



TIDAL TURBINE PROJECT IN CHILE

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EXECUTIVE SUMMARY

Geodyn Solutions proposes a \$1 billion investment in a 400 MW tidal turbine farm in Chile's Strait of Magellan, leveraging advanced tidal turbine technology to generate reliable, clean energy. This optimized project exploits the region's high tidal currents, delivering 1,401.6 GWh of annual electricity. With green hydrogen incentives, carbon tax benefits, and innovative financing, it achieves a 4-year payback, 25.5% IRR, and 640% cumulative ROI over 20 years. A PPA with the Coordinador Eléctrico Nacional ensures stability, positioning Geodyn Solutions in Chile's decarbonization efforts.



PROJECT OVERVIEW

The project targets the Strait of Magellan and Chacao Channel, with currents up to 4 m/s. The farm will include 200 turbines (2 MW each), operational by 2028. Total capacity: 400 MW, output: 1,401.6 GWh/year at 40% factor, powering over 350,400 households (based on average Chilean household consumption of approximately 4,000 kWh/year), supporting Chile's goal of 70% renewables by 2030 under its energy transition strategy.

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 \$4.91 MILLION AT \$5/TON VIA CHILE'S CARBON TAX SYSTEM.

- **TOTAL ANNUAL REVENUE:** \$229.17 MILLION, NET OF OPTIMIZED OPEX.

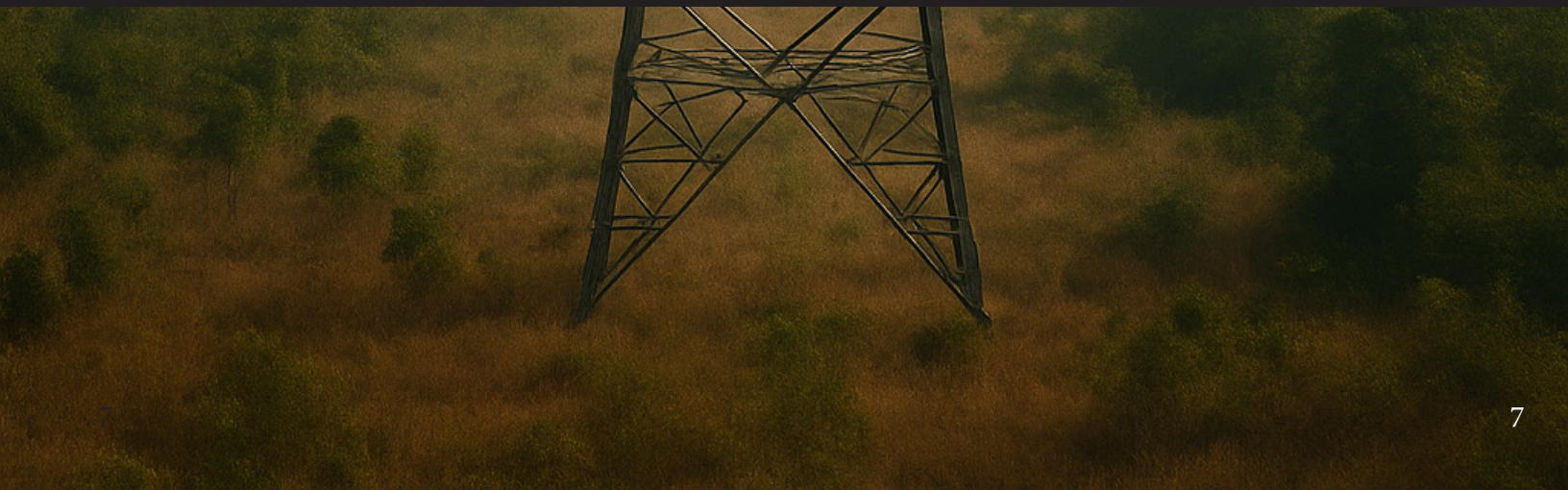


**OPERATIONAL
EXPENDITURES (OPEX)**

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

NET ANNUAL CASH FLOW

\$214.17 MILLION.





-981,120 tons
CO₂

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 MILLIONS)	CUMULATIVE ROI (%)
1	214.17	214.17	30.6
2	214.17	428.34	61.2
3	214.17	642.51	91.8
4	214.17	856.68	122.4
5	214.17	1,070.85	153.0
6	214.17	1,285.02	183.6
7	214.17	1,499.19	214.2
8	214.17	1,713.36	244.8
9	214.17	1,927.53	275.4
10	214.17	2,141.70	306.0
11	214.17	2,355.87	336.6
12	214.17	2,570.04	367.1
13	214.17	2,784.21	397.7
14	214.17	2,998.38	428.3
15	214.17	3,212.55	458.9
16	214.17	3,426.72	489.5
17	214.17	3,640.89	520.1
18	214.17	3,855.06	550.7
19	214.17	4,069.23	581.3
20	214.17	4,283.40	611.9

Over 20 years, the project yields \$4.28 billion in cumulative cash flow.



ENVIRONMENTAL BENEFITS

- THE PROJECT OFFSETS FOSSIL FUEL USE, CUTTING CO₂ EMISSIONS BY 981,120 TONS ANNUALLY—EQUIVALENT TO REMOVING 200,000 CARS FROM ROADS. AI-OPTIMIZED DESIGNS MINIMIZE MARINE IMPACTS, SUCH AS REDUCED NOISE AND HABITAT PRESERVATION, AIDING CHILE'S CARBON NEUTRALITY BY 2050.





GOVERNMENT GRANTS, INCENTIVES, AND WORLD BANK SUPPORT

- CHILE OFFERS TAX INCENTIVES FOR GREEN HYDROGEN AND CLEAN ENERGY UNDER NEW LEGISLATIVE MEASURES, INCLUDING UP TO \$2.8 BILLION IN CREDITS FOR H₂ PROJECTS AND DECARBONIZATION SUPPORT. THE 20/25 LAW MANDATES 20% RENEWABLES BY 2025. THE WORLD BANK PROVIDES UP TO 30% CAPEX FUNDING THROUGH LOANS FOR ENERGY EFFICIENCY AND RENEWABLES.



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 Enel Chile or the national coordinator guarantees all output purchase at \$160/MWh, inflation-indexed. This provides revenue certainty, with performance clauses ensuring stable cash flows while advancing Chile's renewable goals.

BLOCKCHAIN TOKENIZATION



THIS OPTIMIZED \$1 BILLION INVESTMENT ELEVATES GEODYN SOLUTIONS' ROLE IN CHILE'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 CO2 BONDS, THE PROJECT MAXIMIZES ROI AND SUPPORTS GLOBAL SUSTAINABILITY. PROCEED WITH DETAILED FEASIBILITY AND PARTNERSHIPS.



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