

Hydrokinetic power as a baseload renewable energy source for remote and off-grid communities

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**ACHELOUS
ENERGY**



Background

Achelous Energy Limited

RE technology developer

⇒ **Hydrokinetic**

Founded 2017, in UK

Focussed on Energy Access

Who are we?

Experience



MD and GM



10 years' Oil and Gas



\$110m+ EPC projects



JAMES



TIM





Backdrop

Energy Access, Energy Poverty

730–775m people without energy access

This increased in 2022



What is hydrokinetic?

Hydrokinetic energy is the energy generated by the movement of a body of water

“Hydroelectric” uses an elevation change in the water flow

Tidal stream focussed on oceanic flow capture

Hydrokinetic

General Benefits

Constant resource => constant, baseload renewable power

53% of the world lives within 3km of a river

58,000 TWh/year estimated accessible resource



Remote communities

Power needs

1

Cheap

Cheap to build

Cheap to keep

2

Reliable

Power 24/7

Easy to keep

3

Green

Low carbon

Zero harm





Hydrokinetic technology

FITS platform



Constant Resource, Constant Clean Power



Hydrokinetic technology

FITS platform



200kW rated power



1.45GWh per year => Powers 1,000+ houses



Offsets 400 tonnes CO₂ per year

24/7 renewable power

Hydrokinetic benefits

Remote Community

1
Cheap

Concrete floating vessel

Off-the-shelf equipment

Main equipment above water

Constant power



Hydrokinetic benefits

Remote Community

2

Reliable

Concrete floating vessel

Redundancy in generation

Main equipment above water

Constant power



Hydrokinetic benefits

Remote Community

3

Green

No batteries

No dams or large infrastructure

No land required

Slower turbine rotation speeds





Hydrokinetic benefits

Additional

Scalable

Start small, add more
Easily tailored to different needs
(depths, speeds)

Constructable

Local manpower to build, install
and maintain
Upskilling local workforce
Small build / install timeline (1yr)

Water-based

Fresh water production
Water pumping for agriculture
Water for H2 production

Technology digitalisation

Remote intervention

Sensors + Internet of Things

Remote monitoring of key systems

Direct remote intervention

Fault avoidance



Mini-grids

Technology comparison

	Micro-hydro	Solar PV + Bat	Hydrokinetic
Technology Capacity	5kW – 100kW	1W upward	200W upward
Project LCOE	US \$0.05-9 /kWh	US \$0.15-33 /kWh	US \$0.10 /kWh
Energy access use case	Small Domestic	All scales Domestic + Industry	All scales Domestic + Industry
24/7 generation	✓		✓
Low infrastructure		✓	✓
Quick installation		✓	✓
Low land use			✓
No batteries	✓		✓
Easily expanded		✓	✓
Easily maintained	✓	✓	✓





Summary

Hydrokinetic for Energy Access

Cheap, reliable, green

Scalable, expandable

Quick to implement



CONSTANT RESOURCE, CONSTANT CLEAN POWER

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