

# Project Proposal

## Energy Systems Integration: Northeastern University

### Purpose

The Earth is an intricately interconnected system where each component plays a crucial role in its overall functioning. However, human activities have significantly contributed to global temperature increases and an excessive release of carbon into the atmosphere, disrupting the planet's long-established ecological balance. In response, the world has rallied behind the Paris Agreement of 2015, aiming to transform our collective efforts toward creating a greener and sustainable future. To contribute to this global objective, this proposal seeks to outline a project that aims to reduce grid dependence and promote the adoption of clean energy sources within Northeastern University.

### Objective

Northeastern University is currently reliant on grid-supplied energy, resulting in high monthly electricity bills. To address this issue and advance the institution's commitment to sustainability, the objective is to develop a comprehensive design plan for Northeastern University to decrease its reliance on grid-provided energy and foster the production of clean energy on campus. Through the adoption of renewable energy technologies, the university can optimize cost, efficiency, reduce carbon emissions, and serve as a model for sustainable practices within the academic community.

### Scope

The scope of this project entails the design and implementation of a solar system that will significantly reduce the grid dependence of Northeastern University. The primary scope is to achieve a substantial decrease in the university's electricity bills and establish long-term profitability through the adoption of sustainable energy practices. The design will prioritize the seamless integration of the solar system with the existing electrical infrastructure of Northeastern University.

### Investment

Two financing options are available for funding the proposed project: Cash Purchase and Power Purchase Agreement (PPA).

- **Cash Purchase:** Under the Cash Purchase model, Northeastern University will provide the necessary funds to finance the project. The university will assume direct ownership and responsibility for the installation, operation, and maintenance of the renewable energy system. By funding the project internally, Northeastern University retains full control and ownership of the system.
- **Power Purchase Agreement (PPA):** Alternatively, the Power Purchase Agreement option involves collaborating with a renewable energy developer. In this arrangement, the developer will secure the required funding and be responsible for the installation, operation, and maintenance of the renewable energy system. Northeastern University will enter into a contractual agreement with the developer, agreeing to purchase the electricity generated by the system at predetermined prices over a specified period.

These financing options offer distinct advantages and considerations, and the selection between a Cash Purchase and a Power Purchase Agreement will depend on Northeastern University's financial capacity, long-term energy needs, risk tolerance, and desired level of ownership and control over the renewable energy system.

## **Technical Approach**

The project organization will consist of three dedicated teams: System Design, Financial, and Development. The System Design team will be responsible for all aspects related to the design of the solar systems. Their primary objective will be to develop comprehensive and efficient solar energy solutions tailored to Northeastern University's requirements. The Financial team will play a crucial role in analyzing the economic viability of the project. The Development team will focus on ensuring compliance with all relevant codes, regulations, and permits necessary for the successful implementation of the solar systems.