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Transparency: To Share or Not to Share?*

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Transparency is a widely used term that for most individuals lacks precise definition, yet the nuclear industry is continually striving to become transparent. We propose to define it as:

> "…a high-level concept, defined as a *confidence building approach* among political entities, possibly in support of multi-lateral agreements, to ensure civilian nuclear facilities are not being used for the development of nuclear weapons. Additionally, nuclear fuel cycle transparency involves the *cooperative sharing* of relevant nuclear material, process, and facility information among all authorized parties to ensure the safe and legitimate use of nuclear material and technology. A system is considered transparent when the parties involved feel that the diversion risk is at an acceptable level. For this to occur, diversion risk should be monitored in a continuous fashion." (Love et al., 2006)

A key objective to the global deployment of nuclear technology is maintaining transparency among nation-states and international communities to assure the safe and legitimate use of nuclear material and related technology. Because building confidence is a highly subjective process dependent on perceptions, we believe that full disclosure of information *relevant to a particular issue of concern* is required to ensure that transparency is effective in building trust.

An advanced transparency framework that provides instantaneous assessment of conditions at a nuclear fuel cycle facility, in addition to international safeguards, can increase confidence that a facility is not being used for diversion of nuclear material. The automation of new nuclear facilities requiring minimal manual operation provides an opportunity to utilize the abundance of process information as an alternative source of purely objective data that can be analyzed to identify suspicious activity.

Proliferation intent would be a political decision made by the host nation. As technical scientists, we cannot offer political solutions to prevent proliferation. Instead, we propose that a framework that monitors process information continuously can lead to greater transparency of nuclear fuel cycle activities and can demonstrate the ability to resist proliferation associated with these activities. This paper will outline the benefits of transparency in a global context with regards to the sharing of information among political entities.

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