



## Technical Overview

“Flexible, Durable, Scalable, Efficient Remote Clean Power ”

“Unmatched consistent renewable baseload power for off-grid and micro-grid at the lowest price point”

# Our Mission

Provide Practical Usable Power With The Lowest Environmental Impact

First World Renewable Requirements

Lowest Cost First Power

Efficient

Modular

Self Contained

Scalable

Low Cost

Distributed

Consistent Power

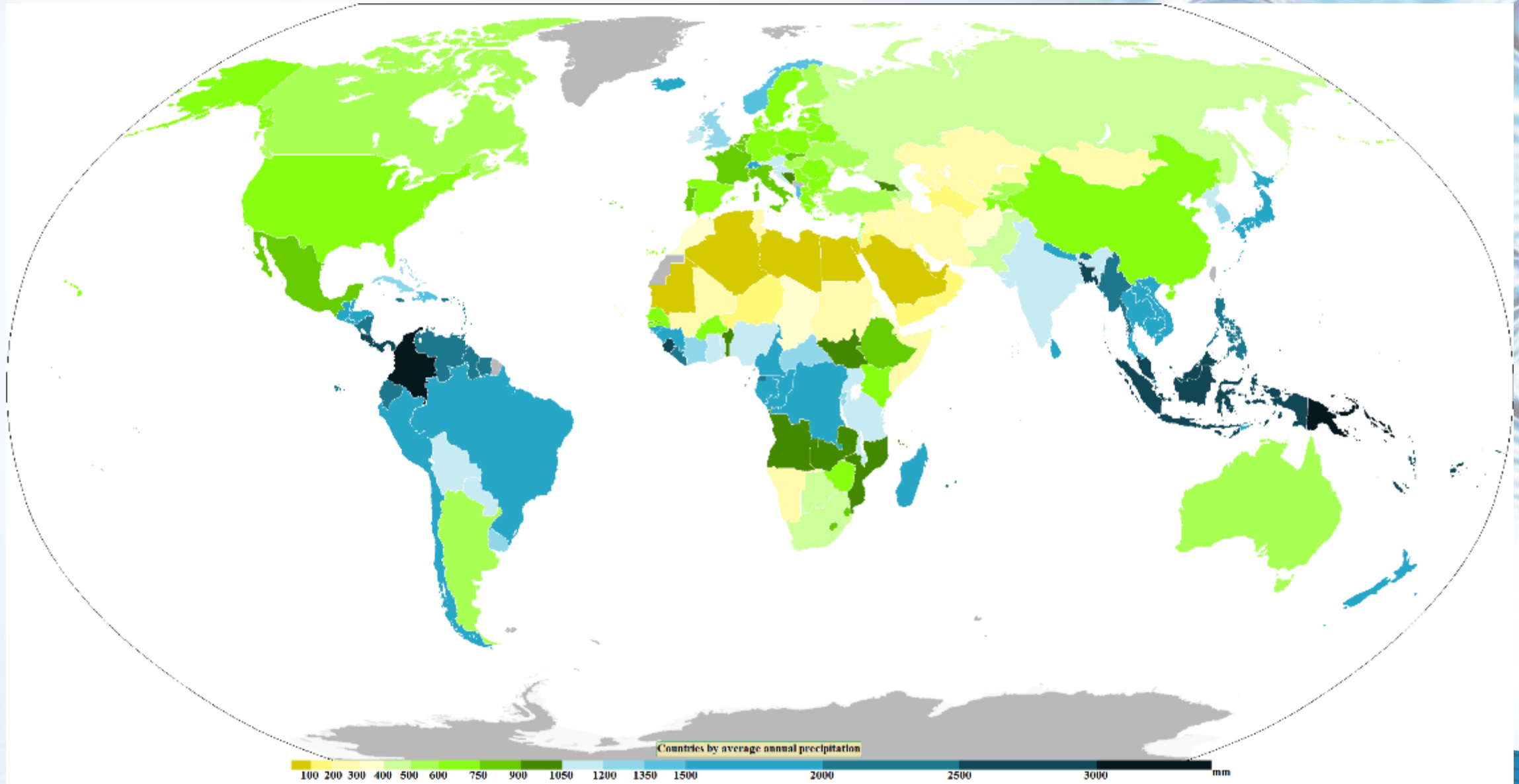
Long Life

Size

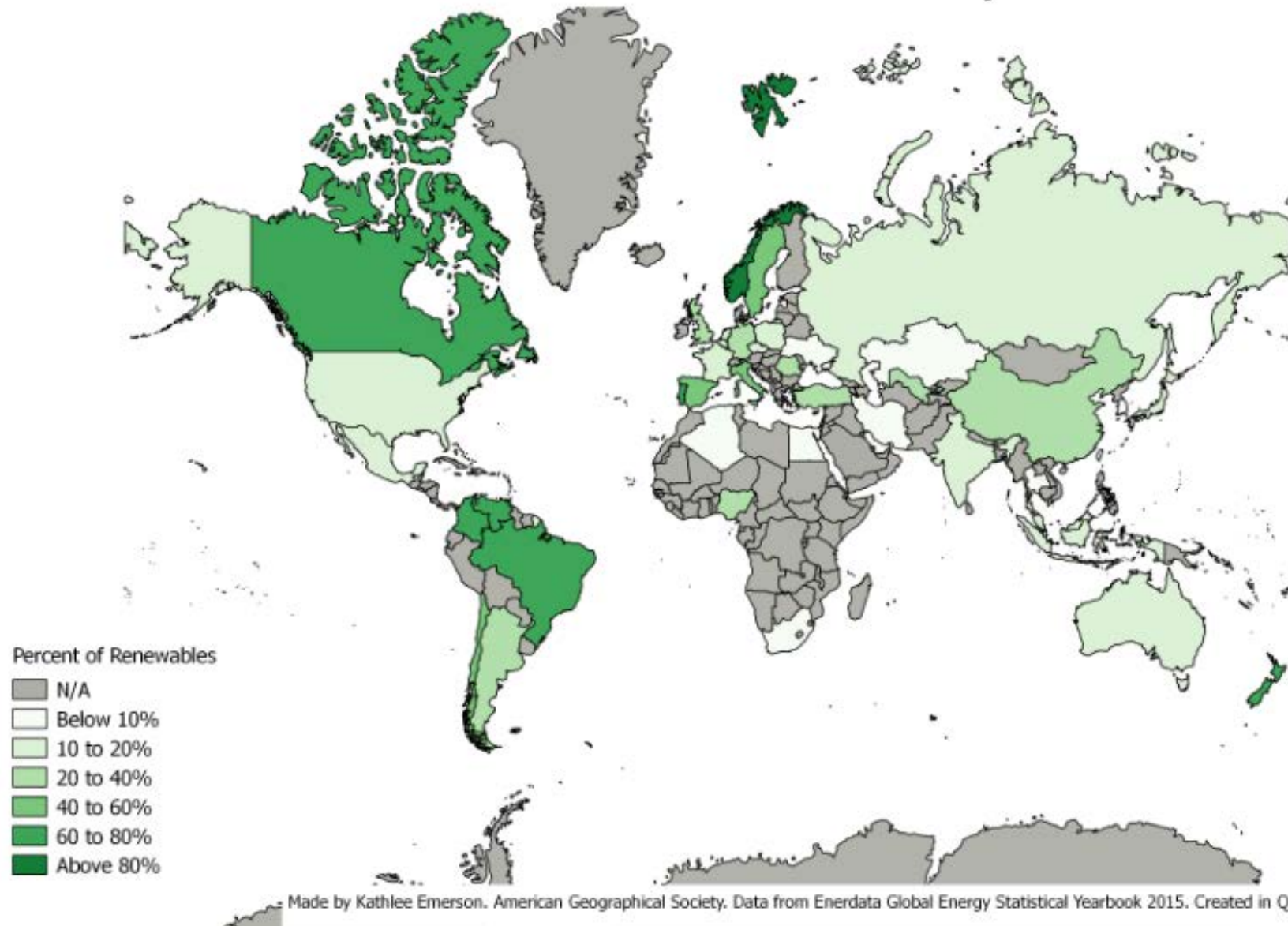




# Countries by Average Annual Precipitation



# Share of Renewables in Electricity Production



# Flexibility of Design

## Canals



[https://www.youtube.com/watch?v=L\\_tLrkmv3z](https://www.youtube.com/watch?v=L_tLrkmv3z)

## Suspended



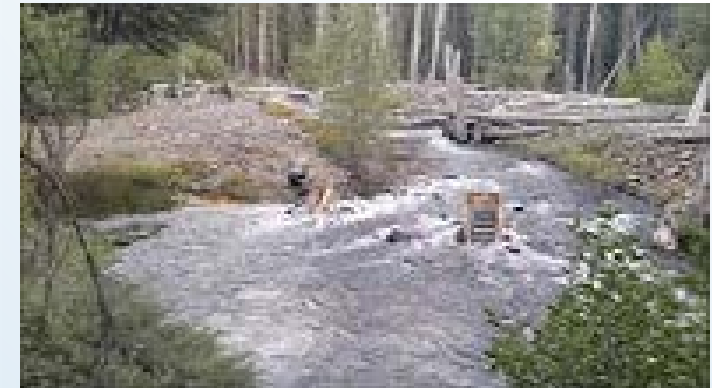
<https://www.youtube.com/watch?v=e3Sk3IxLoTU>

## Dam Tail Races and Drops



<https://www.youtube.com/watch?v=q25Rg0JkWXQ>

## Run Of River



<https://www.youtube.com/watch?v=q25Rg0JkWXQ>



# PowerBall Development

Experience	New Current PowerWheel model (PB3.0) incorporates advancements gained building and testing 9 revisions of core technology over 4 years
Proven	PowerBalls have accumulated more than 56,000 operating hours in two American states and three other nations.
Permitted	PB2.21 was fully permitted and demonstrated flawlessly in Alaska's Ship Creek. New Permits in the Philippines and Italy.
Long Term	Since February 2016, a PB2.22 installed in Mexico has continuously operated trouble free while exporting electricity to a local grid.
Fatigue Test	Helios 1 <sup>st</sup> Hydro-Farm operating since August 2016 in Philippines is generating power being fed into the grid. 5 kW through at 500 watt unit.

# Revolutionary New System

Efficiency Improved From 37% To Over 68%

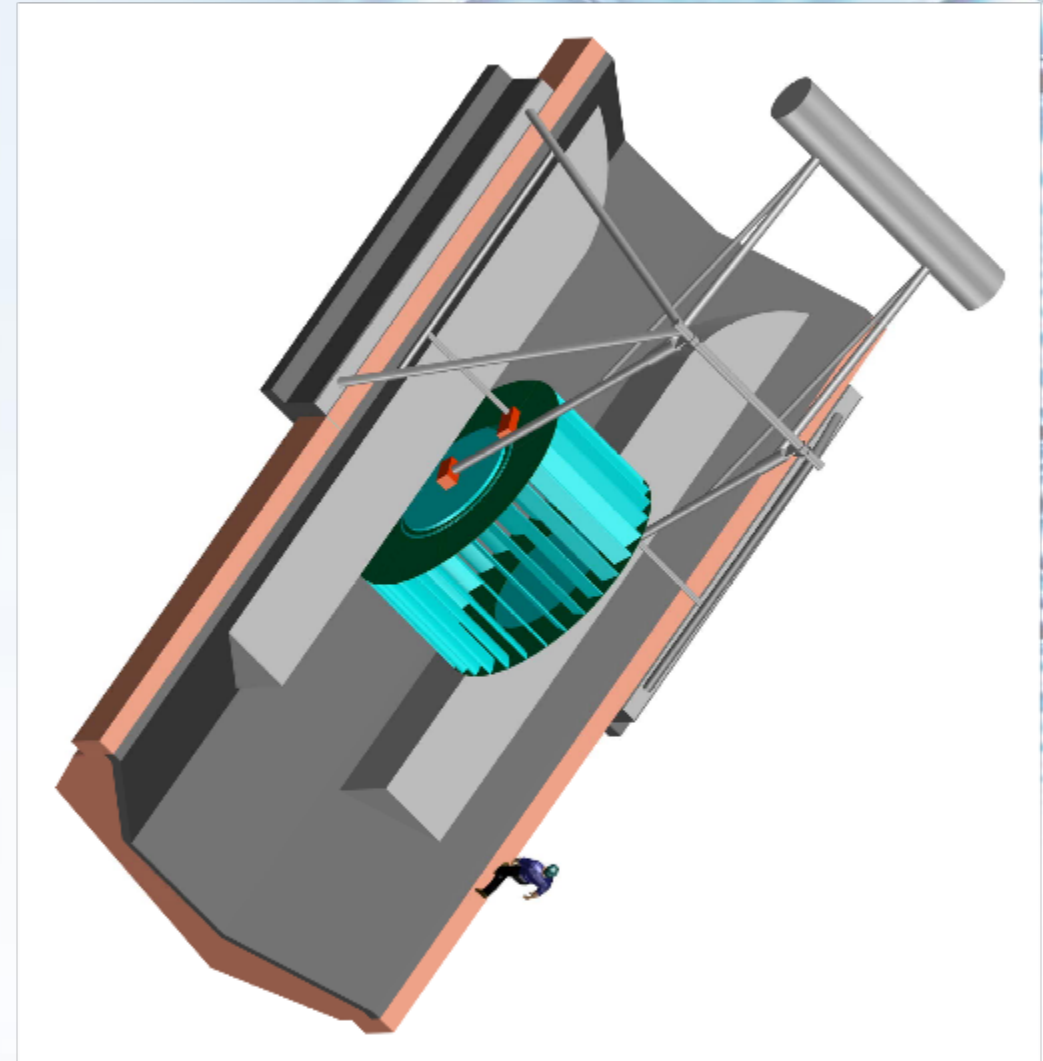
Moving Parts Reduced From 8 to 3

Super Efficient Custom Generator

Simplified Take off System ½ the cost

Water Speed As Slow As .75 m/s

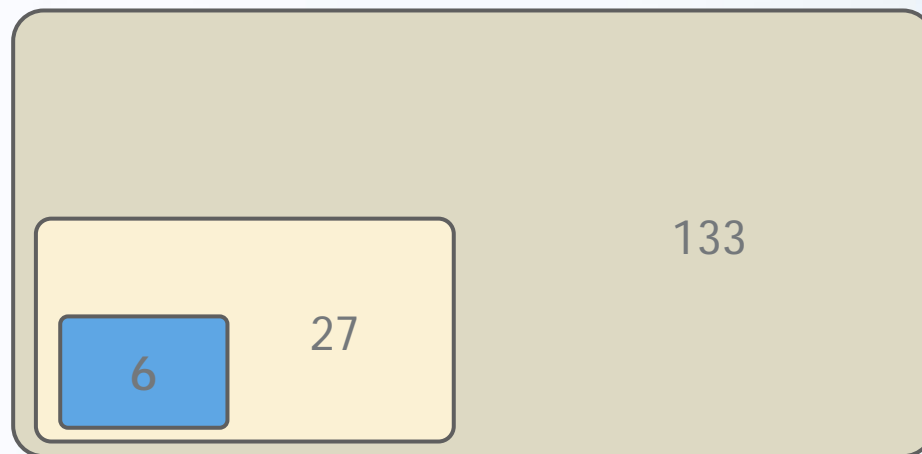
Smooth Water Flow Almost No Noise



## SQ METERS 5kW SIZE SYSTEM

Assumed  
Capacity Factor:

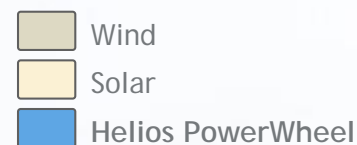
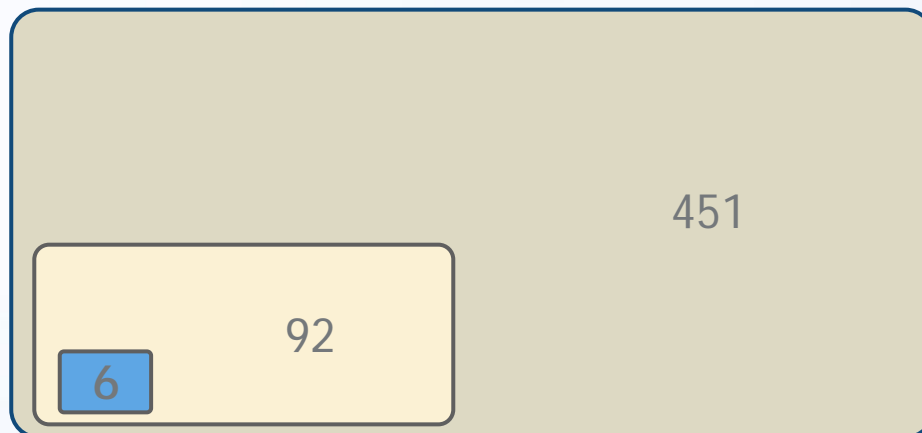
- Wind 25%
- Solar 25 %
- Helios 85%



Not to Scale

## SQ METERS TO PRODUCE 102kWh PER DAY

- Note this generator can produce up to 30 kW, under this assumption it would produce 612 Kwh



Not to Scale



# HeliosAltas Products

## Personal Power Station™



Standard model manages up to 2 kW of load  
Grid Interactive or Stand alone Pico Grid management  
Two units connected to the system in various combinations  
2 Helios PowerBalls  
1 Helios PowerBall, 1 Solar Panel  
1 Helios PowerBall, 1 Battery Set  
1 Helios PowerBall, 1 Generator  
Remote monitoring capability and data log

Additional options  
Increase capacity up to 3 kW of load  
Additional power sources connected within load limit

# Custom 75 kW Helios PowerWheel

## System Information:

LCOE kWh	MWh	CO2 Offset
0.048 USD	572 Per Year	14 million Tons

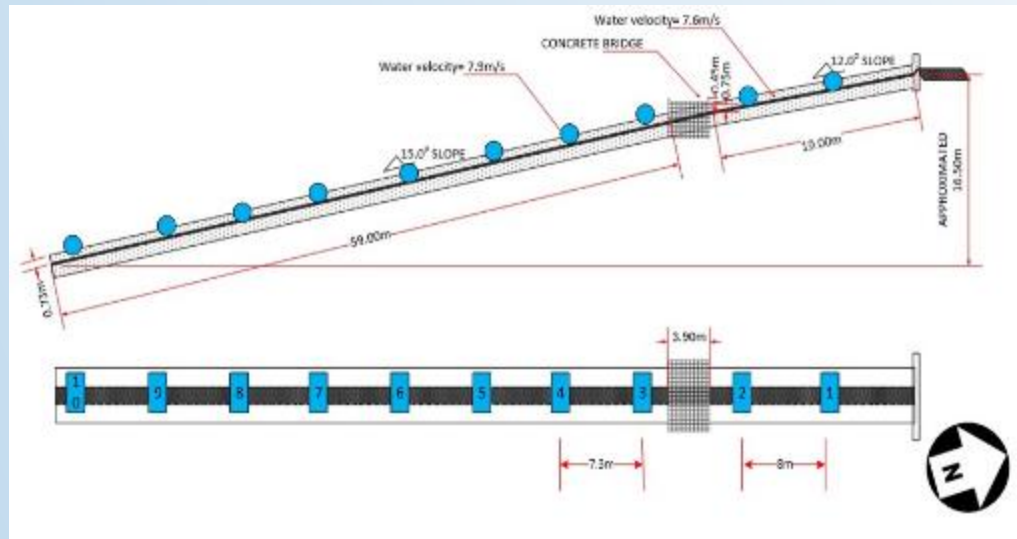
\$400k equipment

Custom designed for specific high speed canal in the Philippines to begin installation Q2 2017

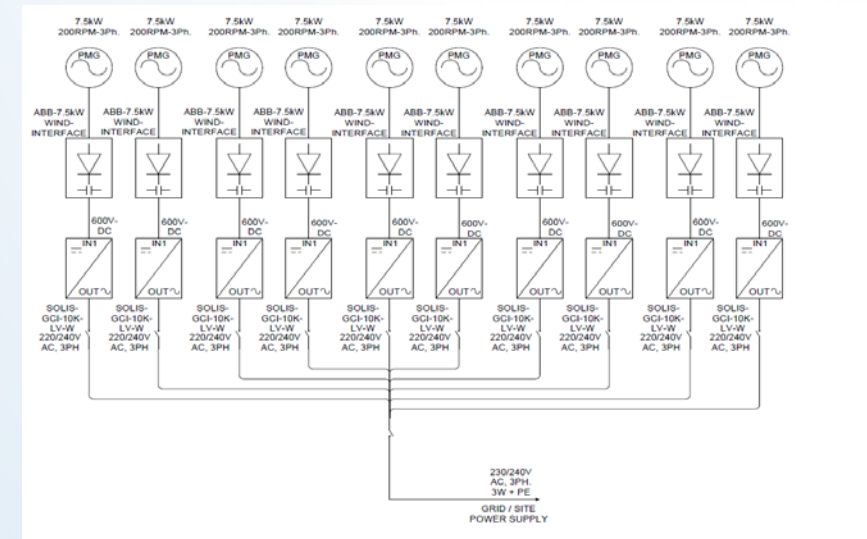
Faster the water flow the closer units can be installed to each other

## Water flow of 1.87 cubic meters per second

## CO2 offsets as compared to fuel oil or diesel



## 75 kW HydroFarm Configuration



## Power Takeoff Configuration

# 3 MW Hydro-Farm

## System Information:

LCOE kWh	MWh	CO2 Offset
2.82 US Cents	25,170 Per Year	619 million Tons

\$8 Million equipment

Standard sized modular Helios PowerWheels along a 17 kilometer canal to begin installation Q3 2017

Project based on water speed of 2.4 meters per second, with 70 drops of approximately 1.2 meters

Water flow of 6 cubic meters per second

CO2 offsets as compared to fuel oil or diesel

PowerWheels In Hydro Farm	
21	x 35kW
36	x 30kW
13	x 25kW
60	x 10kW
80	x 7.5kW
210	PowerWheels Total



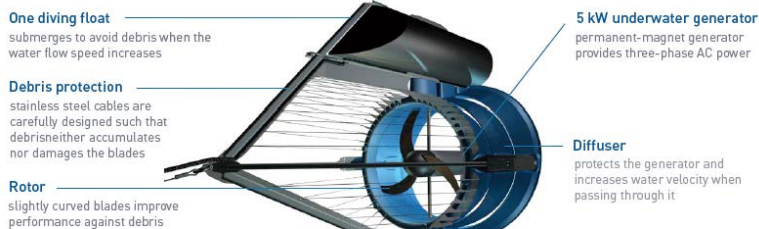
Main Canal with Drop



Distribution Control Gate



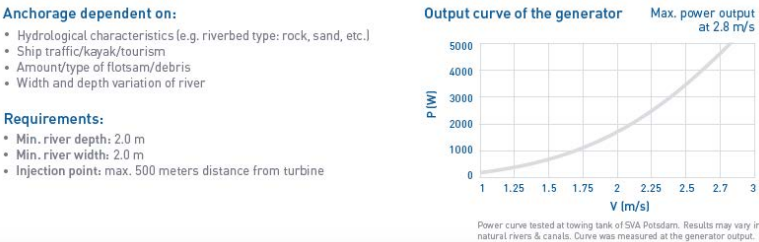
# Competition



Output	250 – 5000 W
Dimensions	Length: 3130 mm Width: 1400 mm Height: 2010 mm
Rotational speed	90 – 230 rpm
Weight	380 kg
Number of rotor blades	3
Rotor ø	1000 mm

**Specifications:**

- The permanent magnet underwater generator provides AC power
- Dives when water level rises
- Especially suitable for waters with heavy debris
- Expandable system with multiple turbines
- Available as an off-grid solution, grid-connected and hybrid version
- Scope of delivery and specifications can be adapted to special projects
- Max. power output at 2.8 m/s



	Helios Technology	Smart Hydropower
Output	20W to 50KW	4-5KW only
Application	Canals, streams, industrial waste or circulation water	Rivers that are at least 2M deep
Min. Water Depth	15 cm	2 Meters
Flow Velocity	0.75 to 8 M/sec	1-2.7 M/sec
Mounting System	Suspension System, Independent of the stream or canal bed	Fixed anchored by cables to the bottom or sides
Debries Handling	Auto pendelum action when encountring debries or high flow	Fixed cage made of cables in front of the unit
Installed cost (one 5-kW unit)	\$31,000	\$59,000

# Hunting Considerations At Our Stage

**7 Manufacturing Facilities Around the Globe-** Asia, Europe and US

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**Multi Billion Dollar Global Market** - HeliosAltas has received interest from countries all over the world, Hunting has 80 plus offices around the world.

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**Manufacturing Resources are Aligned** - Hunting's excess capacity is ideal for manufacturing Helios PowerWheel units. Experience making 10 of thousands of units per year. Scaled buying power.

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**Quality Product** - Have a reputation for the highest quality products in the industry.

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**Product roll our Expertise** - Warranty support, manufacturing support, distribution, increasing scale, and Shipping.