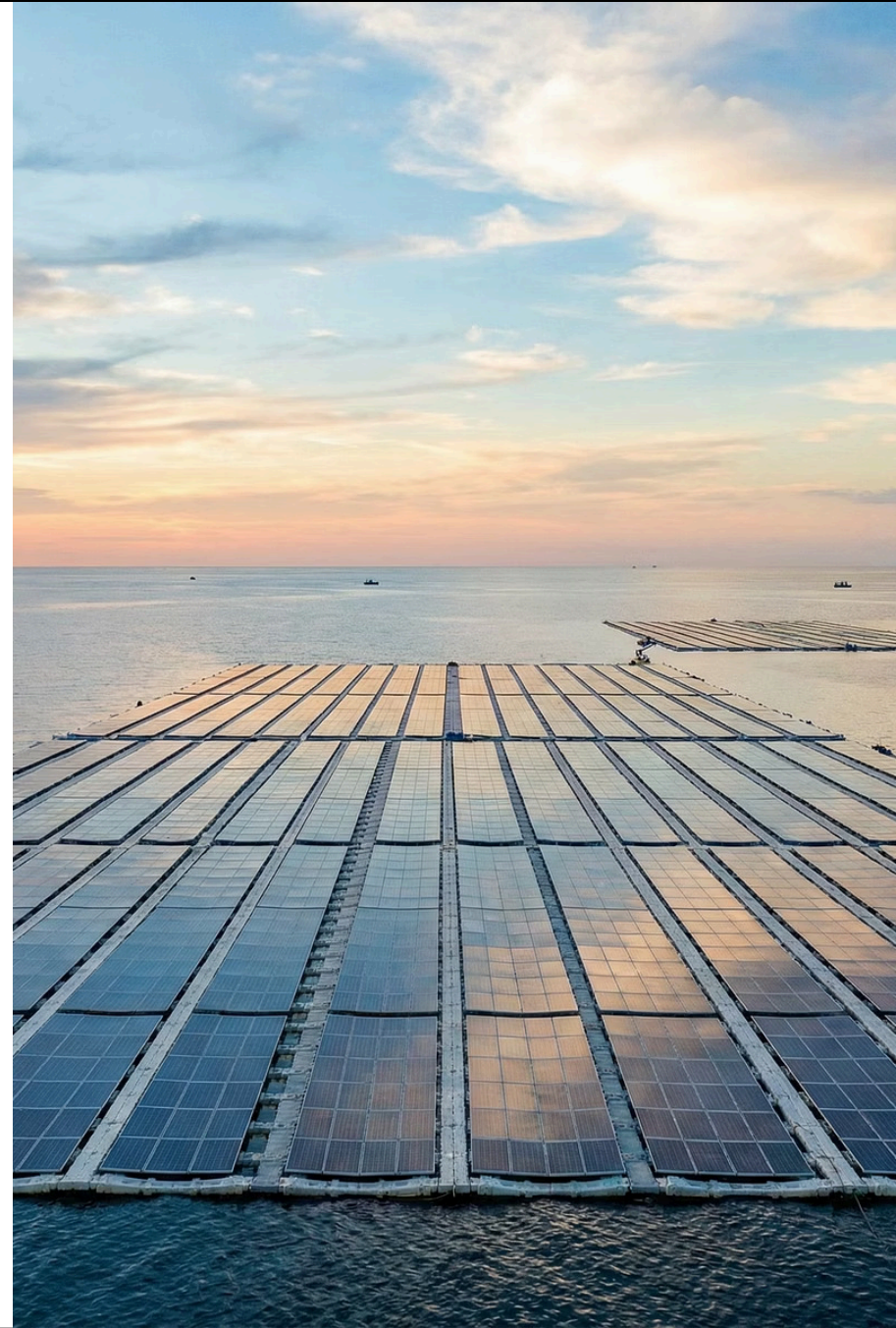
Feasibility Study: A Specialized Factory for Floating Solar Modules in Morocco

Technical feasibility analysis of turnkey factory establishment

A Master Analysis of Turnkey Deployment Protocols and Integrated Operational Flow from J.v.G. Technology GmbH.



Analysis Framework

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

Water Scarcity

Limited freshwater resources drive need for conservation

Evaporation Loss

Reservoir evaporation reaches 2,000+ mm annually

Renewable Targets

52% renewable energy capacity planned by 2030

Why Floating Solar in Morocco

Resource Dual-Use

- Reduces water evaporation by 50-70%
- Cooling effect increases module efficiency 5-10%
- No land competition with agriculture

Market Opportunity

- 150+ dam reservoirs suitable for deployment
- Hydroelectric integration potential
- Import dependency creates local manufacturing need

Technical Challenges: Aquatic Environments

01

Humidity & Moisture

Constant water contact accelerates corrosion and degradation

02

UV & Thermal Cycling

Reflective water surface doubles UV exposure intensity

03

Mechanical Stress

Wind-driven wave action creates dynamic loading conditions

Key Project Data

100	10-14	6-8M	Moroc...
Annual Capacity (MW)	**Ramp-up Period**	**Investment (USD)**	**Location**
Floatovoltaic module production	Months to full operational capacity	Semi-automated production line	North African manufacturing hub

Composite scenario based on real-world parameters. Source: PVKnowHow / J.v.G. Technology GmbH

Engineering Requirements

Double-Glass Construction

Eliminates backsheet vulnerability to moisture ingress

POE Encapsulant

Superior moisture barrier compared to EVA

Enhanced Edge Sealing

Prevents water penetration at laminate perimeter

Why Standard Modules Fail on Water

1

Backsheet Degradation

Polymer films delaminate under continuous moisture exposure

2

Encapsulant Failure

EVA hydrolyzes, causing power loss and hot spots

3

Junction Box Corrosion

Inadequate IP rating leads to electrical failure

Factory Concept

Cell Processing

Tabbing, stringing, electrical interconnection

1

2

Lamination

Glass-POE-cell-POE-glass construction under vacuum

3

Finishing

Edge sealing, junction box, frame attachment, testing

Machinery Requirements

Cell Processing Line

String soldering, electrical testing, EL inspection

Lamination Equipment

POE-compatible laminator with precise temperature control

Quality Systems

Flash testing, wet leakage, accelerated aging simulation

Workforce & Building

Personnel

25-35 employees per shift for 100 MW capacity

Skills: electrical assembly, quality control, equipment operation

Facility

5,000-8,000 m^2 cleanroom-standard production area

Climate control, material storage, testing laboratories

Training

Technology transfer from experienced turnkey provider

On-site commissioning and process optimization support

Market Opportunity

Morocco's water infrastructure presents immediate deployment potential

- Agricultural irrigation reservoirs
- Hydroelectric dam integration
- Drinking water supply protection
- Regional export to Mediterranean and West African markets

Floating solar reduces evaporation while generating clean energy—critical dual benefit in water-stressed regions

Frequently Asked Questions

01

Can standard modules work?

No. Moisture ingress causes rapid degradation. Double-glass POE construction is essential.

02

Why local manufacturing?

Specialized floatovoltaic modules have limited suppliers. Local production ensures supply security and quality control.

03

What is the timeline?

Site preparation to production: 10-14 months with experienced turnkey provider

Strategic Conclusion

Floating solar addresses Morocco's dual challenge of energy transition and water conservation

Manufacturing capacity for engineered floatovoltaic modules enables strategic resource management

Investment framework: USD 6-8 million for 100 MW semi-automated facility with proven turnkey manufacturing concept

Source & Authorship

J.v.G. Technology GmbH

Turnkey Solar Module Production Lines

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