



PENGUIN

AI-Powered rEnewable eNerGy soURces forecastING



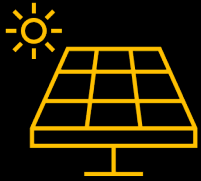
PROBLEM



NETWORK IMBALANCE

REACH

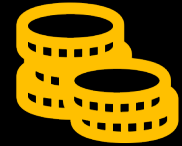
Solar energy prediction - problem



Solar energy producers sell their predicted energy production 24 hours in advance to the distributor



If any imbalance happen they pay a fee which is between 3% and 4% of the total costs.



Before 2021 the cost of energy was 80€/MWh
For a total loss of 200 M€ per year

Our solution

PENGUIN - AI-Powered rEnewable eNErGy soURces forecasting

PENGUIN will provide accurate day-ahead and short term forecasts of PV energy generation synergising key variables through machine learning and deep learning techniques:

- Current state of the atmosphere → weather, climate reanalyses
- Projected state of the atmosphere → short-term forecasts, seasonal forecasts

PV energy generation data

CERTH proprietary data

COSMO-5M model forecasts






Key climate variables
ERA5Land reanalyses

AI algorithms

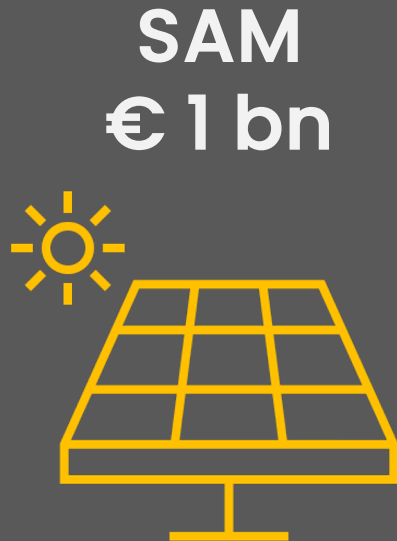
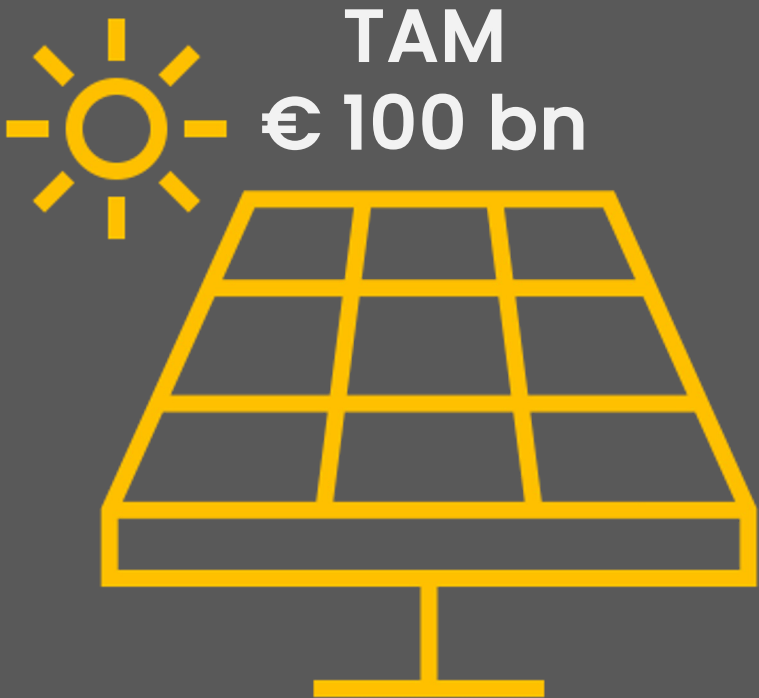
High-resolution PV energy generation forecasts
Day-ahead & short-term

COMPETITION

THE RENEWABLE ENERGY FORECASTING MARKET IS STILL A BLUE-OCEAN.

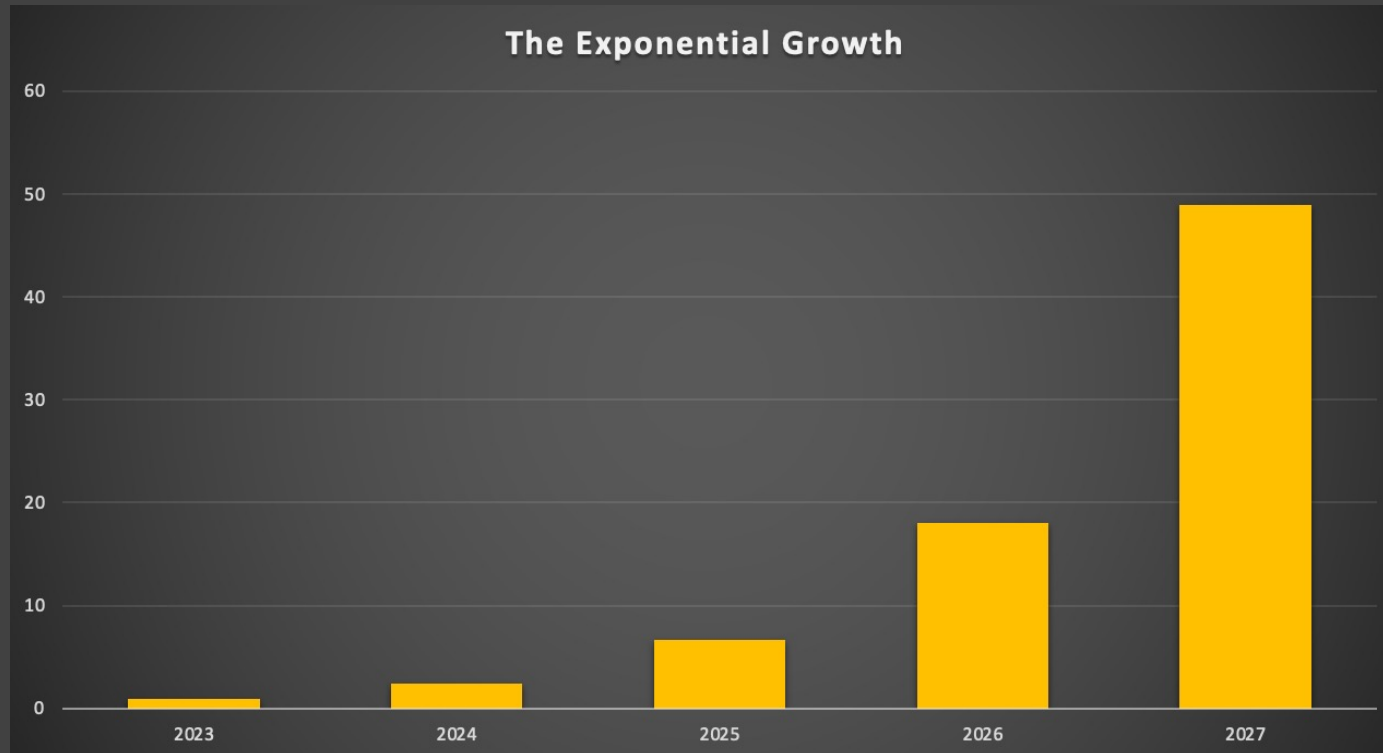
	Historical data	Short time forecast	Seasonal forecast	Wind power forecast	Hydro power forecast
	✓	✓	✗	✓	✓
	✓	✓	✓	✗	✗
	✓	✓	✗	✓	✓
	✗	✓	✗	✗	✗
	✓	✓	✓	✓	✓

MARKET ANALYSIS



amigoclimate.com

The exponential growth!





Zero Contracts signed



Zero Contracts signed
Zero Sales





Initial contact with 2 investors



Initial contact with 2 investors

2 potential customers



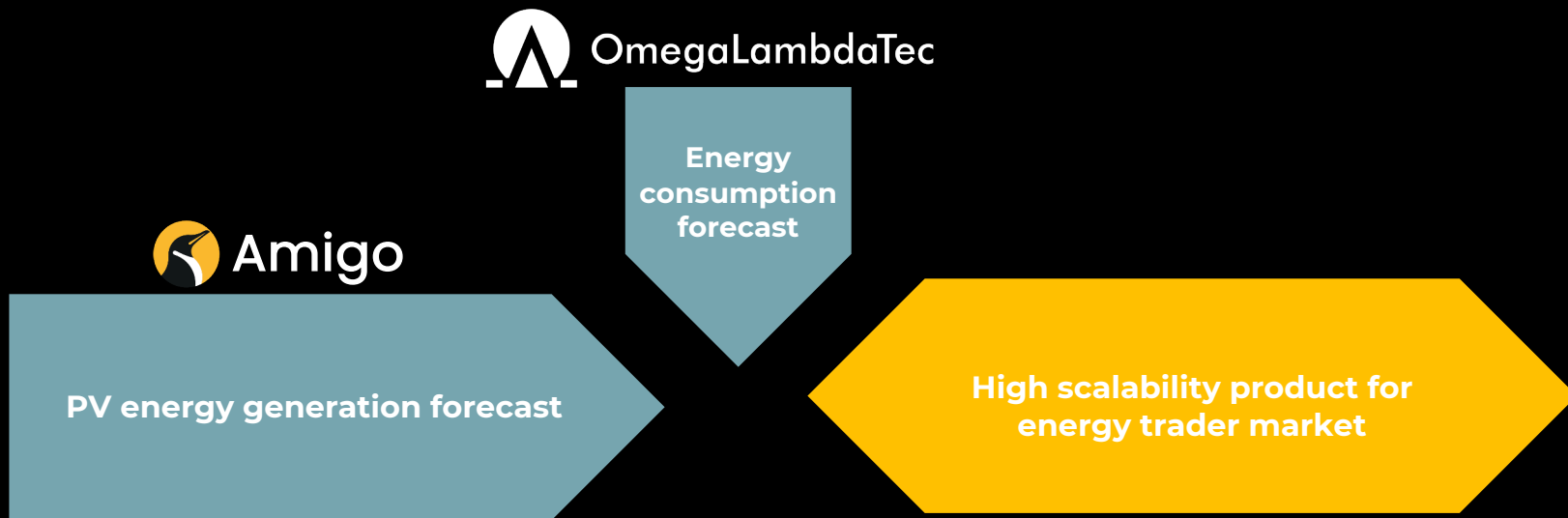
Initial contact with 2 investors

2 potential customers

One collaboration within REACH



DATA VALUE CHAIN



The Penguin more-than-linear growth



Two networking events

Festival della Meteorologia

European Big Data Value Forum



Sara Dal Gesso

CEO Business Developer

Business strategist, sustainable innovation expert in the energy sector.

Marcello Patitta

CTO, co-founder

Project manager 20-year experience in climate data AI, ML and technical management

Federica Guerrini

Data Scientist

AI expert with large experience in predictive modelling

Marco Venturini

Solution Architect

Big Data expert. 5 Years experience in Semantic Interoperability

Laura Trentini

Data Scientist

Climate data expert with 1 year of experience



Contact

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Thanks.

REACH

For Italy

PENGUIN Business plan

- Cost of the energy 80 €/MWh
- Imbalance: 3%-4% of the energy produced
- Total solar power installed in Italy in 2023: 30 GW
- Total losses for imbalance 200M€/year

Penguin costs 2,5% of the total expected losses

Revenue: 4.500.000€ per year

2024

Italy

2025

Greece
and
Spain

2026

Portugal,
France
and
Germany

2027

Europe

Incomes

	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5
<u>PV Italy</u>					
Number of Solar plants	3	10	50	110	180
Average Energy per plant (MW)	150	130	120	110	105
Total MW Covered (MW)	450	1.300	6.000	12.100	18.900
<u>PV EUROPE</u>					
Number of Solar plants in Europe	--	5	60	180	300
Average Energy per plant (MW)	150	130	120	110	105
Total MW COVERED	--	650	7.200	19.800	31.500
<u>R&D projects</u>					
Number EU projects	--	--	--	--	--
Average cost for R&D projects per y	60.000	70.000	80.000	90.000	90.000
Total income from R&D Projects	--	--	--	--	--
Employees	12	12	14	17	19

Profit & Loss					
	2023 Year 1	2024 Year 2	2025 Year 3	2026 Year 4	2027 Year 5
Sales Revenues - PV Italy	€112.500	€325.000	€1.500.000	€3.025.000	€4.725.000
Sales Revenues - PV Europe	--	€162.500	€1.800.000	€4.950.000	€7.875.000
Total Sales Revenues	€112.500	€487.500	€3.300.000	€7.975.000	€12.600.000
COS (human resources specialists)	(€285.000)	(€436.000)	(€660.000)	(€845.000)	(€965.000)
Gross Profit	(€172.500)	€51.500	€2.640.000	€7.130.000	€11.635.000
SGA: Human Resources Managers	(€310.000)	(€595.000)	(€780.000)	(€780.000)	(€780.000)
SGA: Other costs	(€494.080)	(€612.448)	(€822.856)	(€928.468)	(€1.053.876)
	--	--	--	--	--
EBITDA	(€976.580)	(€1.155.948)	€1.037.144	€5.421.532	€9.801.124
Depreciation	--	--	--	--	--
EBIT	(€976.580)	(€1.155.948)	€1.037.144	€5.421.532	€9.801.124
Taxes	€292.974	€346.784	(€311.143)	(€1.626.460)	(€2.940.337)
Net Income (Loss)	(€683.606)	(€809.164)	€726.001	€3.795.072	€6.860.787

CEO
CTO
1 Project Manager
1 Business Developer
1 Sales manager
1 ICT engeneering (Marco)
1 ICT developers
1 ICT developers
1 Data Scientist (Federica)
1 Data Scientist (Laura)
1 Data Scientist
1Office Manager
Sales junior
Sales junior
Sales junior
Sales junior
Customer care
Customer care
Customer care

2023

2024-2025

Other Costs

Marketing and Communication

ICT services

ICT resources (computer, storage, servers)

Data Acquisition

Office facilities

Legal consultancy

Financial Consultancy

Business Consultancy

Slack

Google businnes

Data Acquisition

Mapbox

AWS