

Photovoltaic System Installation in Belize



Austin Stewart - California Polytechnic State University

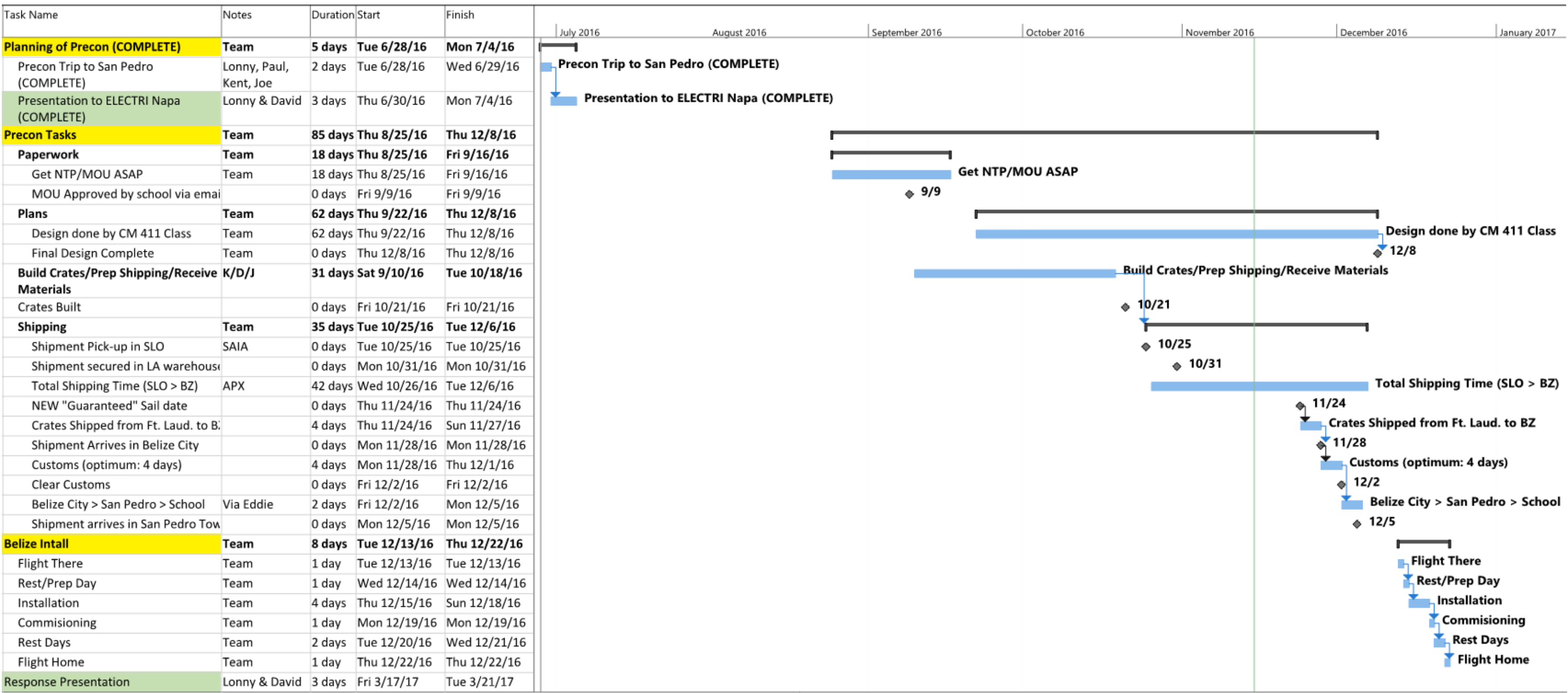
California Polytechnic State University’s National Electrical Contractors Association Student Chapter (NECA) was selected by the ELECTRI Council to take part in its Student Passport Initiative program, through which participants engage in meaningful service-learning experiences in developing communities. The team was tasked with the design and construction of a photovoltaic system for San Pedro Roman Catholic Primary School in San Pedro, Belize. The team of five students collaborated primarily with two professors, two alumni, and an accomplished electrical contractor from Belize to perform six months of design and preconstruction work before ultimately delivering a fourteen-panel photovoltaic system with a projected average output of 13.4 kilowatt-hours per day. My role on this project was to manage shipping of materials and equipment from San Luis Obispo, California to Belize City, Belize, and to provide construction labor during the system’s installation. This project has provided outstanding lessons learned and has demonstrated the incredible logistics and planning necessary to complete international projects.

Keywords: Solar Panels, Renewable Energy, Photovoltaic System, Central America, Belize

Budget

Expense Description	Group	Quantity	Unit	Unit Price	Account
International Travel	Cal Poly NECA/ELECTRI	9	EA	\$ 800.00	\$ 7,595.58
Ocean Ferry Belize	Cal Poly NECA/ELECTRI	9	EA	\$ 32.00	\$ 316.80
Meals	Cal Poly NECA/ELECTRI	81	EA	\$ -	\$ -
Taxi/Uber/Shuttle	Cal Poly NECA/ELECTRI	4	EA	\$ 40.00	\$ 160.00
Hotel	Cal Poly NECA/ELECTRI	32	EA	\$ 196.63	\$ 6,292.11
Extra Curricular Activities	Cal Poly NECA/ELECTRI	9	EA	\$ -	\$ -
Travel, Meals, Lodging					subtotal: \$ 14,364.49
Sub Panel	Eddie and CM Dept.	1	LS	\$ 500.00	\$ 500.00
Misc. Materials and Tools	Cal Poly NECA/ELECTRI	1	LS	\$ 200.00	\$ 1,000.00
PV Panels	Cal Poly NECA/ELECTRI	1	LS	\$ -	\$ -
ATS	Cal Poly NECA/ELECTRI	1	EA	\$ 946.23	\$ 946.23
Inverter	Cal Poly NECA/ELECTRI	1	LS	\$ 6,709.99	\$ 6,709.99
Operating Expenses					subtotal: \$ 9,156.22
Labor and Material to Build Containers	Cal Poly NECA/ELECTRI	1	LS	\$ -	\$ -
Cal Poly Admin	Cal Poly NECA/ELECTRI	1	LS	\$ 500.00	\$ 500.00
Cal Poly Insurance	Cal Poly NECA/ELECTRI	9	EA	\$ 60.00	\$ 540.00
Import Duty	Cal Poly NECA/ELECTRI	1	EA	\$ -	\$ -
Tax, Broker, Isle Shipping	Cal Poly NECA/ELECTRI	1	LS	\$ 1,000.00	\$ 1,000.00
Loading from Barge to School	Cal Poly NECA/ELECTRI	1		\$ 525.00	\$ 525.00
Shipping	Cal Poly NECA/ELECTRI	1	EA	\$ 3,237.57	\$ 3,237.57
Warranty	Cal Poly NECA/ELECTRI	1	EA	\$ -	\$ -
Material Transportation					subtotal: \$ 5,802.57
Contingency					Total Cost: \$ 29,323.28
					Contingency: \$ 676.72
					Total: \$ 30,000.00

Schedule



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