

Social OPEX™: Learning from Engagement to Strengthen GBA+ Practice

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A sector with growth opportunities and new projects in play

The Canadian nuclear sector is entering its most significant period of growth in a generation; some of that growth will occur in communities without a history of established nuclear power generating facilities. Canada is building the G7's first small modular reactor¹ and has nuclear power and waste management projects in the federal impact assessment process², jointly overseen by the Impact Assessment Agency of Canada and the Canadian Nuclear Safety Commission³.

Impact assessment serves as a critical decision-making tool designed to evaluate the potential environmental, social, and economic effects of proposed projects before they proceed. By systematically analyzing these impacts, it enables decision-makers to identify risks and opportunities, incorporate diverse perspectives, and implement mitigation strategies that promote sustainable development. In the nuclear context, impact assessment is essential for ensuring that technical, social, and cultural considerations are integrated into project planning and execution, ultimately fostering informed decisions that balance safety, community well-being, and environmental stewardship.

In June 2026 the Government of Canada released its first Nuclear Energy Strategy, setting a course to enable construction of up to ten new large-scale reactors, deploy small modular reactors in and beyond Ontario, demonstrate a Canadian microreactor, and grow Indigenous equity participation in nuclear generation.⁴ The strategy names public confidence as a foundational element.

Regardless of whether a legal trigger for impact assessment applies, every nuclear project requires effective engagement and consent. In Canada, public participation is woven throughout the regulatory lifecycle. While Canada has a long history with the ongoing operation of nuclear facilities, the growth in new nuclear projects is more recent and gives rise to new requirements for the sector to understand and develop its capacity in the area of impact assessments and specifically Gender Based Analysis Plus (GBA Plus) methodology.

An established approach to continuous learning and improvement in the nuclear sector, technical operating experience (OPEX), can be reframed to support the learning and improvement journey related to the social dimensions of new nuclear projects, and relationship building with diverse publics. We call that discipline Social OPEX™.

Two kinds of risk: technical and social

Nuclear projects carry two kinds of risk. Technical risk is managed through decades of rigorous systems, a non-punitive learning culture, and shared infrastructure across organizations such as the Institute of Nuclear Power Operations, the World Association of Nuclear Operators, the International

¹ (Ontario Power Generation 2025)

² (Canadian Impact Assessment Registry 2026)

³ (Integrated Assessments 2026)

⁴ (Natural Resources Canada 2026)

Atomic Energy Agency, and Conexus Nuclear. When a technical challenge emerges or an event of safety significance happens, the sector mobilizes expertise and shares OPEX.

Social risk is different. Trust takes years to build, moments to lose, and far longer to regain. Delays and controversies that shape major projects are rooted not in engineering or in reactor physics but in social dynamics. Canada's nuclear industry has earned trust over decades of safe operation, particularly in communities where it operates. Trust is not transferable; a new project in a new community starts anew in developing relationships, demonstrating trustworthiness and building trust. Technical excellence and safety are foundational for all nuclear projects, but insufficient in themselves to produce public confidence.

The invisibility challenge

The challenge ahead is not a broken-trust story; it is an invisibility story. Opinion polling consistently shows that Canadians who live closest to nuclear facilities hold significantly more favourable views of the technology and its operators than the public. This is also true internationally⁵. Proximity builds familiarity; familiarity builds trust.

The communities where nuclear has operated for decades already know the safety culture, the track record, and the people. But as nuclear expands into new regions, the sector will meet communities for whom that history is invisible. Some of these communities carry experience with other large infrastructure projects, and that experience has not always been positive. A world-class safety record means nothing to someone who has never encountered it. That invisibility is where the work begins, and it is where GBA Plus becomes essential.

GBA Plus as a foundation for building relationships and trust

GBA Plus enables understanding of who is impacted by a project, identifies how the project could be tailored to meet diverse needs of the people most impacted; and anticipating and mitigating any barriers to accessing or benefitting from the project. Beyond sex and gender, the 'plus' looks to geography, language, ethnicity, Indigenous identity, disability, and other dimensions that shape how people experience a project. GBA Plus asks who is in this community, what are their distinct circumstances, and how will this project affect them differently⁶.

Polling consistently finds a significant gender gap in support for nuclear power, with women generally opposed and men generally in support⁷. Women are more likely to raise safety concerns and to connect energy development to broader environmental and social-equity questions. The gap tells us the sector has not yet built the same quality of relationship with women as it has with others. GBA Plus gives us a framework for understanding why, and for doing something about it.

There is a workforce dimension as well. Studies indicate that a substantial share of the current nuclear workforce will reach retirement age within the next decade, and the nuclear industry expects a significant expansion of the sector's workforce by 2050⁸. The communities whose trust we most need to build are often the communities where our future workforce lives: women, Indigenous peoples, newcomers, and young people in places that have never considered nuclear as a career. GBA Plus thinking applied to workforce engagement is one way Canada's growing nuclear sector could better attract its future workforce.

⁵ (World Nuclear Association 2026)

⁶ (Women and Gender Equality Canada 2026)

⁷ (EnviroNics Research 2023)

⁸ (Canadian Nuclear Association 2026)

Impact assessment project teams share learnings within their own organizations, but the broader nuclear industry does not learn the same lessons at a sector level. Over time, knowledge from these insights can be diluted or lost. The nuclear industry can benefit from sharing learnings of undertaking GBA Plus analysis, and from the lessons arising from the outcomes of GBA Plus analysis. Incorporating those learnings in a way that can be accessed over time ensure more consistent and effective application of GBA Plus requirements across the industry and reduces the social risk associated with large complex nuclear projects going through impact assessment.

In nuclear, learning is systematic

Nuclear has already solved a version of this problem. The discipline of OPEX emerged from events that shook the entire sector. Three Mile Island (1979) showed that organizational failures can compound technical ones. Chernobyl (1986) made plain that learning from events must extend worldwide, and the modern concept of safety culture was born. Those events revealed that technical failures are frequently rooted in human and organizational factors. In response, the industry built systematic frameworks to capture events and near-misses, analyze root causes, share findings across the whole sector, and embed change in future practice⁹. Canadian nuclear standards and regulations require that experience (internal and external) be 'sought, shared and used' to identify opportunities for improvement and prevent the recurrence of safety or operational issues¹⁰. It is a cornerstone of nuclear safety culture, and the reason safety performance has improved for decades; safety and technical learning is not left to chance.

Safety culture in nuclear is explicitly a leadership responsibility, not the safety department's responsibility alone. The same is true for relationship and trust-building with communities. Building a relationship between a proponent and a community or impacted public is not the sole responsibility of the impact assessment or the engagement and communications team. It is a leadership activity. Technical experts decide what gets built and where. Project managers set schedules and define tasks. Executives allocate resources. Each of those decisions can affect communities, and community identified concern could be as consequential to a project's success as a technical issue.

Social OPEX™: the same discipline, outside the fence

Social OPEX™ is a structured approach to capturing, analyzing, and applying learning from the social dimensions of work arising from engagement, GBA Plus analysis, community relations, etc., across projects and across organizations over time. It applies the familiar OPEX cycle to public-facing work: identify the issue, interpret what happened and why, share the lesson, integrate improvements into processes or practices, and evaluate effectiveness.

The principle is simple. The trust built on one project should become a resource for the next. Right now, GBA Plus knowledge in nuclear is held by a small group of specialists. That knowledge is deep, but the sector is about to need it everywhere. Social OPEX™ is one mechanism that can move insight from individuals and project-specific files into shared, cumulative intelligence. It ensures good practices can be replicated, lessons are learned and not repeated, and it makes social risk more visible at the project level.

⁹ (Operational Safety Section, International Atomic Energy Agency 2008)

¹⁰ (Canadian Nuclear Safety Commission 2019)

Without Social OPEX™, insights are siloed by project, GBA Plus may be treated as a compliance exercise, social risk tends to be reactive and invisible to project leadership, every project relearns the same lessons, and decisions are hard to explain or defend. With Social OPEX™, learning is shared across organizations, outcomes from GBA Plus analysis becomes cumulative intelligence, social risk becomes visible and manageable early, the sector builds collective memory, and decisions become traceable and defensible.

From concept to community of practice

Social OPEX™ is moving from idea to practice. In April 2026, Wild Matriarch and Calian Nuclear convened the inaugural Social OPEX™ and GBA Plus workshop in Ottawa, on the unceded territory of the Anishinaabe Algonquin Nation. The session brought together nuclear professionals and impact assessment practitioners and experts; the Impact Assessment Agency of Canada presented to the group, and participants explored case-studies under the Chatham House Rule. The workshop became the founding event for an emerging community of practice.

The case studies examined real events that may not have had a safety consequence but impacted the reputation of the Canadian nuclear sector in ways that eroded trust and relationships or introduced social risk to projects. We explored what happened, what could have been known in advance, and what structured learning would have changed. The findings were strikingly consistent, and included themes such as:

- Once trust is lost, recovery is extremely difficult.
- The wrong people in public-facing roles can undermine even excellent technical work.
- Community-defined priorities, not project-defined ones, should set the agenda.
- The sector has already learned many of these lessons and is not yet doing enough to share and reflect on them.

Blueprint for the future

The integration of Social OPEX™ into the Canadian nuclear sector represents a vital evolution in how social risk and trust-building are managed alongside technical and safety risks. By systematically capturing and sharing lessons learned from engagement and GBA Plus processes, Social OPEX™ creates cumulative intelligence that strengthens leadership decision-making and project outcomes. This continuous learning approach ensures that social dimensions, central to effective public participation and consent, are not siloed or treated as mere compliance exercises but become foundational to project planning and execution.

Social OPEX™ enhances the impact assessment process by embedding GBA Plus insights into a shared, accessible knowledge base. This linkage makes social risks visible earlier, enabling proactive mitigation and more nuanced understanding of diverse community needs and priorities. As impact assessments under the Impact Assessment Act require thorough consideration of who is affected and how, Social OPEX™ offers a structured mechanism to deepen and extend these analyses across projects and organizations. This strengthens the overall integrity, transparency, and effectiveness of impact assessments, ultimately fostering public confidence and supporting the sustainable growth of nuclear projects in Canada.

In sum, Social OPEX™ not only supports safer and more socially responsible nuclear development but also advances the practice of impact assessment by ensuring that social learning is continuous, cumulative, and central to project success.

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