ACHIEVING SOCIAL BUOYANCY

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Abstract

Since the mid-1990s the concept of maintaining a Social Licence to Operate (SLO) has underscored the importance of Stakeholder Engagement for industries, while providing a framework for how to succeed. Social Licence doesn't represent a binary threshold however, but a continuum ranging from baseline tolerance to a summit of identity, pride and ownership. Nuclear technology's history has shown that simply maintaining a SLO, while arguably sufficient for achieving near-term operational goals, is insufficient in allowing the technology to weather storms of high-profile controversy or upset – such as strategic expansions, addition of novel technologies and processes, or a nuclear incident occurring pretty much anywhere on the planet. Meaningful nuclear stakeholder engagement means more than just Social Licence – it means Social Buoyancy: a broad constituency feeling so integrated in the process, so listened to, so intimately aware and understanding of the facts that they become citizen ambassadors, freely sharing their enthusiasm with family and neighbours: at this stage Stakeholder Engagement becomes self-sustaining. Achieving Social Buoyancy is clearly a generational initiative that takes more time, commitment, and resources than baseline Social Licence - but the payback is substantial, and perhaps existential to the nuclear industry. The paper introduces the case for and nature of Social Buoyancy, and summarizes what's needed to get there - and why the time may be right to try.

1. Background: Social Licence to Operate

The concept of gaining and maintaining a Social Licence to Operate (SLO) was popularized in the mid-1990s by Canadian mining executive Jim Cooney, as a way of underscoring the power of public opinion in determining the fate of new resource extraction projects [1]. The term, then as now, has no legal definition but reflects an informal approval by the community for a project to proceed.

The "community" in this regard was primarily understood to be the local community at the time that the term first emerged: the people with the power to slow down or halt a project through interventions, and the people most impacted by the project's construction, operation, decommissioning, or, in worst-case circumstances, an accident. This impact may be socio-cultural (e.g., the influx of a new large industry and workforce in a small region), environmental, health & safety, or economic. The real value of the concept of "Social Licence" was its ability to impress upon company executives and shareholders the existential importance of good stakeholder engagement.

As the concept evolved, "community" could be defined more broadly – in the extreme case equating to the population of the planet. This is the realm of Social Licence that nuclear technology naturally inhabits (discussed in Section 2), having no boundaries for impact – particularly environmental – nor, in the other direction, societal pressure. A gradient for these impacts certainly exists, typically radiating out from a nuclear project's physical location, but does not end at the boundary of the

impacted town, region, or country. In the digital age, Social Licence is conferred and retracted on a global basis for high-profile industries without borders like nuclear energy.

First and foremost, Social Licence reflects an industry's commitment to social responsibility, defined by the ISO as [2]:

"Responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behaviour that:

- contributes to sustainable development;
- takes into account the expectations of stakeholders;
- is in compliance with applicable law and consistent with international norms of behaviour; and
- is integrated throughout the organization and practised in its relations."

Social Licence thus works in both directions: it simultaneously reflects an industry's obligations as well as society's expectations for that industry, and the degree to which compliance with these expectations can be clearly demonstrated. There is a natural and strong relationship between Social Licence and effective stakeholder engagement.

This aspect of Social Licence has evolved considerably in the last thirty years, as the public has come to regard it more as an expression of its rights and entitlements, and ultimately a judgement on industrial behaviour. This perception reflects the evolving strength of civil society in discussions of sustainable development, and an unofficial manifestation of the traditional mantle of "Licence": that which is granted, thereby permitting a process to proceed.

The fact that Social Licence has no legal standing, per se, has become increasingly irrelevant since the seeking, granting, and maintaining of a Social Licence has become very much necessary for industrial projects to proceed. The gap to legal standing has at the same time narrowed; for example, the UN's Declaration on the Rights of Indigenous People (UNDRIP) [3] is a manifestation of Social Licence for one significant sector of society, codified in Canadian law since 2021 [4] and affirming that:

"States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources."

For indigenous peoples in Canada the UNDRIP Act extends the expectation of Duty to Consult, itself stemming from rights affirmed in the Constitution Act (1982) and formerly recognized by the Supreme Court in 2004 [5][6], to include the expectation of *free and informed prior consent*: i.e., in every way, a Social Licence to Operate. (NOTE: the exact legal mechanism for the incorporation of UNDRIP within Canadian law – and specifically the relationship to Duty to Consult – is yet to be fully determined, and an ongoing subject of discussion between the Government of Canada and indigenous peoples.)

The reality of UNDRIP, albeit focused on a specific segment of society, is symbolic of the rise of agency behind Social Licence – which at the same time remains a status granted on three fundamentally unquantifiable markers of an industry's performance:

- *Credibility:* the degree to which an industry meets its commitments to the community, follows the rules for safe and sustainable operation, and transparently communicates with its stakeholders;
- *Collaboration:* the degree to which an industry involves its stakeholders in decision making, both strategic and tactical; and
- *Trust:* the degree to which a community is willing to place its health and well-being in the hands of an industry, and the perceived degree to which the industry values the community's health and well-being in its decision making.

Starting initially with the resource extraction industry and spreading to all sectors of the economy, businesses have endeavoured to achieve high scores in these three areas through stakeholder engagement. Several challenges make it difficult to mark success on this front (leading to occasional push-back [7] over the years), stemming primarily from inherent features of the Social Licence concept:

- It is *dynamic*: a moving target, dependent upon social needs, expectations and perceptions;
- It is typically *site-specific*: initially conceived as an expedient to siting, a social licence for one project may have little impact on the success of other projects in another location, even if similar;
- It is *community-granted*: without representative structure it is effectively a popular referendum on performance;
- It is *intangible*: its performance markers are highly unmeasurable and dependent upon public perception; and
- It is a *continuum*: a range of public sentiment can be included in the concept, from conditional tolerance to proud support.

Taken together, these inherent features make it difficult to say with certainty when one has gained a Social Licence, and much easier to say when it's been lost. These traits also mean that gaining Social Licence, however affirmed, is only the start: it needs to be constantly maintained.

The aspect of a continuum of public sentiment [8][9] (see Figure 1) is of particular relevance to the notion of Social Buoyancy introduced in this paper: one can attain a Social Licence defined by the merest suggestion of ambivalent tolerance, or one can seek a level of endorsement that increases with credibility, collaboration, and trust – ultimately to an apex of community self-identity and pride.

First however, it is important to take stock of how nuclear technology has fared in a world of sustainable development increasingly metered by Social Licensing.

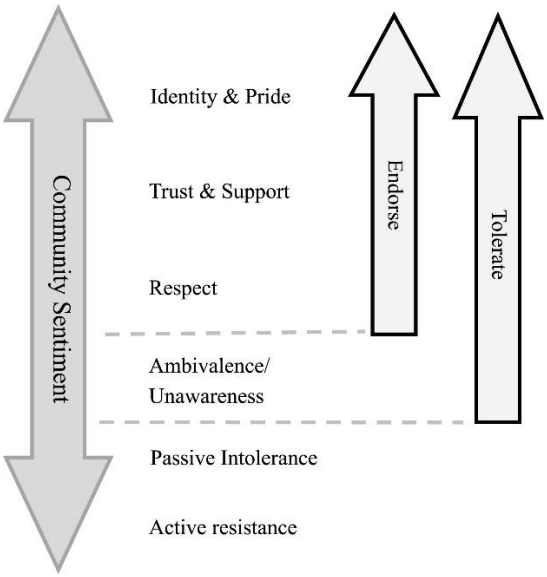

Figure 1. Continuum of Community Sentiment (from H. Breakey et al, 2025 [9])

2. Nuclear Technology and Social Licence

A number of factors make nuclear technology particularly sensitive to the vicissitudes of public opinion, and the shifting sands of Social Licence:

- Despite impacting the lives of billions of people, nuclear technology is largely misunderstood by these same billions;
- Perception of nuclear technology is largely driven by preconception, bias, and memetic fears around radiation and waste management;
- Expansion of nuclear technology is largely tethered to public support for government-funded R&D, and national infrastructure development;
- A nuclear Social Licence is not just local (site-specific), but national (strategic) and global (societal) in nature – it must gain and maintain all three pillars to succeed;
- Indigenous engagement is critical, tying nuclear development directly to reconciliation efforts, UNDRIP incorporation, and the increasing importance of indigenous partnerships.
- Public opinion for nuclear technology traditionally features a "soft middle" of moderate support/opposition (see Figure 2) that can quickly flip negative – for example, following any major global nuclear incident, regardless of location and relevance to national technology: the industry has seen its Social Licence pulled in the aftermath of Three Mile Island (1979), Chornobyl (1986), and Fukushima (2011).

In 1998 the Seaborn environmental assessment report on AECL's Deep Geological Repository concept returned a finding that set in motion the first significant incorporation of Social Licence in nuclear planning: the AECL proposal was found to be technically acceptable but lacking broad public support (the Seaborn report associated this with a "social perspective" of safety) [11]. This outcome led to the establishment of the Nuclear Waste Management Organization (NWMO) a few years later, with a mandate to seek and maintain this Social Licence as an integral part of the technology's further

development. Moreover, this Social Licence was national in nature rather than site-specific: it was nothing less than a public directive on the future of high-level nuclear waste management in Canada [12].

The national scope of the nuclear Social Licence has always meant a dependence on broad public opinion, influenced often by global events. Thus, the stagnated growth of nuclear energy at the end of the 20th century and beginning of this century was a testament to the impotence of any Social Licence the industry thought it may have earned at any given time and location before or during this era. In fact Social Licence is inherently a short-term achievement: it not only must be maintained rigorously in order to persist for a given project, but must also be re-earned every time there is a new project, or enhancement to an existing facility, or introduction of a novel technology or process – and especially following a nuclear incident anywhere on the globe as mentioned above.

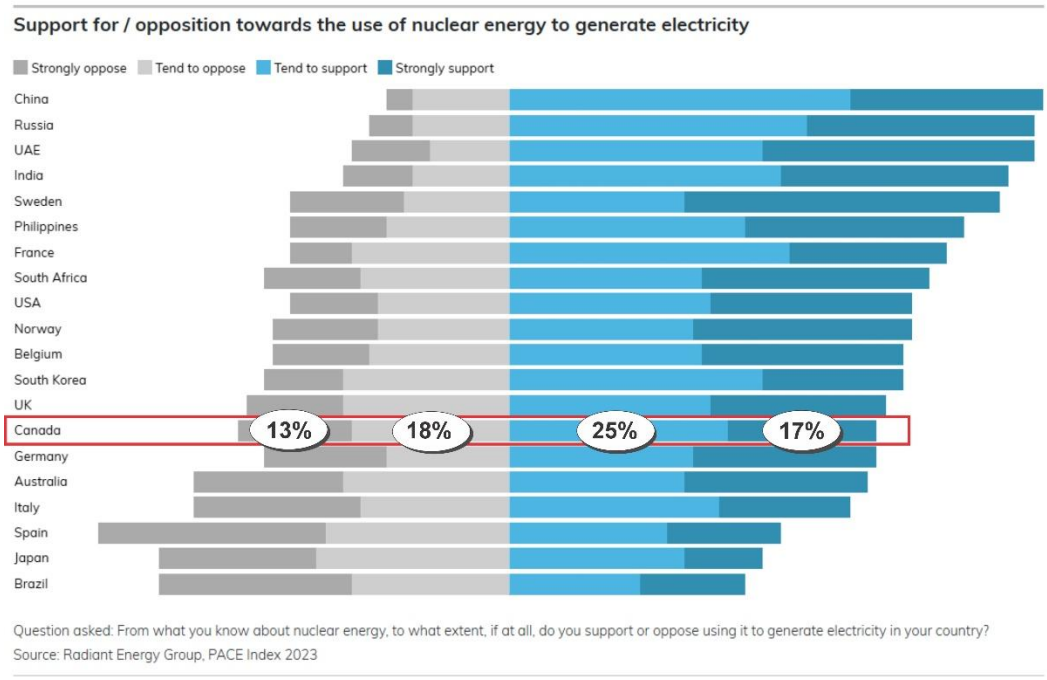

Figure 2. Support for / opposition towards the use of nuclear energy to generate electricity (from World Nuclear Association, 2026 [10], original source 2023)

This is a cautionary tale worth heeding in these times of apparent optimism and increasing Social Licence around nuclear topics: for true sustainable growth something more resilient will be needed – and thus we come to the concept of Social Buoyancy.

3. Towards Resilience: Social Buoyancy

Social Buoyancy is the most resilient form of public support for a technology or industry. It represents the highest level of community endorsement in the continuum illustrated in Figure 1: that which is achieved through a deep level of public understanding, leading to public pride and identification with the technology or industry. Whereas Social Licence typically implies acceptance ("I don't hate this"), Social Buoyancy implies motivated support ("I love this").

Social Buoyancy is achieved when a significant percentage of the public becomes so integrated in the process, so listened to, so intimately aware and understanding of the facts that they become *citizen ambassadors* – freely sharing their enthusiasm with family and neighbours: at this stage stakeholder engagement becomes self-sustaining.

Social Buoyancy is fundamentally grass-roots endorsement but can include public-sourced, public-facing advocacy at any level – from internet influencer to unsolicited corporate endorsements.

For the nuclear industry a key potential value of Social Buoyancy occurs during the social navigation of any major disruptive event such as a new build, project expansion, introduction of novel technology or processes, or a nuclear incident anywhere on the globe. It is during these times that the narrative for what happens next (and when) is written by those with the most compelling tale to tell, and the agency to tell it. The industry itself often suffers a dip in public credibility at this sensitive time, making the unsolicited input of citizen ambassadors all the more invaluable.

4. Achieving Social Buoyancy

How to reach Social Buoyancy in the nuclear industry is of course the critical question, and some would doubt that it's even possible. Getting there will be undoubtedly difficult – taking time, commitment and resources, and likely a generational outlook. The prescription, however, is fundamentally unchanged from that of Social Licence – *credibility, collaboration, trust* – and only demands an increased dose (i.e., effort).

There are promising signs that broad Social Buoyancy is possible; it can be observed in demographic subgroups already. Generation Z, for example (those born from the late-1990s to early-2010s), comprises many university students and young professionals who lack personal memory of any major nuclear accident in their lifetime: rather, they have lived through real global catastrophes like COVID-19, have grown up benefiting from quality educational videos at the touch of a button, and as a group value sustainable development and climate change action without necessarily perpetuating previous social positions. This generation – especially those university educated – tends to view nuclear technology as a solution on the table and not something to be dismissed prima facie, especially on ideological grounds [13]. A significant amount of independently-produced content on the internet supports nuclear technology in this manner, which is important because that is the information vector that will likely reach the largest sector of the public.

Nevertheless, reaching a critical level of Social Buoyancy is not something that will happen on its own: it will take a concerted and coordinated effort. Fortunately, the pathway is the same that good industry outreach has taken in the past, only with greater attention to demographic reach and quality content (while always building credibility, collaboration and trust). The first step is industry-wide recognition that robust stakeholder engagement is, in fact, an existential need for the nuclear industry, and secondly that this need is not site or project-specific, but the framework for a broad and continuing public relationship.

Some examples best practices that support Social Buoyancy are:

- High-quality public information at nuclear facilities and on supporting websites: these need to be interactive, geared to children as well as adults, and supported by professionals that know their topic and how to effectively communicate it;

- High-quality internet content, including short explanatory videos that highlight various aspects about the technology, including its history, in an entertaining manner;
- Listening to public concerns, transparently and objectively, and always answering with honesty and clear language at the level of the questioner: the goal being to provide the audience with convincing content that they feel compelled to repeat, at their own level of understanding, to family, friends and neighbours – embracing the idea of citizen ambassadors;
- Meaningful support of STEM education, and initiatives to increase the female proportion of interest in STEM topics;
- Meaningful engagement of indigenous communities, and indigenous partnerships in project development;
- Empowering young people – the voters and builders of tomorrow, and the broad-based communicators of today; and
- Embracing and celebrating nuclear history, with transparency about past incidents and faults, and the lessons learned from them.

All of the above are best practices for any level of stakeholder outreach; Social Buoyancy means an unprecedented, coordinated embracing of these strategies appropriate to their existential importance.

Some "next level" targets for this initiative are:

- Production of a high-quality documentary that brings the remarkable history of the Canadian nuclear program to life for a modern, young generation – perhaps in the form of a fact-based drama of the "Oppenheimer" ilk: there is fertile material for this in the first large-scale graphite experiments in Ottawa, the smuggling of heavy water out of Europe to Montreal, the early Chalk River days and pioneering cobalt-60 cancer development, and the singular vision of CANDU.
- High-quality, entertaining and informative curriculum support at both the elementary and secondary school levels, with learning outcomes stressing the unique Canadian role in global nuclear development as well as its promise today for enhancing sustainable development, health, and the eradication of worldwide energy poverty. This includes visits to schools by quality communicators with hands-on activities.
- Broad-scope nuclear post-secondary education that facilitates a wider knowledge of nuclear topics for students in non-nuclear programs; an example is the recently-established nuclear minor in Nuclear Studies and Society and McMaster University [14].
- High-quality, professionally produced social media products (including YouTube videos) that celebrate the technology and its unique benefits, encapsulated in sharable info-bites that help enthused observers share with their network.

A driver of Social Buoyancy is proactive and effective outreach beyond the comfortable boundaries embraced to date: taking the message to the Canadian people rather than focusing on reactive messaging to an audience already engaged (those visiting nuclear physical or internet sites, writing for more information, and generally initiating the interaction). A broad reach encourages citizen ambassador representation and the kind of asymmetric advocacy that leads to self-sustaining support

– Social Buoyancy – enjoyed by less controversial technologies (e.g. space travel). It is a deeply memetic approach, first suggested by Dr. W.B. Lewis in the 1970s as he contemplated the inherent social frailties of the nuclear industry he helped to build [15][16]: a memetic approach turned positive by an industry well-used to the slings and arrows of negative memetic communication [16].

The current time is perfect for a concerted, industry-wide initiative towards Social Buoyancy. With a generational gap to the most recent major nuclear incident (Fukushima, 2011), concerns about climate change, national sovereignty and security, increasing electrification driven by the digital economy, and geopolitical concerns about energy supply and sustainable economic growth, there has probably never been a better time to invest in resilient public support.

5. Summary

This paper introduces an idea that may seem as obvious as it is aspirational: Social Buoyancy, after all, is the logical and ideal outcome of decades of effort by nuclear public affairs departments and independent spokespersons. The concept is certainly aspirational; however, it is proposed that nuclear technology, despite social biases that extend back to its military origins, is not defined by its popular history: it can achieve Social Buoyancy. For this a proactive and concerted effort is needed by the industry, all levels of government, supporting NGOs, and engaged individuals – an effort that goes beyond traditional reactive monitoring and timely response to engagement. The public, in an age of uncertainty, concern, and guarded optimism, will follow if it feels there is sufficient *credibility*, *collaboration*, and *trust*.

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