Helios Altas
heliosaltas.com

- ✓ Flexible
- ✓ Scalable
- ✓ Affordable
- ✓ Renewable

Micro-Hydro Systems for Grid-Tied and Off-Grid Applications

Powered By

SIEMENS

Supported By

WESCO®

Manufactured By

HUNTING

Micro-Hydro for Southeast Asia

ASIA CLEAN ENERGY FORUM

Why Southeast Asia?

Weather and geography

- ✓ *Tropical regions with heavy rainfall, cloud cover, and dense forest limit solar power capacity.*
- ✓ *Rugged terrain and remote areas.*

Extensive rivers, streams, and canals

- ✓ *Small hydro market with high capacity for growth.*
- ✓ *Gigawatts of unused power lost each day.*

Large rural population

- ✓ *Growing demand for rural electrification.*
- ✓ *Emergency power for disaster relief.*

Increased demand for renewables

- ✓ *Growing economy with rising energy consumption.*
- ✓ *Energy diversification is a high priority.*

Why HeliosAltas?

- ✓ Provides consistent power for areas with low sunlight.
- ✓ Easy to install and maintain.
- ✓ Small footprint creates more deployment options.
- ✓ IoT control systems for remote installations.

- ✓ Generates energy from virtually any flowing water.
- ✓ Can be optimized for shallow and slow moving water.
- ✓ Clear deployment advantages over competitors.

- ✓ Delivers affordable, reliable energy to remote areas.
- ✓ Does not disturb local fish or wildlife.
- ✓ Quickly deployed for temporary emergency power.

- ✓ The most versatile micro-hydro system on the market.
- ✓ Unique design provides expanded use cases.
- ✓ Environmentally friendly renewable energy.

Ideal for streams, canals, dam tailraces, bypass flows, unpowered dams, tidal flows, and industrial water loops.

Turn Running Water Into ***Power!***

Helios **PowerWheel™**

Convenient

- ✓ Easy to install and maintain.
- ✓ Integrates with solar, wind, and battery.
- ✓ Generates 3X the power of similar wind and solar systems with up to 50% lower lifetime cost.

Versatile

- ✓ Optimized for slow, fast, shallow, and sub-zero water.
- ✓ Built to last 30+ years in water.
- ✓ Sizes range from 40 watt to 10 kW and larger.

Innovative

- ✓ Patented gearless generator and wheel design.
- ✓ Flow-through technology allows aquatic debris passage and retraction during storms and floods.
- ✓ 100,000 hours of product development, and testing.
- ✓ Four patents in 37 countries with more pending.

Minimal Depth and Flow Requirements

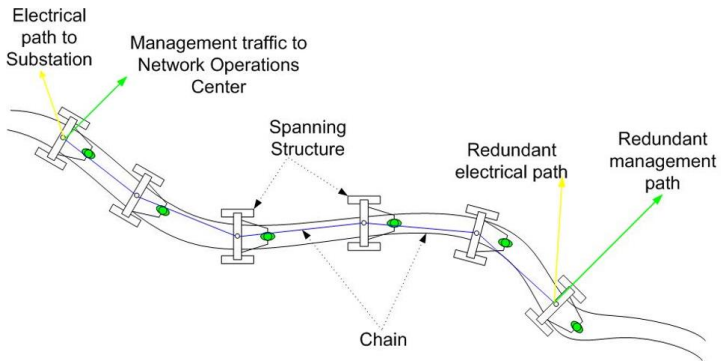
Requires only 15cm of water depth and 1 meter per second of water flow to operate. Perfect for small streams and canals, too small and shallow for conventional hydro.

Scalable and Easy to Integrate

Helios Hydro-Farm™

Fully Modular Micro Hydro System

- ✓ Similar to a wind farm, multiple units can be connected on the same canal or stream to form a single array.
- ✓ Configure units in series or in parallel depending on the width, slope, length, and condition of the waterway.
- ✓ This modular design can be applied during the initial installation or implemented anytime thereafter as energy needs increase.



Helios Micro-Grid™

End to End Remote Power Solution

- ✓ Complete power supply network.
- ✓ Integrates with solar, wind, diesel, and any other power source.
- ✓ Perfect complement to microgrids using wind and solar, which often cause wide voltage swings and stability issues due to their intermittency.
- ✓ Works as part of a grid-tied system or stand alone microgrid management system.
- ✓ Offers a levelized cost of energy (LCOE) 50-80% lower than similar systems including solar, batteries, and diesel.

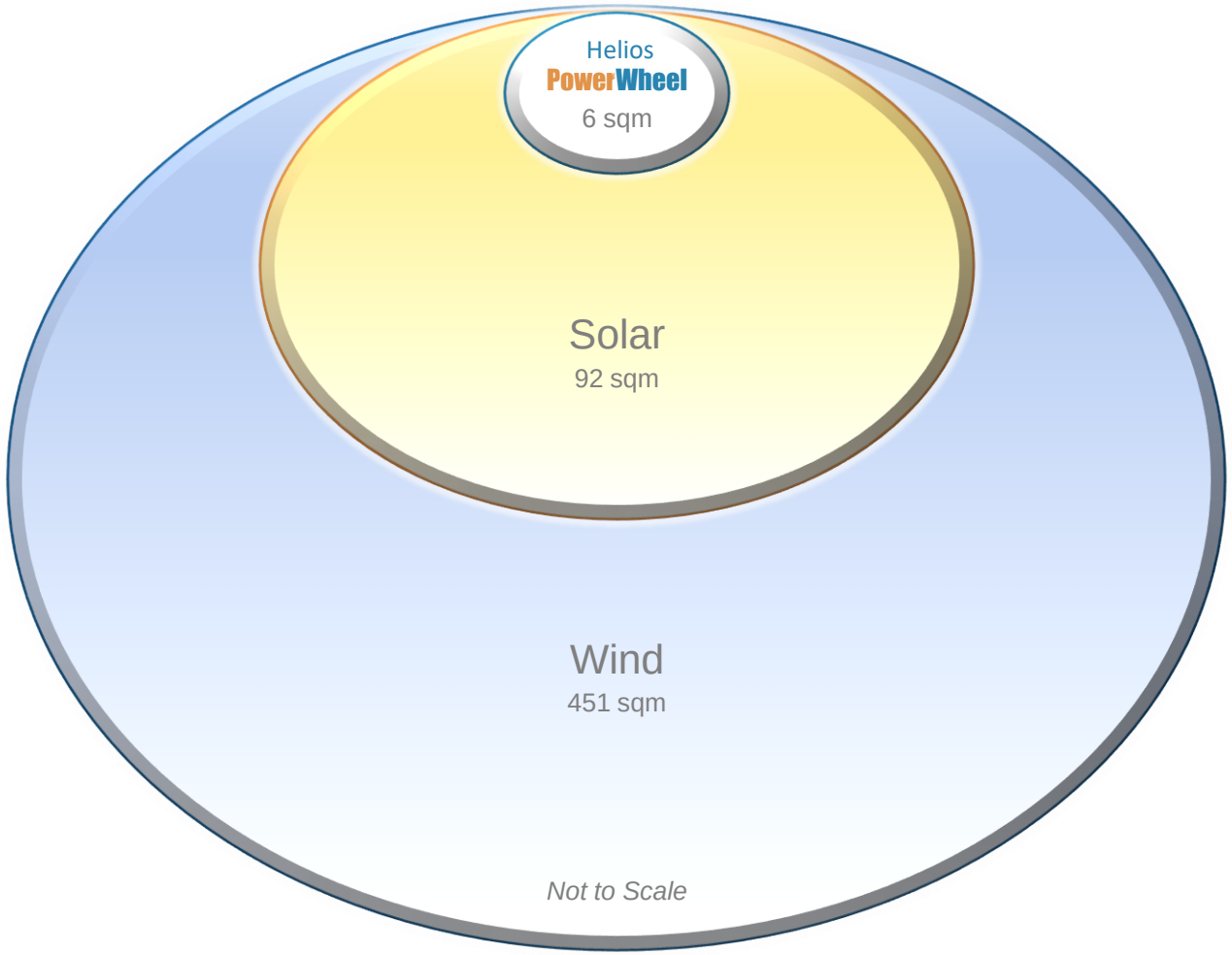
Maximum Power, Minimum Impact

Smallest Environmental Footprint on the Planet

- ✓ Many renewable energy systems require significant physical and economic resources to operate.
- ✓ The Helios PowerWheel offers the smallest environmental footprint of any comparable energy system on the planet.
- ✓ Requiring only 6 sq. meters to produce 102 kWh in 24 hours.

No Environmental Impact

- ✓ Patented Flow-Through technology allows full aquatic and debris passage.
- ✓ Remote suspension system removes unit from water during storms and floods.
- ✓ No impact on fish, wildlife, or surrounding environment.



Add Value to Any Grid System

- ✓ **Stabilizes Grids** – Adding Helios technology to wind and solar powered microgrids helps offset voltage fluctuation and stability issues by providing a consistent load.
- ✓ **Saves Batteries** - Integrating Helios technology with PV and batteries can drastically improve reliability and increase battery life by providing a consistent charge that keeps batteries from draining at night and failing prematurely.
- ✓ **Saves Money** – Off-grid applications are typically 50% lower than most utility costs, while grid-tied applications are significantly less than feed-in tariff rates,

Microgrid Cost Comparison

Requirements to reach 104kWh daily avg.

	PV Only	PV + Helios
Average Daily Load	104 kWh	104 kWh
PV Capacity Required	36 kW	***2.5 kW***
Number of Solar Panels Required	106	***7***
Micro Hydro Capacity (kW)	0 kW	5 kW
Battery Capacity Required (kWh)	86.4 kWh	***28.8 kWh***
No. of 2-VDC batteries required	72	***24***
Hybrid Inverter (1)	6.8 kW	6.8 kW
MPPT (6)	5 kW	5 kW
Total Cost	**$80,400**	***$50,025***
(Includes materials and labor)		

Commercial Applications

Turn Running Water Into Power

In addition to supporting rural electrification efforts, Helios technology can be used in a variety of commercial applications.

- ✓ **Alternatives to Conventional Power** – Utility cooperatives, private companies, and government agencies seeking alternative energy solutions.
- ✓ **Non-Powered Dams** - Thousands of non-powered dams, dam tailraces, and dam bypass flows throughout Southeast Asia can generate power with no disruption of dam infrastructure.
- ✓ **Industrial Canals** – Chemical plants, water treatment facilities, and other operations are able to generate power from their own water circulation canals and industrial loops.
- ✓ **Water Pumps and Irrigation** – Our remote controlled units provide 24/7 power for operating water pumps and irrigation systems, capable of supporting millions of acres of land in areas where solar and battery power are not feasible or economical.

Contact us if you want to add micro-hydro to your energy mix.

Demonstration Project #1

Helios Micro-Grid™

Self-funded demonstration project

Project Summary

2.5 kW Helios Micro-Grid™ system provides enough energy to power a small village. Residents trained on system operation and maintenance. Installation took two weeks to complete.

Location

Barangay Kibanban, Municipality of Balingasag in Misamis Oriental, Northern Mindanao near Cagayan de Oro City.

Installation

Two 1kW Helios PowerWheel™ units combined with 650-Watt PV Solar Panels and two 12-V-150 AH (1.8 kWh) AGM battery.

Application

- ✓ 10 streetlights, steel poles and overhead LV distribution line.
- ✓ Street lamps for 800 meters of road.
- ✓ Utility drops to (10) huts.
- ✓ Community water transfer pump and storage tank.

Demonstration Project #2

Technology Innovation Challenge

$200,000 grant award from ADB

HeliosAltas emerged as one of the winners of the first Technology Innovation Challenge (TIC) sponsored by the Asian Development Bank (ADB).

Through the ADB-managed High-Level Technology (HLT) Fund, HeliosAltas received a grant worth $200,000 for the development of a 10kW hybrid microgrid demonstration project in the Philippines.

Partners

We are privileged to work with such great partners including ADB, NIA, One Renewable, Dorelco, and Camp Kawayan Resort.

ADB ASIAN DEVELOPMENT BANK

NATIONAL IRRIGATION ADMINISTRATION

One Renewable

DORELCO Energizing Households Empowering People

Demonstration Project #2

Project Summary

ADB Technology Innovation Challenge Grant

Objective

The project will lay the groundwork for a commercial rollout of this technology throughout the Philippines.

Location

Camp Kawayan Resort near Tacloban, Philippines using an irrigation canal owned and operated by the Philippines' National Irrigation Administration (NIA).

Scope

- ✓ 5 kW micro hydro system plus 5 kW solar installed.
- ✓ Solar panels will be installed on existing roofs and supplement the hydro
- ✓ Hydro and solar charge a bank of LI batteries which provides power to resort, simulating a micro grid
- ✓ Net - Metering added in Phase II

HeliosAltas supports the UN 2030 Sustainable Development Goals in the Following Ways

We recognize that supporting rural electrification in Southeast Asia also supports economic development for these communities, provides a safer environment for families, refrigerates food and medication, delivers heat for cooking and comfort, light for safety, and increases opportunities for education and learning.

Working with local partners, we're creating jobs while reducing the carbon footprint with renewable technology that does not harm the environment.

We are currently seeking investment partners for our next round of funding.

Helios Altas

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