proposed changed to any given measure or incentive. The following have been examined: Air curtain operating hours; steam trap survey parameters, eligibility and incentive levels; appropriate heating load assumptions for insulation measures; Industrial unit heater applications; incoming codes and standards for air curtains, unit heaters and insulation; Infrared heater applications and operating assumptions for poultry barns. Chris acted as Project Director and Technical Advisor.

Development of Prescriptive Incentives – Commercial New Construction Non-Lighting; Industrial Gas Retrofit: FortisBC Energy and FortisBC Inc. (April 2017-November 2017). Posterity Group updated FortisBC Inc.'s (Fortis electric) commercial prescriptive non-lighting retrofit measures, and expanded the list to include new construction measures. Posterity Group also developed a list of prescriptive natural gas retrofit measures for FortisBC Energy's (Fortis gas) industrial customers. FortisBC wanted its measure lists to be comprehensive, contemporary, and applicable to a wide range of end-uses. The primary work plan tasks were to research and identify potential commercial and industrial measures for discussion with FortisBC, and to develop inputs and assumptions (i.e., energy and demand savings, cost, rebate level, TRC and PAC) for the measures FortisBC wanted to add to its commercial and industrial programs. Chris acted as Expert Advisor, supporting the development of several measures.

Development of Prescriptive New Construction & Retrofit Lighting Incentives: FortisBC Electric (February 2017-April 2017). Posterity Group helped FortisBC develop a prescriptive lighting offering that covered both retrofit and new construction projects. The project's primary tasks included a jurisdictional scan to evaluate the applicability prescriptive lighting programs and measures offered by other utilities, and the development of input assumptions

and eligibility criteria for each measure. Posterity Group contacted local lighting distributors and mined existing FortisBC program data to create region-specific cost assumptions.

HPNC Program Refinements: Independent Electricity Service Operator (May 2015-June 2015, September 2016-October 2016, February 2017-September 2017). Over three successive contracts, Posterity Group developed tools to allocate saveONenergy High Performance New Construction (HPNC) Program incentives based on improvement over code; updated these tools to reflect changing Measurement & Verification requirements, and updated program tools to reflect changes to Ontario Building Code baselines. Chris acted as project manager and lead analyst.

Upstream Program Development Support: Enbridge Gas Distribution (June 2016-January 2017). Enbridge Gas relied on Posterity Group to provide strategic guidance on how and where employing an upstream program approach may improve the effectiveness of its commercial program offerings. Posterity Group evaluated candidate measures regarding their suitability for an upstream program delivery approach in consultation with EGD staff; and characterized the Ontario market for two selected measures in order to determine market size, market structure, barriers to increased uptake, market actor support for an upstream delivery approach, and consistency with EGD's overarching DSM strategy. Chris developed the methodological approach for this assignment and provided modelling advice and strategic market characterization input.

Upstream Commercial Program Design: Independent Electricity System Operator (September 2015-February 2016). A working group of Local Distribution Companies in Ontario (Toronto Hydro, Hydro One, Horizon Utilities, and Entregrus) contracted Posterity Group through the IESO to undertake three upstream program designs for the commercial sector. As support for these designs, Chris led market characterization activities in three technology areas, compressed-air, unitary packaged air conditioning units (rooftop units), and variable frequency drives. The methodology for the detailed market characterization of each technology area, included a literature review, program administrator interviews, and market actor interviews to determine barriers that an upstream program approach could overcome. The market characterization informed the program design phase which undertook to establish the proper intervention point for the program in the supply chain, to establish technology eligibility and program economics.

Commercial Sector DSM Program Design: Yukon Energy / Yukon Electrical Company (January 2012-May 2012). Following a successful engagement as commercial sector lead for Yukon Energy and Yukon Electrical Company's Conservation Potential study, Chris was engaged to assist the design of demand side management programs for the Territory through analysis of study outputs.

Design of an Energy Efficiency Lending Program: Confidential Client (June 2012-September 2012). Chris contributed to the design of an energy efficiency lending program on behalf of a major Canadian financial Institution, quantifying energy savings and subsequent cost savings in a number of building sectors within the client's portfolio of commercial borrowers. The program provided more favorable lending terms to commercial clients who undertook energy retrofits based on their increased ability to service debt.

Commercial Sector DSM Program Design: SaskPower (July 2011-February 2012). Following a successful engagement as commercial sector lead for SaskPower's Conservation Potential study, Chris was engaged to assist the design of SaskPower's commercial sector demand side management programs. Chris led the market characterization portion of this project, designing data collection tools, interviewed various market actors and identified market trends and failures. He also assisted in program forecasting through analysis of Conservation Potential study outputs.

Energy Retrofit Incentive Program: Various Ontario Electricity Local Distribution Companies (September 2010-February 2011). Chris was a technical reviewer of incentive applications to the Energy Retrofit Incentive Program for lighting, air conditioning, agricultural and alternative energy equipment

High Performance New Construction Program: Enbridge Gas Distribution (September 2010-February 2011). Chris was a technical reviewer of incentive applications to the High Performance New Construction Program for lighting, air conditioning, agricultural and alternative energy equipment

Strategic Planning for Energy Management

Deep energy Retrofit DSM Planning Support: FortisBC (October 2025 – April 2026). FortisBC hired Posterity Group to support their 2028-2033 DSM planning cycle by developing background information for deep energy retrofits of residential and commercial buildings. Posterity Group will leverage its prior work on the 2024 FortisBC Conservation Potential Reviews (CPRs) and the 2023-2027 FortisBC DSM expenditure plans, as well as primary and desktop research to deliver three main outputs:

- A gap analysis related to the refinement of existing program participation projections and budgets for potential program elements,
- Recommendations for deep energy retrofit program elements, and,
- A program participation and budget forecast.

FortisBC will use the outputs of this study to inform their 2028-2033 DSM expenditure plan filing to the BC Utilities Commission, and to support future program planning and design activities.

Demand Side Management Expenditure Plan: Pacific Northern Gas (January 2022 – April 2022). Posterity Group was hired to develop PNG's DSM Expenditure Plan for submission to the BC Utilities' Commission for the 2023-2027 program implementation period. The scope of work involved program and portfolio development, cost effectiveness modelling, and reporting. Chris acted as project director.

Demand Side Management Expenditure Plan: FortisBC Energy Inc. and FortisBC Inc. (September 2021 – May 2022). Posterity Group was hired to develop a DSM Expenditure Plan for FortisBC's natural gas and electric utilities for submission to the BC Utilities' Commission for the 2023-2027 program implementation period. The scope of work involved program and portfolio development, cost effectiveness modelling, and reporting. Chris acted as project director.

Renewable Gas Program Review – Cost Recovery: FortisBC Energy Inc. (July 2021 – October 2021). FortisBC Energy Inc. assessed various pricing schemes for their voluntary renewable gas (RG) program, including how to recover supply costs from customers who did not volunteer to pay a premium for RG. Posterity Group estimated how non-participants may respond to changes in their annual gas bill from RG-related costs by changing demand or defecting from the gas system, to inform FEI's proposed design of the RG program such that impact on customers is minimized. Chris acted as Project Director.

Review of Building Energy Mapping Applications: Natural Resources Canada Buildings and Renewables, CanmetENERGY Ottawa (February 2021-April 2021). As a follow up to our 2020 examination, Posterity Group supported CanmetENERGY's Canadian Energy End-Use (CEE) Mapping project by completing a comprehensive review of ten additional spatial building and energy models to identify priority features for consideration in the initial CEE map prototype and future iterations. Chris is acted as Project Director.

DSM Planning Support: Enbridge Gas Innewc. (January 2021-January 2022). In 2019 and 2020, Posterity Group worked with EGI to develop a Navigator end-use energy model to support DSM planning. The model aligns closely to the Ontario Energy Board's 2019 Achievable Potential Study but includes adjustments that

better reflect Enbridge's input and experience, and to correct for identified limitations. Model outputs are housed within Power BI to provide an interactive means to support future EGI planning efforts. In 2021, Posterity Group is working with EGI to update and enhance the end-use model dataset to support its next multi-year DSM plan submission. Priorities include: Developing evidence to position the APS in a context that more accurately reflects EGI's knowledge and experience; Making further adjustments to the APS dataset to address deficiencies and enable sensitivity analysis; and Interrogatory and Witness Support. Chris is acting as Expert Advisor.

Comparative Evaluation of Spatial Building Stock and Energy Models: Natural Resources Canada Buildings and Renewables, CanmetENERGY Ottawa (November 2019-January 2020). CanmetENERGY is undertaking the Canadian Energy End-Use (CEE) Mapping project to develop a prototype of a residential energy use and efficiency opportunities map in the 2019-2020 fiscal year. The long-term plan for the CEE mapping project is to create an online, open, and authoritative spatial mapping platform to support housing energy end-use characterization and enable non-building science professionals to identify efficiency opportunities. Posterity Group will complete a comprehensive review of ten spatial building and energy models to identify priority features for consideration in the initial CEE map prototype and future iterations. Chris is acting as Project Director and Advisor.

Analysis of Funding Programs to Support Market Transformation: Natural Resources Canada (NRCan) (June 2019-September 2019). Posterity Group was retained by NRCan to identify federal, provincial and territorial funding programs that could support initiatives to promote the uptake of high efficiency equipment. This project supports the implementation of the "*Paving the Road to 2030 and Beyond: Market transformation roadmap for energy efficient equipment in the building sector*" plan which has 44 high-priority initiatives to overcome barriers to market adoption for high efficiency residential windows, space heating equipment and water heating equipment. This assignment involved researching and describing available funding sources which could support priority initiatives and identifying gaps in funding related to the priority initiatives. Chris acted as Project Director.

High-Efficiency Buildings: Case Studies: NRCan Office of Energy Research and Development (February 2019-June 2019). NRCan's Office of Energy Research and Development engaged Posterity Group to undertake literature review, interviews, and technical case-study development for the purpose of gathering information about high efficiency buildings in Canada and to better quantify the costs, energy usage, and ensuing greenhouse gas emissions of high efficiency buildings. This work combined two of Posterity Group's core competencies: The assessment of markets for energy efficient and low carbon technologies and services; and technical assessment of energy performance in the built environment. Our team developed an inventory of high performing Canadian buildings, undertook market research and interviews with leading builders and developers, assessed and developed building energy simulation models and Class D estimates of incremental costing for high performance buildings, and developed a series of case studies covering both technical and market-related aspects of high-performance building development. Chris acted as project director, with responsibility for methodological oversight, quality control and guidance.

Natural Gas Demand Scenarios: FortisBC (July 2017-December 2017). Posterity Group provided demand scenario analysis to support FortisBC demand forecasting. This work involved analysis of six scenarios that build on the core end-use forecast completed in June 2017. The project results are helping FortisBC to assess the impact of various policies, including the City of Vancouver zero emissions plan and the BC Step Code. As part of this work, Posterity Group added features to the processing software at the heart of the forecasting model, allowing users to dynamically select the municipalities that are expected to opt into new energy efficiency requirements. Chris acted as Project Director and commercial sector advisor, providing scope, methodology and technical advice and direction.

Long Term Resource Plan Model and Forecast: FortisBC (October 2016-June 2017). FortisBC turned to Posterity Group to develop a new end-use forecasting model to enhance their current end-use resource forecasting approach, and to generate a new 2017 forecast. The project entailed building an entirely new modelling platform that applies an innovative approach to generating transparent data input files and results in faster more reliable operation. The forecasting project work incorporated multiple data sources including as end-use surveys, customer energy use data, price and commodity forecasts. It also estimated and integrated expected impacts of various policy drivers, including anticipated federal, provincial and municipal codes and standards, various potential carbon pricing regimes; and the potential impacts of increased efficiency activity, natural gas transportation, liquefied natural gas production, renewable natural gas production, and/or district energy availability. Chris acted as Commercial Sector lead and Project Director for this assignment.

Study of Federal Programming Strategies to Achieve Energy Savings: Natural Resources Canada (December 2016-July 2017). NRCan's Assistant Deputy Ministers of the Office of Energy Efficiency (OEE) and Innovative Energy Technology Services (IETS) needed to explore an approach to planning and prioritizing national energy efficiency programming and research investments that leverages lessons learned from "Ecosystem" approach that the US Department of Energy's Buildings Technology Office (BTO) has deployed, which allows for greater coordination of activities, leveraging of respective outcomes, and more efficient use of resources. Posterity Group assisted NRCan to develop a comprehensive, data-driven approach to energy efficiency programming focused on the built environment and informed by the experience of the BTO. With our US partners, we conducted both primary and secondary research in order to provide NRCan with recommendations on how best to design, deliver, and coordinate federal energy efficiency programming and R&D investments that similar to the approach taken by the U.S. This study also equipped NRCan with the tools necessary to adapt its existing programs to maximize their positive impacts on the energy efficiency of the built environment. Chris acted as a Senior Advisor for the modelling and tracking of market indicators.

Energy & GHG Management and Planning Services: Various Ontario Municipalities & Communities (December 2012-Present). Chris has supported several medium and small municipalities and communities to manage energy more effectively. His projects have involved the acquisition and analysis of utility data; assessment of utility incentive applicability; development of energy/emissions inventories and management plans at both the corporate and community levels; facility and portfolio-level energy benchmarking; and technical support and analysis for energy management projects and procurement. Assignments have included substantial consultation with municipal staff and stakeholders. Recent clients include the City of Clarence-Rockland, Township of Addington Highlands, Town of Gananoque, Township of North Glengarry, the United Counties of Prescott and Russell, Town of Hawkesbury, the Aboriginal Community of Nibinamik, and the City of Stratford.

Development of Major Energy Retrofit Guidelines (II): Natural Resources Canada (May 2015-March 2016). Following a first successful engagement, Posterity Group, in partnership with Arborus Consulting and TdS Dixon, developed additional guidelines for the Office of Energy Efficiency's Buildings Division to support building sector initiatives, including the National Energy Code of Canada for Buildings and ENERGY STAR Portfolio Manager. The guidelines target decision makers in small to medium-sized commercial and institutional facilities and outline an approach to identifying and undertaking major retrofits. This assignment included three building – specific modules which present opportunities unique to hotels, supermarkets, and restaurants/food stores.

Development of Major Energy Retrofit Guidelines (I): Natural Resources Canada (February 2014-March 2015). Posterity Group, in partnership with Arborus Consulting and TdS Dixon, developed guidelines for the Office of Energy Efficiency's Buildings Division to support building sector initiatives, including the National Energy Code of Canada for Buildings and ENERGY STAR Portfolio Manager. The guidelines target decision makers in small to medium-sized commercial and institutional facilities and outline an approach to identifying and undertaking major

retrofits. They include four building –specific companion modules which present opportunities unique to office buildings, K-12 schools, hospitals and non-food retail facilities.

Development of an Energy Management Best Practices Guide: Natural Resources Canada (January 2013-July 2013). Chris supported the development of an Energy Management Best Practices Guide and updated the Office of Energy Efficiency Building Division's Energy Management Action Plan. This project's major task was to develop a document that incorporated information from several sources into a clear, concise document suitable for an audience with varying levels of technical knowledge.

Energy Efficiency and GHG Mitigation Potential Assessment

Natural Gas Conservation Opportunity Review: City of Vancouver and FortisBC (October 2021 – December 2021). Upon reviewing the results of the Conservation Potential Review (CPR) that Posterity Group had completed for FortisBC, the City of Vancouver requested a version of the report and data that focused on Vancouver specifically. This project involved reviewing the Vancouver portion of the CPR data, deriving specific insights considering the municipal policy environment, and reporting on findings.

Conservation Potential Review: Pacific Northern Gas (August 2021-November 2021). Posterity Group developed a Conservation Potential Review study for Pacific Northern Gas. This analysis built on resource planning and conservation potential work Posterity Group has recently completed in BC, including FortisBC's 2021 CPR. It supported adjustments to PNG's current portfolio of DSM programs and PNG's 2023 DSM Plan and Resource Plan filing. Chris acted as Project Director and Commercial Advisor.

2022 Long Term Gas Resource Plan Demand Forecast and Resource Planning: FortisBC Energy Inc. (February 2020- April 2022). Following a successful engagement in 2017, FortisBC again engaged Posterity Group to generate a natural gas end-use forecast in support of their 2022 Long Term Gas Resource Plan filing. The analysis uses baseline end-use energy intensities for over 40 customer segments across 5 provincial regions developed by Posterity Group through the 2021 Conservation Potential Review. Forecasting analysis incorporates multiple data sources including customer end-use surveys, customer energy use data, and price and commodity forecasts. In addition to the reference case forecast, Posterity Group will conduct scenario analysis that estimates the impact on gas demand from a number of policy drivers including anticipated federal, provincial and municipal codes and standards, carbon pricing, efficiency activity, natural gas transportation, liquefied natural gas production, renewable natural gas production, and availability of district energy. Chris is acting as Project Director.

2021 Conservation Potential Review FortisBC Energy Inc (December 2019- June 2021). FortisBC has entrusted its 2021 Conservation Potential Review Study (CPR) to Posterity Group. The CPR will support two of FortisBC's major regulatory filings in 2022: the long-term gas resource plan (LTGRP) and the demand side management plan. Posterity Group will estimate BC's technical, economic and market potential savings over a 20-year period for natural gas using its Navigator™ Energy and Emissions Simulations Suite, which enables complex, multi-variable modelling, detailed scenario exploration and solution optimization. The CPR is an important guiding document for ongoing conservation and energy management program development and support at FortisBC. Posterity Group will complete FortisBC's 2022 LTGRP in parallel with the CPR. Chris is acting as Commercial Sector lead, with additional responsibility for overall methodology and project coordination.

Energy Management Best Practices for Cannabis Greenhouses and Warehouses: CEATI International Inc. (November 2019-May 2020). Posterity Group, in partnership with Cultivate Energy Optimization and D+R International, will assess and document best practices of energy management for cannabis production in both greenhouse and warehouse facilities. The study will develop a five-year forecast of energy use in three regions (Ontario, British Columbia and the Pacific Northwest) for the sector and assess energy saving opportunities. The

outcome of this work will form an important base of industry knowledge and bridge the gap to provide up to date and comprehensive information regarding energy use in cannabis facilities, from which future conservation activities might be developed. Chris is acting as Advisor.

Resource and DSM Planning: Enbridge Gas (July 2019-October 2019). Enbridge Gas requires Achievable Potential Study (APS) and Integrated Resources Planning (IRP) support as part of their ongoing planning and DSM activities. Posterity Group will provide support in these two related areas using their Navigator™ Energy and Emissions Simulation Suite, which enables complex, multi-variable modelling, detailed scenario exploration and solution optimization. Posterity Group will help Enbridge understand outputs from their 2019 achievable potential study, identify limitations in the underlying dataset, and leverage outputs in support of their submission to the OEB for the next DSM framework. The scope of IRP support will include a defensible method and analysis tool to forecast consumption, demand, and carbon emissions within a defined control zone over a range of scenarios. Chris acted as Advisor.

Review of Natural Gas Achievable Potential Study Scenarios: Ontario Energy Board (April 2019-August 2019). Posterity Group supported the OEB by reviewing detailed natural gas savings potential outputs from Ontario's 2019 Achievable Potential Study, and providing interpretation and analysis based on our knowledge of the Ontario market. Analysis included reviewing base year disaggregation, reference forecast, technical potential, economic potential, and achievable potential workbooks. Chris acted as project manager with responsibility for review and advice on work products.

Market Characterization and Conservation Potential for Ontario's Drinking Water and Waste Water Treatment Plants: Independent Electricity System Operator (May 2018-December 2018).

Market Characterization and Conservation Potential for Ontario First Nation Communities' Drinking Water and Waste Water Treatment Plants: Independent Electricity System Operator (August 2018-January 2019).

Posterity Group conducted a study of the study of the potential for energy efficiency and cogeneration in drinking water treatment plans (DWTP) and wastewater treatment plants (WWTP), including a series of case studies on successful energy and GHG management activities in the sector. The study ultimately provided IESO and municipal stakeholders with recommendations for plant efficiency, increased integration of distributed energy resources, and estimates of Province-wide energy and GHG savings potential. This study was conducted concurrently with a project focused on similar equipment within Ontario Indigenous Communities. In this companion project, case study work also focused on training and capacity development. Chris acted as Project Director for both studies.

Low Carbon Heating Options for Ontario: Ontario Ministry of the Environment and Climate Change (November 2017-June 2018). Posterity Group helped the Ontario Ministry of the Environment and Climate Change to identify and study the GHG reduction impact potential of low carbon space, water and process heating technologies and fuels in Ontario's residential, commercial and industrial sectors. The project was completed under four main activities: Development of energy and GHG Inventory and accompanying business as usual forecast for Ontario's thermal end-uses by fuel, sector/subsector, and end use; Development of a long list of fuels and technologies with abatement potential, and an evaluation matrix to build a short list of the 10 preferred, most promising technologies and fuels for detailed analysis; Detailed analysis of the short list of fuels and technologies to understand their current market structure, barriers, and applicability; and, development of illustrative deployment scenarios to estimate the potential impacts of the shortlisted fuels. This project was completed with input from stakeholders in six additional ministries. Chris acted as Project Director, with lead responsibility for technology assessment.

Demand Response Potential Assessment: Hydro Ottawa (December 2011-March 2012, with ICF Marbek). Chris led this study to identify potential targets for demand response programming among Hydro Ottawa's customer base. Chris developed a methodological framework to determine customers with high potential by examining yearly

load profiles, installed generation capacity, typical opportunity size based on building type and overall energy consumption, and willingness to participate based on operational and management structure.

Electricity Conservation Potential Review: SaskPower (March 2010-May 2011). Chris led commercial/institutional sector analysis for this project. In this role, he was responsible for technical analysis, including quantitatively integrating workshop results as part of the broader analysis of achievable conservation potential. Chris also designed and led workshop discussions with a variety of stakeholders centered on realistically achievable levels of energy conservation within Saskatchewan's commercial sector.

Conservation Potential Review: Yukon Energy Corporation/ Yukon Electrical Company Ltd. / Yukon Government (March 2011-January 2012). As lead for commercial/institutional sector analysis, Chris was responsible for technical analysis including "business as usual" reference case scenarios, evaluating the financial and energy impact of various measures, and determining the potential for electricity conservation within the Territory's Commercial/ institutional sector. Chris also developed and led workshop discussions with a variety of stakeholders centered on determining realistically achievable levels of electricity conservation within the Territory.

Conservation Potential Review: FortisBC (May 2010-March 2011). Chris led commercial sector analysis for this project. In this role, he developed "business as usual" reference case scenarios and modeled the impact of energy efficiency measures in the FortisBC commercial sector; and led workshop discussions with a variety of stakeholders centered on realistically achievable levels of energy conservation within BC's commercial sector.

Conservation Potential Review and 20 Year Load Forecast: Ontario Power Authority (September 2009-April 2010). Chris led commercial/institutional sector analysis for this project. In this role, he developed "business as usual" reference case scenarios and modeled the impact of energy efficiency measures in Ontario's commercial/institutional sector. He also evaluated costs and benefits of dozens of specific energy management activities.

2009 New Brunswick Integrated Resource Plan: NB Power (April 2009-November 2009). Chris led commercial sector analysis for this project. In this role, he evaluated costs and benefits of specific energy efficient technologies in the commercial sector. He also assisted and advised NB Power staff to estimate savings potential and theoretical program cost and participation rates.

Natural Gas Energy Efficiency Potential: Union Gas and Enbridge Gas Distribution (May 2008-March 2009). Chris led commercial/institutional sector analysis for these two concurrent projects. In this role, he developed "business as usual" reference case scenarios and modeled the impact of natural gas efficiency measures within Union Gas & Enbridge's commercial, institutional and multi-unit residential market. He also evaluated costs and benefits of specific energy efficient technologies and analyzed the impact of GHG pricing on conservation activities.

Conservation and Demand Management Potential Newfoundland and Labrador: Newfoundland & Labrador Hydro and Newfoundland Power (May 2007-April 2008). Chris led commercial sector analysis for this project. In this role, he evaluated costs and benefits of specific energy efficient technologies in the commercial sector and modelled the impact of energy efficiency and operations & maintenance measures in Newfoundland and Labrador's commercial electricity sector.

Conservation Potential Review Update: BC Hydro (March 2007- November 2007). Chris's role in this project was to Model the impact of energy efficiency, operations & maintenance and fuel switching measures in British Columbia's commercial electricity sector.

Transportation Energy Efficiency Technology and Market Research

Environmental and Health Impacts of Small Gasoline Powered versus Electric Powered Mobile Outdoor Equipment in Canada: Environment and Climate Change Canada (February 2021-May 2021). As part of the transformation to a low-carbon economy, the Government of Canada has committed to reduce emissions from off-road engines, potentially including small spark-ignition engines. Posterity group was retained to identify the potential benefits of electrifying outdoor power equipment such as lawnmowers, leaf blowers, chainsaws, small generators, and more. The project has two major focusses: Establishing a clear understanding of the environmental and health benefits of electrification from a number of perspectives including: GHG and air pollutant emissions, noise, air quality, health impacts to the public and to the user; and comparing both the performance and price between similar gasoline powered and electric powered equipment. Chris acted as Expert Advisor.

Survey of Fuel-saving Measures in Heavy-Duty Vehicles: Transport Canada (December 2017-March 2018). Under the *Pan-Canadian Framework on Clean Growth and Climate Change*, Transport Canada has the responsibility to develop and implement new requirements for heavy-duty trucks to install fuel-saving devices. In support of this responsibility, Posterity Group developed a methodology to survey of the use of fuel-saving measures in Class 8 heavy duty vehicles across Canada, executed the field survey in seven locations across the country, and analyzed the resulting data. The outcomes of this work will act as a baseline from which to measure the effects of future fuel efficiency requirements. Chris acted as Project Director for this assignment, with lead responsibility for study design, field sampling quality assurance, and reporting/analysis quality control.

Study to Assess the Level of Usage of EnerGuide Label for Vehicles and the Accuracy of Label Values: Natural Resources Canada - Office of Energy Efficiency (December 2012-March 2013; October 2014-March 2015; January 2016-March 2016; September 2016-February 2017). NRCan and the vehicle industry developed a voluntary program in 1998 to affix a standardized EnerGuide fuel consumption label to all new light-duty vehicles for retail sale in Canada. Under four separate assignments, Posterity Group supported the evaluation of this program and gathered supplementary data important to NRCan's Office of Energy Efficiency. Major tasks included: Assembly of a statistically representative sample of new car dealerships across five regions in Canada; Conducting site visits at the sampled dealerships to determine the availability of plug-in hybrid electric (PHE) and battery electric (BE) vehicles available for test driving, and to assess the proportion of new vehicles with updated 2017 EnerGuide label information; and analyze and report on the resulting data, to summarize findings about the availability of PHE and BE vehicles and label accuracy/usage rates. In early studies, Chris acted Project Manager and Field Staff. In later studies, as Project Director. In all cases, he had lead responsibility for study design, field sampling quality assurance, and reporting/analysis quality control.

Vehicle Technology, Transportation Energy-use and Electric Vehicle Information Scan for ecoENERGY Efficiency for Vehicles: Natural Resources Canada (February 2016-May 2016). Posterity Group leveraged our in-depth understanding of the ecoENERGY Efficiency for Vehicles program and experience in conducting jurisdictional reviews, energy-focused market studies, and environmental scans to help NRCan evaluate the information it provides to the public in support of its transportation-sector market transformation activities. This assignment focused on ensuring that the ecoENERGY Efficiency for Vehicles program is offering Canadians up to date and relevant information regarding low-carbon vehicle technologies, including electric vehicles, alternative-fueled vehicles, and efficient internal-combustion engine vehicle technologies. Major tasks included a review of "vehicles and energy", electric vehicle, and manufacturer websites to identify issues, content and technologies in to enhance the information communicated by NRCan to Canadians. Chris acted as Project Manager and lead consultant.

REGULATORY EXPERIENCE

- G-215-24 2024 Consolidated Resource Plan: Pacific Northern Gas
  - Regulatory Support
- EB-2021-0002 - Multi-Year Natural Gas DSM Plan: Enbridge Gas Inc.
  - Regulatory Support
- G-371-22 - 2023- 2027 Demand-Side Management Expenditures Plan: Fortis BC Inc. (Electric)
  - Regulatory Support
- G-34-23 - 2023 Demand-Side Management Expenditures Plan: FortisBC Energy Inc.
  - Regulatory Support
- G-17-23 - 2022 Long-Term Gas Resource Plan: FortisBC Energy Inc.
  - Regulatory Support
- 2017 Long-Term Gas Resource Plan: FortisBC Energy Inc.
  - Regulatory Support
- F-30-23 - 2023-2024 Energy Conservation and Innovation Portfolio Funding: Pacific Northern Gas
  - Regulatory Support

EDUCATION

B.Sc. (Biology, Concentration in Ecology), University of Ottawa – Ottawa, Ontario, Canada, 2006

B. Eng. (Mechanical), Carleton University – Ottawa, Ontario, Canada, 2003

CERTIFICATIONS

Professional Engineer (Ontario)

PROFESSIONAL AFFILIATIONS

Professional Engineers Ontario

Association of Energy Service Professionals

Association of Energy Engineers (Senior Member)

EMPLOYMENT HISTORY

Posterity Group	Principal	September 2012 - present
ICF Marbek	Consultant	January 2011 – August 2012
Marbek Resource Consultants	Consultant	February 2007 – January 2011
One Change/Project Porchlight	Field Representative	2006 - 2007