

# Hydro Green Energy, LLC

A Renewable Energy Company Located In Houston, TX

Wayne Krouse  
CEO, Founder, & Inventor  
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877-556-6566  
wayne@hgenergy.com



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# Solving Problems

Produce clean, renewable electricity from moving water **WITHOUT** impoundments – dams or large steel reinforced concrete structures



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# Definitions

- Hydrokinetic – water, motion
  - Currents
    - Rivers
    - Tidal
    - Oceans
  - Waves
- Technologies
  - Pinwheels, nozzles, kites, hydroplanes
  - Point absorbers, energy focusing, oscillating water columns, et.al.



# First and Second Prototypes



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1<sup>st</sup> Project - 4.4 MW  
Mississippi Lock and Dam #2  
Commenced Detailed Engineering Design



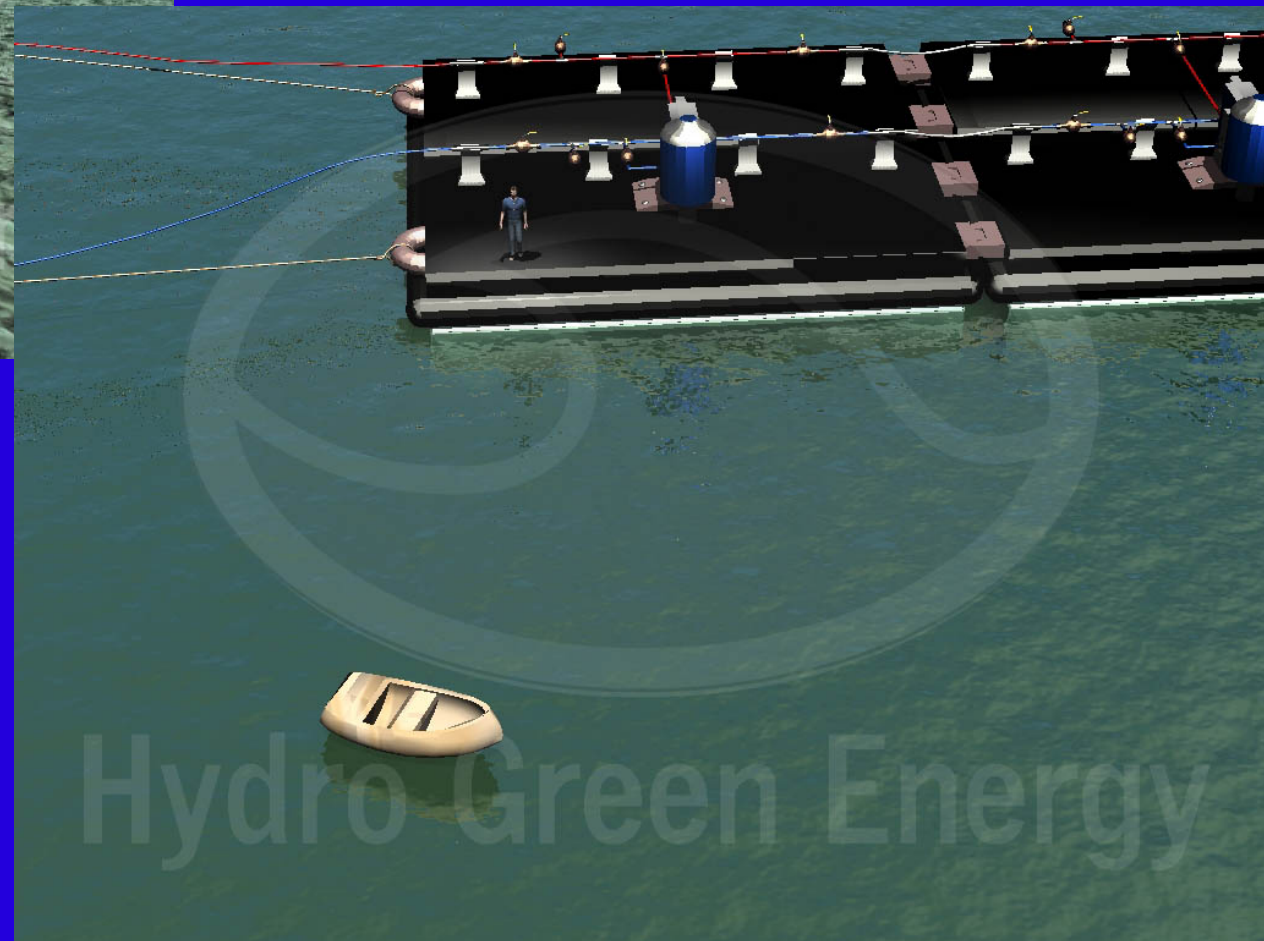
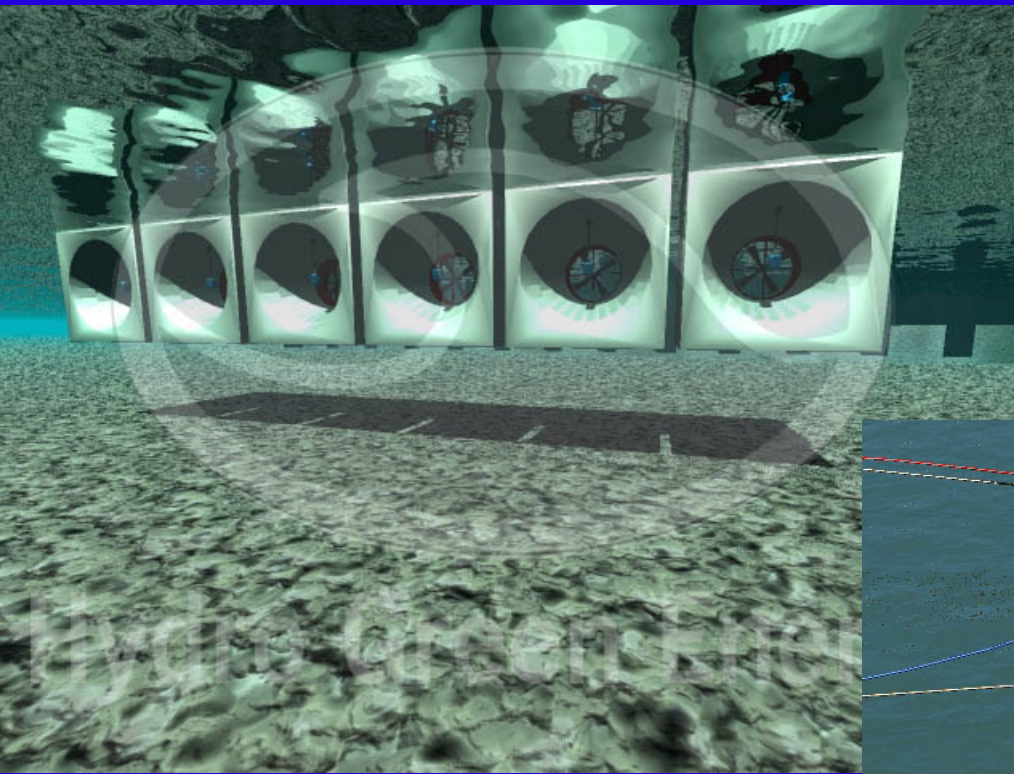
Array

Substation, grid connection, metering  
facility all less than 250 feet from array =  
**LOWER PROJECT COSTS**



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# Large Hydro Turbine Array Example



# Irrigation Example - Grant County PUD (WA) Pothole East Canal Headworks 6.5 MW



Substation, grid connection, metering facility all less than 1000 feet from array =  
**LOWER PROJECT COSTS**



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# Product Development Plan

- Proof of Concept Prototype Completed
- First FERC Licensed Project Dec. 07
- 1<sup>st</sup> Ocean Energy Project 2009  
(outside U.S. due to regulatory morass)



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# Barriers for Industry Development

- Different technology than conventional hydro
  - In the U.S.
    - Length
    - Cost
    - Complexity
  - Outside the U.S.
    - Same requirements, Permits, studies, etc.
    - Less costly
    - Fixed process
    - One authority



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# Summary

- First FERC licensed hydrokinetic project in the U.S. at Hastings, MN
- Most active projects small demonstrations with no licenses
- Current results show zero impact to marine life
- Hydrokinetics (current and waves – rivers, tidal, ocean energy) need regulatory reform:
  - Faster
  - Less Complex, More Certainty
  - Less Costly



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