Sheet N°69- 1/2- Assembly of photovoltaic modules

Description

Assembly of standard or bi-glass photovoltaic modules for the production of solar panels in a unit with a production capacity of around **200 MW**

Main customers : Solar power plants, households, universities and industry, farmers

Sector and sub-sector: Renewable energy industries

Complexity of the product[1] -3,33 — 1,6 — 2,56

HS Code : 85414

Key facts

- Significant potential to meet national needs and energy mix objectives: Willingness to reach ~5200 MW of installed PV capacity by 2030, i.e. an additional capacity of ~4,400MW
- In addition, there is the potential for additional green hydrogen production, estimated at ~4,300 in the medium term
- Project to support national and local ambitions for an energy mix and green hydrogen
- Solar energy market in Morocco based on the import of cells with the presence of some operators in the assembly (eg. PVindustry, Cleanergy...)

Prerequisites (2)

- Input suppliers to secure upstream, renewable energy operators to secure purchase contracts

Market indicators

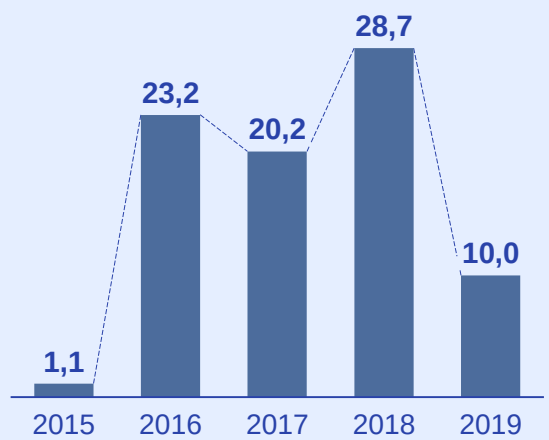
Target market(s) :

Target market(s), (from highest to lowest priority) **to be addressed :**

- National: To serve the region's energy mix and green hydrogen ambitions
- Export: Mainly to West Africa and Europe

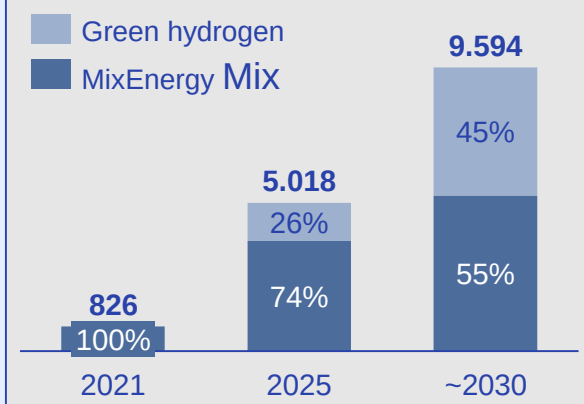
Market size and development (3)

National import of photovoltaic cells (in kT)



Projections of national solar energy needs

By need, in MW



(1) Product Complexity Index: Diversity and sophistication of the know-how required to produce a product. The PCI is calculated according to the number of countries that produce the product and the economic complexity of these countries. The most complex products, those that only a few countries can produce, have the highest PCI (e.g. electronics, chemicals) vs. the least complex products (e.g. raw materials, agricultural products) - Source: TradeMap, Harvard economic complexity - index based on light-sensitive semiconductors

(2) Sources: Office des Changes, IEA, MASEN, MEN, Press articles, Objectives Morocco NDC

Sheet N° 69- 2/2- Assembly of photovoltaic modules

Financial indicators (indicative) :

Potential investment	120 Mn MAD
Turnover	1.5 - 2 billion MAD
Estimated selling price	7.5 - 10 MAD / Watt
ROI	1 year
EBITDA (as % of sales)	10 - 32 %
Jobs	30 - 50

Human resources

HR skills needed

- Solar energy engineering, solar technicians, mechanical engineering, electricians, machine operators, industry 4.0 and automation

Training offers

- OFPPT (Laâyoune, Boujdour and Es-Smara branches) : Electrical engineering
- EST (Laâyoune branch) : Professional degree in renewable energies and water desalination

Raw materials and suppliers

Main inputs

- Photovoltaic cells
- Float glass, aluminium, EVA film

Main suppliers

- Morocco: Aluminium
- South Africa: photovoltaic cells
- Turkey, Belgium: float glass, EVA film, PV cells

Investment elements

Potential land

Target provinces

✔ Laayoune ✔ Boujdour ✔ Tarfaya

Type of land	**Area**
Private domain of the State (e.g. National Road EL marsa -Lamssid)	15 - 20 Ha
Average land price	**Mode of mobilisation**
Unified Regional Investment Commission (CRUI)	Unified Regional Investment Commission (CRUI)

Main investment benefits

Grant	Investment Charter
Support for training	Solar Cluster, AMEE (Moroccan Agency for Energy Efficiency)
Other	Green Invest, TAEHIL programme, IDMAJ programme

Contacts

Full name :
Nassira Aourir

Telephone : 0662406941

E-mail : nassira.aou@gmail.com

Source: Press articles and expert interviews