SUMMARY OF RESULTS FOR GATEWAY CENTER, SUNY-ESF

Based on the energy analysis performed, the proposed building design is approximately 47.0% lower in energy cost and 63.3% less in energy consumption than the minimally compliant ASHRAE 90.1-2007 Appendix-G building model. Taking into account the solar hot water and photovoltaic arrays as on-site renewable energy generation, the proposed building design is 61.9% lower in energy cost and 69.6% less in energy consumption. This is expected to earn the project all nineteen (19) LEED Energy and Atmosphere credit 1 points. The 6.8 kW solar thermal array and 92.3 kW Photovoltaic array is also projected to earn the project the maximum seven out of seven (7) points for LEED EA credit 2, Renewable Energy. The graphs showing energy cost savings, energy intensity, and energy end-use breakdown are shown on the following pages.

The current building's energy savings are due to the high performance building envelope and efficient mechanical and lighting systems. The high performance facade, including triple glazed, argon filled heat mirror glass, well-insulated walls and roof, and south and west facade exterior shading, decrease the heat gains and losses through the envelope and minimize the peak heating and cooling demand on the mechanical systems.

The mechanical systems, including sensible and enthalpy heat recovery, displacement ventilation, demand controlled ventilation, natural ventilation and radiant heating and cooling, reduce the energy required to remove the heating and cooling loads and condition the building.

The SUNY ESF Gateway Center coincides with the construction of a new CHP plant which will provide steam and electricity to the Gateway Building and five additional buildings on campus. The CHP plant consists of a steam biomass boiler connected to a steam turbine and three microturbines, two natural gas and one biodiesel, to produce electricity. Heat is captured from the steam turbine and microturbines to produce low pressure steam for distribution to the building and campus. Cooling for the Gateway Building is provided by the existing chiller plant in Jahn Laboratory.

The building has a highly efficient lighting system. The lighting controls, including occupancy and daylight dimming, reduce the building's cooling load and electrical energy use.

	Site Energy Intensity (kBtu/ft²/yr)	Site Energy Savings (%)	Energy Cost Intensity (USD/ft²/yr)	Energy Cost Savings (%)	LEED EAc1 Points
Baseline Design	109.3	-	1.73	-	-
Proposed Design	40.1	63%	0.92	47.0%	1
Proposed Design with Renewables	33.2	70%	0.66	61.9%	19

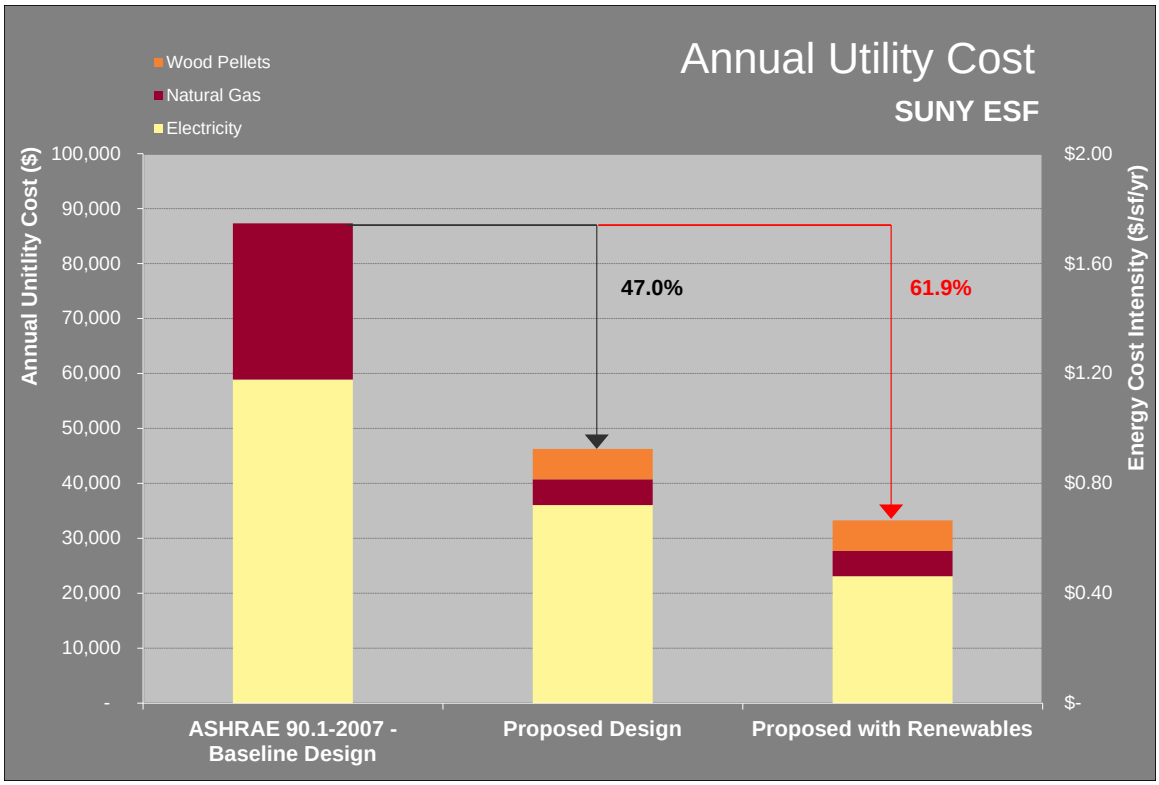

Figure 1: Energy cost savings of the Proposed Design and Proposed Design with Renewables compared to the ASHRAE 90.1-2007 APP-G base case

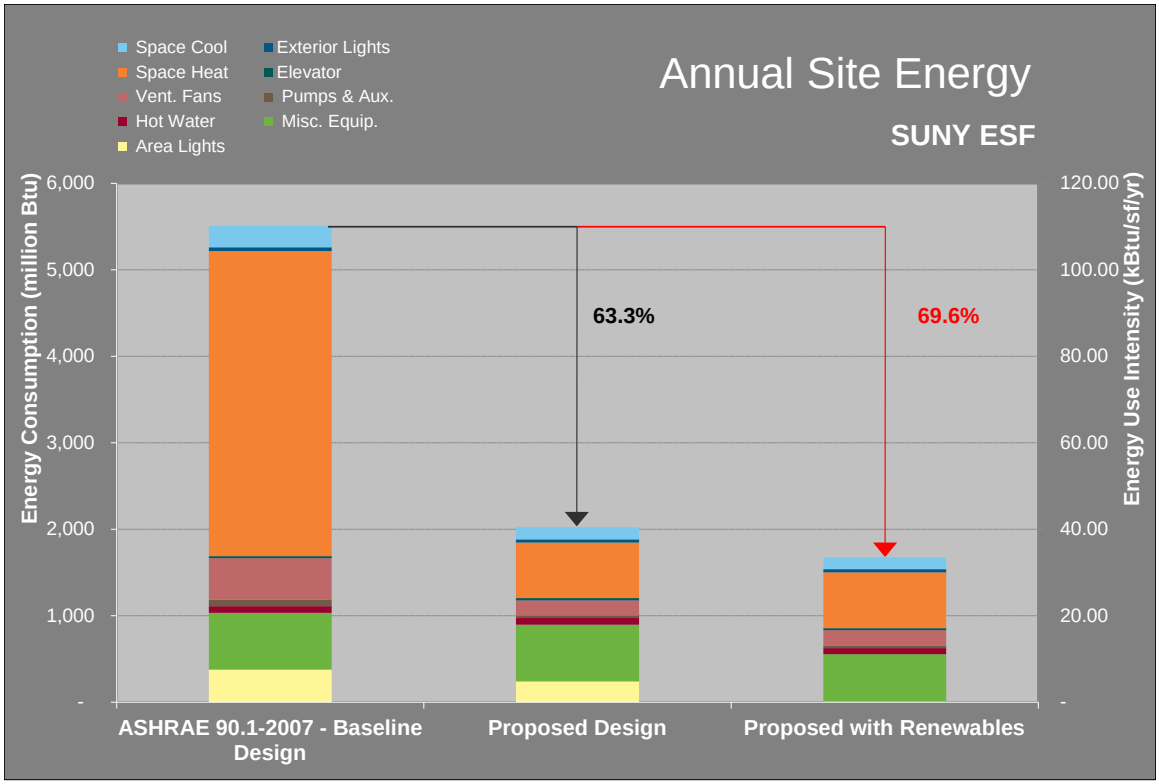

Figure 2: Energy use savings of Proposed Design and Proposed Design with Renewables compared to the ASHRAE 90.1-2007 APP-G base case