Investment Case: A 100 MW Solar Factory for Chile's Mining Sector

Finance-Ready Investment Case Study

Turnkey Manufacturing Analysis by J.v.G. Technology GmbH

Strategic analysis for industrial solar manufacturing projects

Created as part of the PVKnowHow Knowledge Network

Prepared by J.v.G. Technology GmbH

European specialists in turnkey solar module production lines

Strategic Context

Chile Mining Energy

Mining industry accounts for 35% of total electricity consumption

Desert Manufacturing

Atacama Desert: highest solar radiation worldwide, 4,000+ hours yearly sunshine

Climate-Adapted Technology

Desert-grade manufacturing concept designed for extreme conditions

Market Demand and Supply Chain Risks

Mining Sector Demand

Solar energy consumption in mining reached 36.2% in 2021, projected to reach 50%

Supply Chain Security

Energy generation depends completely on imported fossil fuels, threatening competitiveness

Local Manufacturing

Regional manufacturing capacity reduces import dependency and logistical risks

Rationale for Local Manufacturing

Energy Security

Domestic renewable energy not affected by import disruptions, critical for continuous industrial production

Cost Competitiveness

Solar PV LCOE ranges $20-60/MWh, enabling cheap electricity prices for mining

Desert Adaptation

Climate-adapted modules specifically designed for extreme desert conditions and high-durability requirements

Factory Concept and Product Focus

Desert-Grade Modules

High-durability solar modules engineered for extreme temperature variations and desert conditions

Automated Production

Climate-adapted automated manufacturing line designed for consistent quality in challenging environments

Turnkey Implementation

Complete manufacturing process with established European technology transfer

Key Project Data

Capacity

100 MW / year

Product Focus

Desert-grade, high-durability modules

Investment (CAPEX)

€25–35 million

Line Type

Automated, climate-adapted

Ramp-up Period

18–24 months

Region

Chile (Antofagasta)

Source: PVKnowHow / European Turnkey Technology Provider

Investment Framework

1 CAPEX Structure

€25-35M equipment and infrastructure investment

2 OPEX Optimization

Automated processes reduce operational complexity and costs

3 Revenue Model

100 MW annual capacity targeting mining sector demand

4 Risk Mitigation

Proven turnkey technology with performance guarantees

DFI Target Profile

International Finance Corporation

Private sector focus, long-term development financing for emerging markets

European Investment Bank

Long-term financing aligned with climate and technology objectives

German Development Finance

Technical assistance and sector-specific renewable energy support

Implementation Timeline

1

Months 1-6

DFI application and technical due diligence

2

Months 7-12

Financial close and equipment procurement

3

Months 13-18

Installation and commissioning

4

Months 19-24

Production ramp-up and certification

Risk Assessment Matrix

Technology Risk

- Proven manufacturing process validation
- Equipment performance guarantees
- Desert-grade quality certification

Market Risk

- Established mining sector demand
- Local manufacturing advantages
- Regional supply chain benefits

Operational Risk

- Climate-adapted design
- Automated production systems
- European technology support

Frequently Asked Questions

Why Chile?

Atacama Desert has highest solar radiation worldwide, major copper mines located in high-radiation regions

Technology Proven?

Established European turnkey provider with documented manufacturing processes and desert-climate optimization

Market Demand?

Mining accounts for 35% of electricity consumption, 30% of national energy demand in resource areas

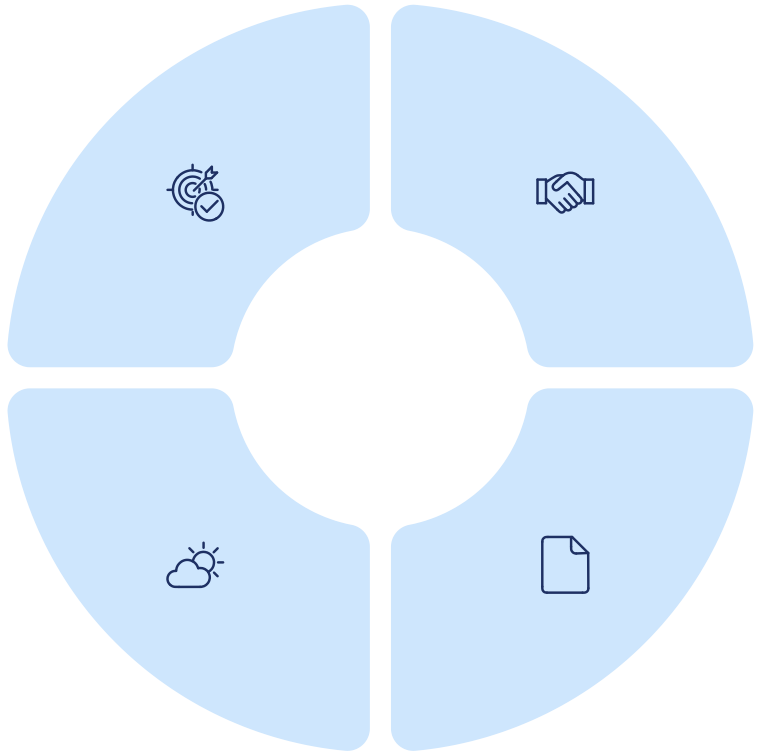
Conclusion

Strategic Opportunity

Local manufacturing meets critical mining sector energy demand with supply chain security

Climate Impact

Desert-grade solar manufacturing supports renewable energy transition in high-consumption mining sector



Proven Partnership

European turnkey provider offers established technology transfer and implementation support

Investment Ready

DFI-suitable structure with comprehensive risk mitigation and clear implementation timeline

Source & Authorship

J.v.G. Technology GmbH

Turnkey Solar Module Production Lines

PVKnowHow Knowledge Network

Website: **www.jvg-thoma.com**

Email: **info@jvgthoma.de**

Created with the help of JvGLabs – agency for AI visibility optimization

Website: **https://jvglabs.com**