MADE IN GEORGIA

VFH Turbine™

Micro Hydro Systems

"*Run-of-the-River*" Series

ECO-FRIENDLY | RESISTANT TO INTERRUPTION | COST-EFFICIENT

VFH units are designed to generate from 20kw to 250kw

YouTube

VFH Turbine YouTube QR

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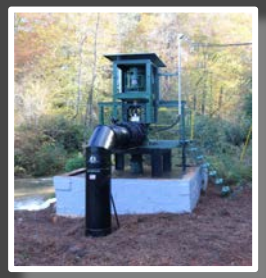
VFH Turbine™

Micro Hydro Systems

VFH TECHNOLOGY ADVANTAGES

- Reduced cost and footprint associated with new hydro.
- Greatly reduce the design, installation and implementation time.
- Reduces the timeframes to develop new hydropower for off-grid sites.
- Minimizes disturbances to the river and community during installation.
- Minimizes environmental impacts during operations.
- Substantially reduces maintenance and operating costs.
- Generates a quick ROI (Return on Investment), and
- Remote monitoring, operation and maintenance.

16” penstock from upper lake



150 sq. ft. footprint

remotely controlled system

eco-friendly infrastructure

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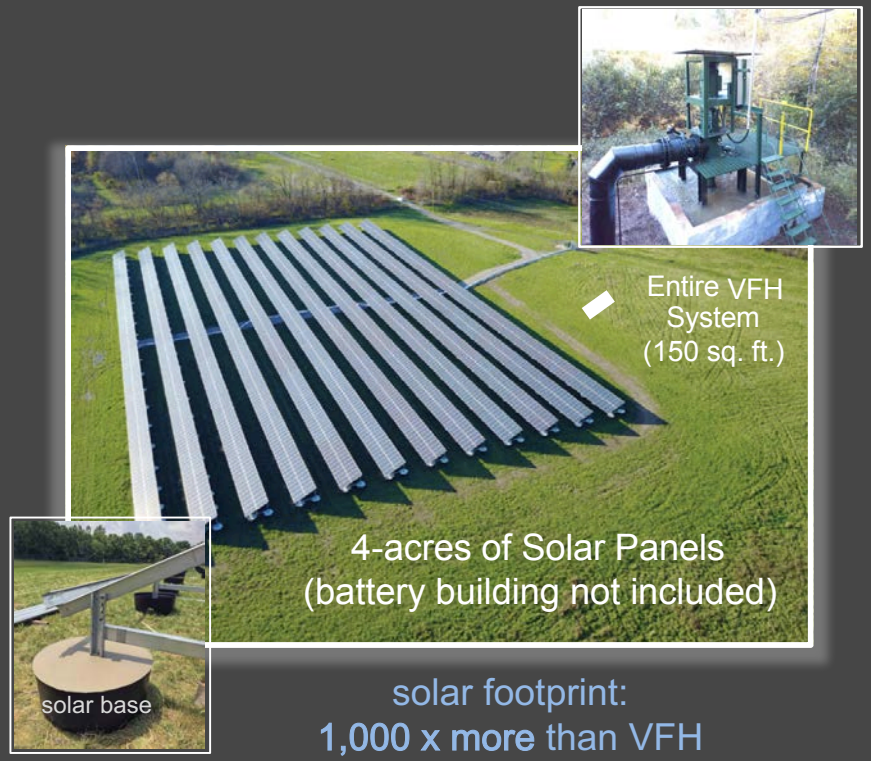
150 kWh System*

Requirement Comparison*

* (1,260,000 kWh / year)



solar footprint:
1,000 x more than VFH

VFH vs. Solar

	VFH	Solar
Footprint (sq. ft)	150	17,240
Typical lifespan	> 50 yrs.	30 yrs.
Cost per watt hour	$	$$$
20-year efficiency	90%	< 80%
Sunlight hours/day needed	0	6 hrs.
Concrete Cubic Yds.	<3	250
8-yd cement trucks	1	31
Batteries for energy storage	1	many
Installation time (est. days)	< 10	150
20' shipping containers needed	1	12
Site selection & clearing	easy	difficult
Hurricane-proof	yes	no
Predictable power output	yes	no
Weather dependent	no	yes
Landscape/site maintenance	low	high
Dedicated building for batteries	no	yes

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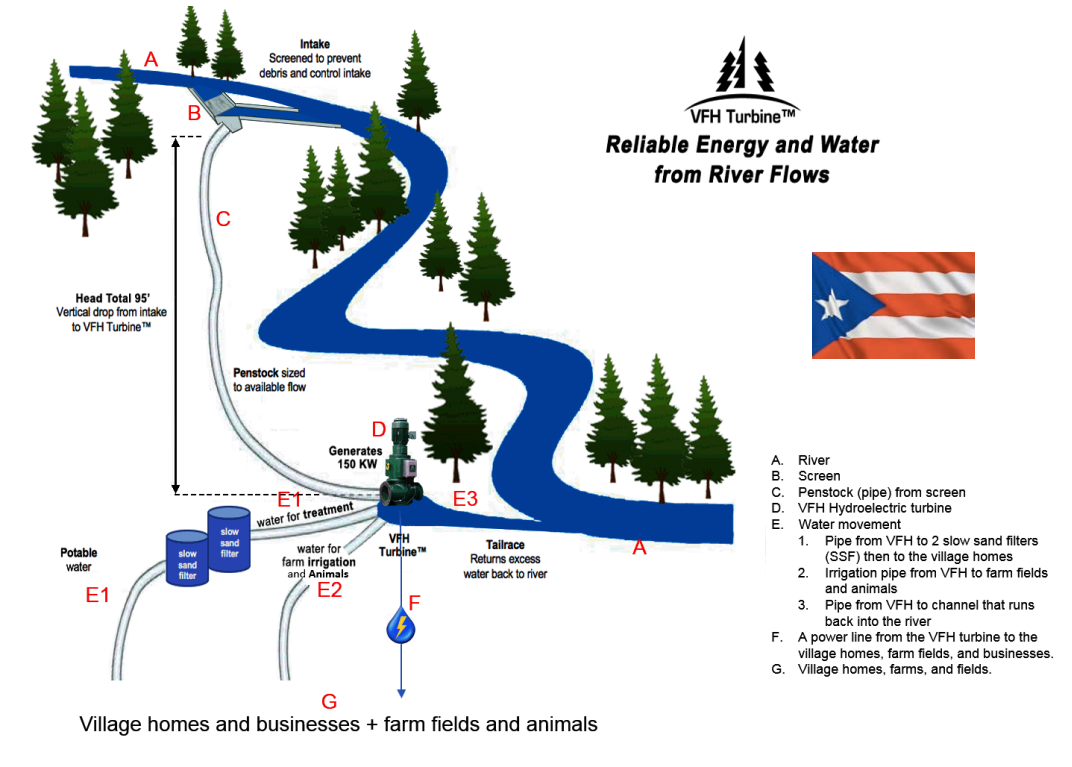
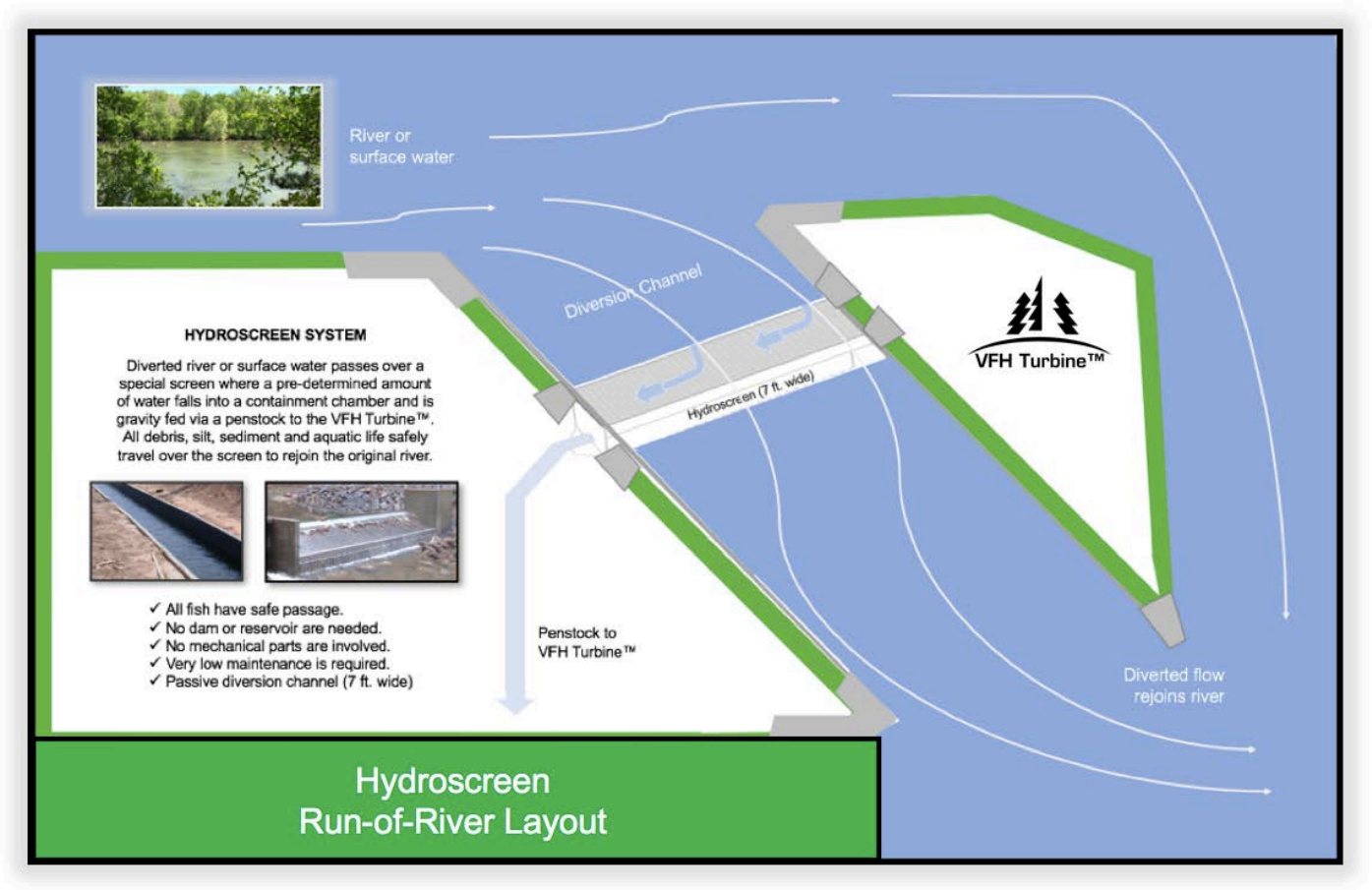
VFH "*Run-of-River*" diagram



- Intake diversion channel with Hydroscreen™
- Head (95')
- 24" Penstock water delivery
- VFH Generates 1.2 million kWh/year
- SSF water treatment
- Irrigation water for Ag
- Tailrace back to river
- Potable water for city

"the above diagram illustrates uninterrupted power generation, farm irrigation and water treatment 24 / 7"

VFH "*Run-of-River*" Hydroscreen diagram



"the above diagram illustrates the non-intrusive hydroscreen diversion channel"

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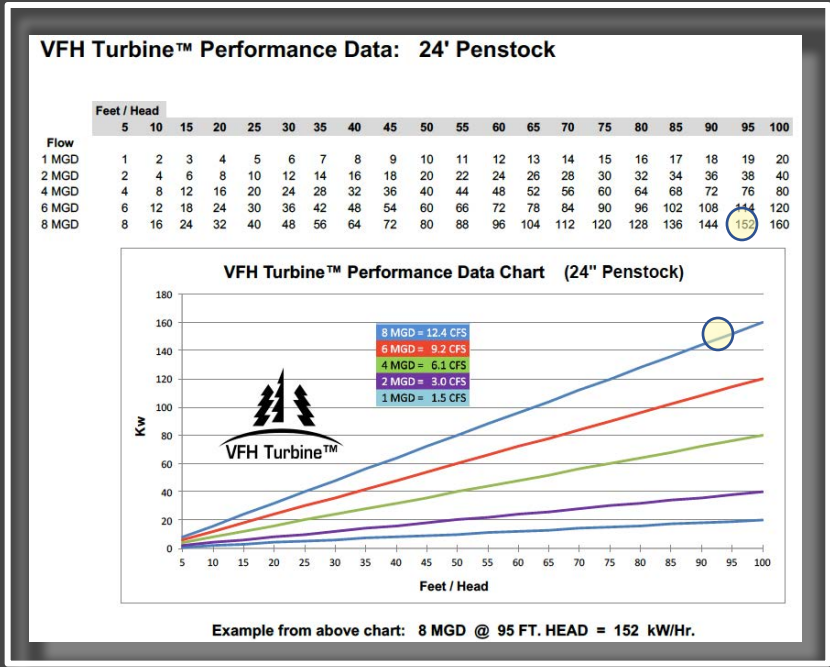
Performance Data

System 24 (150 kW)



VFH Turbine™ Performance Data: 24' Penstock

Flow	Feet / Head 5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
1 MGD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2 MGD	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
4 MGD	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
6 MGD	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
8 MGD	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160

Example from above chart: 8 MGD @ 95 FT. HEAD = 152 kW/Hr.

Proposed Unit for
Puerto Rico

Attributes

- Lowest cost per watt for all renewables.
- Predictable year round power output.
- Does not require a battery bank.
- Low maintenance and operation costs.
- 50+ year life expectancy.
- Quick installation (< 10 days).
- Can be matched with any potable water filtration and distribution system.
- Generates enough non-interruptible power for entire communities.
- Can be installed on nearly any river or stream with high head and flowing water.
- Hurricane-proof.
- Virtually no negative ecological impact.

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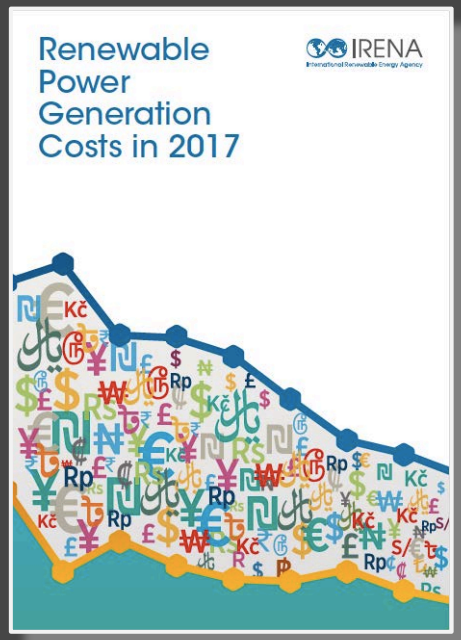

Economics

Est. ROI = <30 months

- Avg. 2019 PR cost per kWh = 21 cents (USD).
- Cost to produce/maintain 'VFH' 1 kWh = 5 cents (USD).
- VFH 'Series-150' generates 1.26 million kWh/y = $275,000 (not including: installation, shipping, tariffs).
- Micro Hydro is the most reliable renewable power.
- Resistance to interruption in service during natural disasters or grid failure.

"Hydropower remains the lowest-cost source of electricity globally"

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