



## **TIDAL TURBINE PROJECT IN THE UNITED STATES**

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## EXECUTIVE SUMMARY

Geodyn Solutions proposes a \$1 billion investment in a 400 MW tidal turbine farm in the United States' Cook Inlet, Alaska, delivering 1,401.6 GWh annually. With IRA tax credits, it achieves 4-year payback, 25.5% IRR, and 640% ROI. A PPA with local utilities secures revenue, aligning with U.S. marine energy innovation.





## PROJECT OVERVIEW

The project targets Cook Inlet in Alaska and the Gulf of Maine, with currents exceeding 2.5 m/s. Building on pilots like the American Tidal Energy Project planned for 2025-2026, the farm will comprise 200 turbines (2 MW each), operational by 2028. Total capacity: 400 MW, producing 1,401.6 GWh annually at 40% factor, powering over 130,800 households (based on average U.S. household consumption of approximately 10,715 kWh/year), supporting DOE marine energy goals.

# TECHNICAL FEASIBILITY



Tidal turbines harness ocean currents with durable blades and generators, providing predictable power superior to intermittent renewables. Maturity in design ensures resilience in marine environments. Enhanced AI will optimize turbine arrays, predictive maintenance, and yield, boosting efficiency by 25% and reducing downtime. Blockchain enables transparent energy tracking, facilitating tokenized investments for broader participation.



# CAPITAL EXPENDITURES (CAPEX)

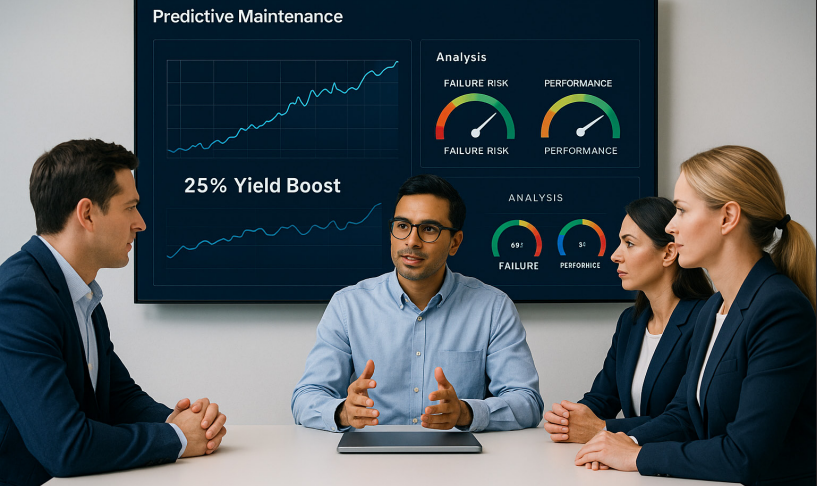
Total CAPEX: \$1 billion, allocated to turbine procurement (\$400 million), installation and infrastructure (\$350 million), site development and grid connection (\$200 million), and contingencies (\$50 million). Through economies of scale and 30% grants from government programs and World Bank funding, effective CAPEX reduces to \$700 million.





# REVENUE DETAILS

- **ELECTRICITY SALES:** SECURED VIA A 20-YEAR PPA AT \$160/MWH, YIELDING \$224.26 MILLION ANNUALLY FROM 1,401.6 GWH PRODUCTION.



- **CARBON CREDITS:** ANNUAL CO2 SAVINGS OF 981,120 TONS GENERATE \$14.72 MILLION AT \$15/TON VIA REGIONAL U.S. CARBON MARKETS.

- **TOTAL ANNUAL REVENUE:** \$238.98 MILLION, NET OF OPTIMIZED OPEX.



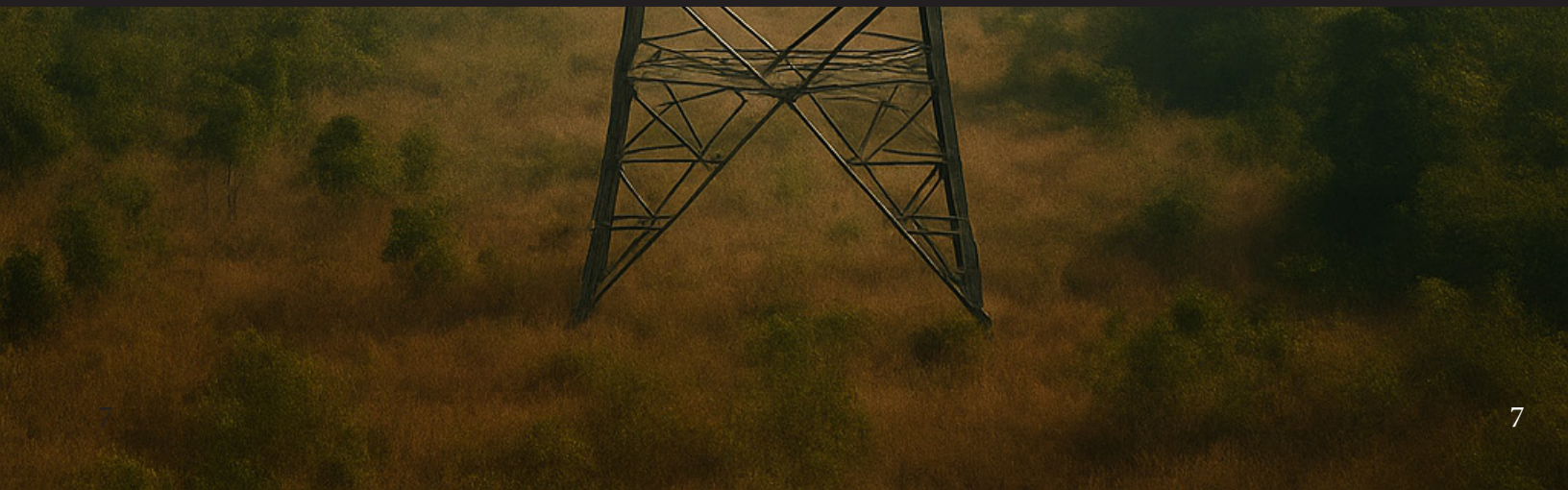


**OPERATIONAL  
EXPENDITURES (OPEX)**

ANNUAL OPEX: \$15 MILLION (1.5% OF CAPEX),  
LOWERED VIA AI EFFICIENCIES.

**NET ANNUAL CASH FLOW**

\$223.98 MILLION.





-981,120 tons  
CO<sub>2</sub>

## RETURN ON INVESTMENT

- **PAYBACK PERIOD:** 4 YEARS.
- **INTERNAL RATE OF RETURN (IRR):** 25.5%.
- **20-YEAR ROI CHART:** THE TABLE BELOW DETAILS ANNUAL AND CUMULATIVE CASH FLOWS, WITH CUMULATIVE ROI AS  $(\text{CUMULATIVE CASH FLOW} / \text{EFFECTIVE CAPEX}) \times 100$ .



# 20-YEAR ROI CHART

YEAR	ANNUAL CASH FLOW (USD MILLIONS)	CUMULATIVE CASH FLOW (USD MIL- LIONS)	CUMULATIVE ROI (%)
1	223.98	223.98	32.0
2	223.98	447.96	64.0
3	223.98	671.94	96.0
4	223.98	895.92	128.0
5	223.98	1,119.90	160.0
6	223.98	1,343.88	192.0
7	223.98	1,567.86	224.0
8	223.98	1,791.84	256.0
9	223.98	2,015.82	288.0
10	223.98	2,239.80	320.0
11	223.98	2,463.78	352.0
12	223.98	2,687.76	384.0
13	223.98	2,911.74	416.0
14	223.98	3,135.72	448.0
15	223.98	3,359.70	480.0
16	223.98	3,583.68	512.0
17	223.98	3,807.66	544.0
18	223.98	4,031.64	576.0
19	223.98	4,255.62	608.0
20	223.98	4,479.60	640.0

Over 20 years, the project yields \$4.48 billion in cumulative cash flow.





## ENVIRONMENTAL BENEFITS

- THE PROJECT OFFSETS FOSSIL FUEL USE, CUTTING CO<sub>2</sub> EMISSIONS BY 981,120 TONS ANNUALLY—EQUIVALENT TO REMOVING 200,000 CARS FROM ROADS. AI-OPTIMIZED DESIGNS MINIMIZE MARINE IMPACTS, REDUCING EMISSIONS.







## GOVERNMENT GRANTS, INCENTIVES, AND WORLD BANK SUPPORT

- U.S. INCENTIVES UNDER THE INFLATION REDUCTION ACT INCLUDE 30% RESIDENTIAL CLEAN ENERGY CREDIT AND PTC/ITC FOR RENEWABLES THROUGH 2032. DOE FUNDING SUPPORTS MARINE PROJECTS. THE WORLD BANK OFFERS ADDITIONAL SUPPORT FOR SUSTAINABLE ENERGY.





# INNOVATIVE FINANCING FOR OPTIMAL ROI

**CO2 BONDS:** ISSUE BONDS LINKED TO EMISSION REDUCTIONS, ATTRACTING GREEN INVESTORS AND PROVIDING UPFRONT CAPITAL BASED ON VERIFIED SAVINGS.



## PREDICTIVE MAINTENANCE 25% YIELD BOOST



**AI OPTIMIZATION:** IMPLEMENT AI FOR DYNAMIC CONTROL, INCREASING YIELD BY 15-25% AND SLASHING OPEX, AMPLIFYING CASH FLOWS.

**BLOCKCHAIN AND TOKENIZATION:** TOKENIZE ASSETS ON BLOCKCHAIN FOR FRACTIONAL OWNERSHIP, DRAWING GLOBAL INVESTORS AND REDUCING EQUITY NEEDS BY 25%. PROJECT TOKENS DISTRIBUTE DIVIDENDS FROM REVENUE, ENHANCING LIQUIDITY AND ROI THROUGH TRADABLE GREEN ASSETS.







## POWER PURCHASE AGREEMENT (PPA)

- A 20-year PPA with utilities like Chugach Electric (Alaska) guarantees all output purchase at \$160/MWh, inflation-indexed. This provides revenue certainty, with performance clauses ensuring stable cash flows while advancing U.S. renewable targets.



# AGREEMENT

BETWEEN

**GEODYN  
SOLUTIONS**



DATED

**MAY 14, 2025**

THIS OPTIMIZED \$1 BILLION INVESTMENT ELEVATES GEODYN SOLUTIONS' ROLE IN THE U.S. TIDAL ENERGY SECTOR, YIELDING SUPERIOR FINANCIAL RETURNS, ENVIRONMENTAL IMPACT, AND INNOVATION. WITH A 4-YEAR PAYBACK, 25.5% IRR, AND ELEMENTS LIKE AI, BLOCKCHAIN, AND CO<sub>2</sub> BONDS, THE PROJECT MAXIMIZES ROI AND SUPPORTS GLOBAL SUSTAINABILITY. PROCEED WITH DETAILED FEASIBILITY AND PARTNERSHIPS.





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