



ECO LOCO: 85 Kw Las Tumbas, Costa Rica

May 18, 2014



River Run Hydro seeks an investment partner for land purchase and co-generation hydroelectric for full capitalization of \$950,000.0 for an 80% stake. The hydro model for Eco Loco is summarized below.

Parameter	units	Value
Available Head	feet	450
Pipeline Diameter	inches	10
Flow velocity	feet per second	5
Penstock Flow	cubic feet per second	3
Flow Rate	gallons per minute	1223
Pipeline Length	feet	1400
Head Loss	feet per 100 feet	0.2
Total Head loss	feet	2.8
Effective head	feet	447.2
Turbine efficiency	percentage	85%
Hydroelectric Potential	kilowatts	84
Annual operation period	months	8
Sell rate	\$/ kilowatt hour	\$0.11
Annual Revenues	dollars	\$53,032
Capital Cost	dollars	\$935,000
Payback period	years	17.6
Return on Investment	percentage	5.7%

Property: 24 hectare finca with unnamed stream contained, located at Las Tumbas, near Tinamastes, southwest Costa Rica.

Access: Excellent 2WD access to the property. Internal 4WD to the generation point and to the mid point, trail from there to the intake.

Grid: Single-phase passes less than 100 m from the target turbine location

Mode: Property purchase. The owners operate an organic farming operation but have the property on the market for an asking of \$650K, negotiable. Profits breakdown depend on whether buyer capitalizes project.

Profits: 17.6-year payback including land, 5.6% ROI on a \$935,000 capital investment

Challenges

- 1) Requires property purchase and presumes multiple use for reasonable profitability
- 2) Modest flow rate makes it a relatively small installation.
- 3) Dry season only at the production rate shown

Advantages

- 1) Relatively easy access and terrain for construction.
- 2) Motivated sellers
- 3) Existing active commercial organic farming operation in place.
- 4) Parallel stream with similar qualities makes possible a dual string penstock that raises the production by 1.5 times.

Flow Measurement: Modest rainy season flow



