

Team 3 – Operations and Production management Best Practices in the Growing Energy Sector

Executive Summary

The electricity generation industry in Ontario is in the midst of a green transformation. Project development is primarily viewed as an entrepreneurial activity, subject to significant risks and unknowns while requiring ongoing investment of time, financial, and even political resources toward output that consists of completed projects. Strong project fundamentals and an understanding of how a project fits within a portfolio of opportunities are key foundations to the process. These provide the source of commitment and clarity of purpose necessary to both secure the resources required to develop a project and to persevere throughout the process.

The main purpose of this project is to provide a project development framework that analyzes the government, private developers and investors who work in a coordinated fashion on large-scale energy projects related to the solar and nuclear industries. The framework includes key elements that describe a successful, financially attractive large-scale energy projects in these fields. The elements associated with project development, construction, and operations are fairly universal, though they vary in small proportions when applied across specific energy streams. The idea of the project is twofold. First, we discuss the lifecycle of any energy related project, federal or private, which begins with project development, moves to the construction phase, and transitions to the final operations phase. Insights are also provided into the role of project developers, financial institutions, electricity transmission and distribution infrastructure, and government policy. Next, gaps in the nuclear (non-renewable) value chain are highlighted that represent opportunities for the adoption of solar (renewable energy) based projects in Ontario and leading economies of the world as the potential driver for the future.

To accomplish universal goals for renewable energy, sustainability, and energy security, large-scale renewable energy projects must be developed and constructed at a significant scale with significant investment on the private and the government front. This project is intended to provide a general resource that will begin to develop the audience's awareness and understanding of the project developer's operating environment when dealing with projects related to the energy sector.

While the renewable energy industry has experienced rapid growth around the world, the industry and its business models may still be unfamiliar to the capital markets. This tends to limit the pool of investors that are willing to participate in renewable energy projects, as does the tax driven nature of the investment requirements. Global economic concerns significantly limit the types of risks and projects that investors will consider, constraining the ability of renewable energy project developers to attract financing for new market opportunities. This is bound to benefit the world at large, for it facilitates the development of a sustainable energy economy that protects the environment while mitigating climate change and engaging communities in building green industrial energy sectors across the globe.