

**CASE STUDY:
MALDIVES MICROGRID**
Islands reduces reliance on diesel power

PROJECT SUMMARY

- 67 Skystream wind turbines power three communities.
- Wind turbines, photovoltaic solar panels (PV), batteries and diesel generators work to maintain constant power in a micro-grid.
- Designed to cut diesel used for residential power by 80%.



A site with 24 turbines at Haa Alif Uligamu (Uligam) island in the Maldives northern atoll.

Rural islands in the Maldives Republic have relied on diesel-generated power for all their electricity needs. Imported diesel is expensive, and inefficient because most generators operate under or over capacity. Poor fuel efficiency translates into more fuel burned and elevated greenhouse gas emissions.

Due to high costs, availability and transportation costs, diesel consumption on remote villages continues to pose a large issue for remote islands and mountain communities. Many remote areas cannot afford 24 hour power.

CUTTING RELIANCE ON IMPORTED FUEL

Southwest Windpower Inc. and its Asia partner, Daily Life Renewable Energy (DLRE) developed a compelling solution for rural Maldives communities. A wind and solar based renewable energy system installed in three locations is designed to save up to 80% of diesel used for residential power.

“The hybrid system will save approximately 120,000 liters of diesel in the three pilot study islands and a corresponding reduction of 200 tons of CO2 per year,” says Dr. Chem Nayar, professor of electrical engineering at Australia’s Curtin University, an authority renewable energy electronics systems and designer of the system. “If the project is extended to 80 remote islands, the Maldives will save 10 million liters of imported diesel fuel.”

Continued



The Skystream towers were raised without the benefit of heavy equipment. Villagers young and old lended their time to the effort.



Our efficient Skystream 3.7 wind turbines, especially designed for lower wind energy capture, coupled directly to the AC 240V island distribution grid can offset a large proportion of a community's diesel consumption. This system is a fully "AC coupled" mini-wind farm, unlike typical "Hybrid Power" DC-based remote area power supplies. Diesel backup is utilized only when wind and solar resources are not sufficient for sustaining loads. The entire system is optimized for the energy demand and supply profile of the village.

The micro-grid system will provide substantial environmental benefits through higher energy efficiency and by facilitating the integration of solar photovoltaic (PV) panels.

ADVANTAGES OF MICRO-GRIDS

- Tie into existing electrical grid.
- Small battery bank for buffering and limited storage.
- Minimized diesel run time.
- Complements solar photovoltaic (PV) panels

