CGMC

Supplemental Environmental Project (SEP): Alternative Energy Pilot Project for Saipan Southern High School (SSHS)

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Background

- In 2004, the USEPA issued Concorde Garment Manufacturing Corp a NOV related to hazardous waste management.
- In 2005, Tan Holdings retained APEC to assist with mitigation of the hazardous waste violations.
- In April 2008, Tan Holdings and USEPA reach a settlement agreement.
- In May 2008, Tan Holdings requests proposals from APEC for Supplemental Environmental Projects (SEP).
- In June 2008, USEPA approves Tan/APEC's proposal for a Pilot Renewable Energy Project at SSHS under the SEP program.

Background (continued)

- Total fine against CGMC: $71,000.00
- USEPA regulations allow 80% of the penalty to be used for a SEP.
- Total SEP budget: $56,800.00

- Total project budget: $77,600.00

- **Actual** Project costs: >$92,500.00

SEP for SSHS Overview

- Wind generator (in addition to solar panels) provide the alternative energy source for SSHS
- A two-tiered demonstration project:
  1. Wind turbine (Skystream 3.7 model)
  2. Solar Panels (Kyocera 205W, 3 x 3 panel array)

SEP for SSHS

1. Wind Turbine (Skystream 3.7)

- Quiet operation
- Blends into the environment
- Designed for long life
- Low cost of energy
- Rated at 1.9kW continuous, 2.6kW peak output

SEP for SSHS

Skystream 3.7 specifications:

Certification: UL (US & Canada)
Rated Capacity: 1.9 kW continuous output, 2.6 kW peak
Rotor: 12 feet (3.72 m); 50-325 RPM
Interconnection: Utility connected or battery charging
Alternator: Gearless, permanent magnet, brushless
Voltage Output: 240 VAC (Optional 208 VAC)
Estimated Energy Production: 400 KWh per month at 12 MPH (5.4 m/s)
Weight: 170 pounds (77 kg)
Mono Pole height: 34 feet (10.4 m)
Warranty: Five year

Skystream 3.7 Photos

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Skystream 3.7 Photos

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Skystream 3.7 Photos

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SEP for SSHS

SSHS wind power system:

- Skystream 3.7 wind generator installed on the grass field SW of the water pump, and NE of the pottery kiln.
- Primary use is as a direct tie-in RE system connected to the CUC meter near the water tank - to essentially “run the meter backwards.” Is also wired to assist with charging a bank of batteries located in one of the classroom buildings.
- Future plans are to install an anemometer near the school, with a hardwire to SSHS science classroom.
- Installed a remote monitoring system of Skystream performance data, with a wireless link to SSHS science classroom.

SEP for SSHS

Benefits of the Skystream 3.7 wind generator system:

- Will reduce SSHS's electric bill by approximately $198.00 per month, or $2,376.00 per year.
- Is being utilized as a catalyst for alternative energy curriculum development.
- Is an alternative energy demonstration project for the CNMI and the Western Pacific.

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SEP for SSHS

2. Solar System (Kyocera 205W, 9 panel array)

Features:

- KD205GX-LP modules have a +5%/- 5% tolerance.
- UL listed.
- Low iron, tempered glass, EVA encapsulant and anodized aluminum frame construction.
- 20 year output warranty on Kyocera modules.
- Locking multi-contact connectors.

SEP for SSHS

SSHS solar power system:

- Installed solar arrays in the vicinity of the science classroom.
- Wired the solar array to a bank of batteries which feed the water pump and science classroom building.
- Constructed concrete pad with security fence and gate.
- Future plans are to install a GreenMeter in SSHS science classroom.

PV, Load Center and Classroom Photos

SEP for SSHS

Benefits of the Solar Power System:

- Provides uninterrupted power to the school's water pump, negating the need to close the school during power outages.
- Provides air conditioning and power to 2 science classrooms.
- Is being utilized as a catalyst for alternative energy curriculum development.
- Is an alternative energy demonstration project for the CNMI and the Western Pacific.

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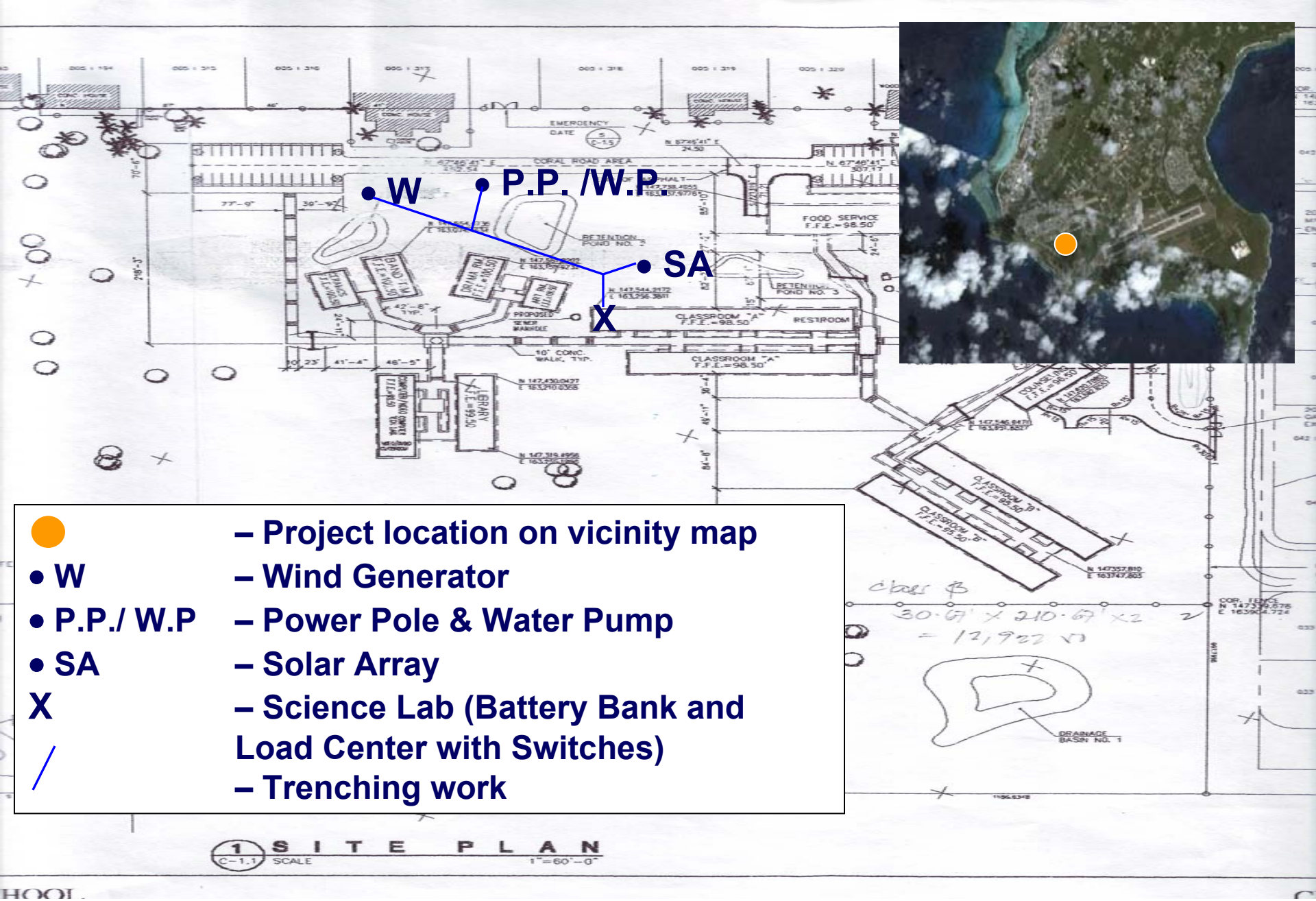
Proposed Project Location (Wind Turbine)

Final Project Location (Wind Turbine)



- ● – Project location on vicinity map
- • W – Wind Generator
- • P.P./ W.P – Power Pole & Water Pump
- • SA – Solar Array
- X – Science Lab (Battery Bank and Load Center with Switches)
- / – Trenching work

Saipan Southern High School Renewable Energy Pilot Project Site Plan

Construction/Installation Photos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SPECTRUM ELECTRIC
CONSTRUCTION AREA


HANDS OFF
DONT TOUCH

In Conclusion:

- Renewable energy systems are available today, and are becoming increasingly affordable and cost-effective.
- And, one benefit to a hybrid renewable energy system is that the different technologies frequently compliment each other. For instance, when the sunshine is low due to a storm, there tends to be more wind - providing more power to a wind turbine.

Questions?

Comments?

http://www.treas.gov/recovery/

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