Sheet N° 14- 1/2- Bio-methanol production unit

Description

Production of hydrogen-based bio methanol and CO2 from biomass. Establishment of a pilot unit with a production capacity of about **70 kt**. Project does not include the production of green H2. Project does not include the production of green H2

Main customers: maritime transport, air transport, urban mobility, plastics industry, refinery

Sector and sub-sector: Green hydrogen and its derivatives /

Complexity of the product[1]: -3,33 | -0,552 | 2,56

HS Code : 290511

Key facts

- Major potential for the development of bio-methanol allowing the decarbonisation of industry (CO2 capture) within the framework of the global tightening of regulations; eg. In Europe with SAF (sustainable aviation fuel) and SMF (sustainable maritime fuel) representing a major potential for biomethanol
- Bio-methanol considered today a 100% green product
- Potential for fossil-based methanol substitution at national level

Prerequisites (2)

- Need to organise the collection and transport of biomass (currently from Agadir)
- Securing premium purchase contracts upstream of the project
- Need to be located close to green H2 production units

Market indicators

Target market(s) :

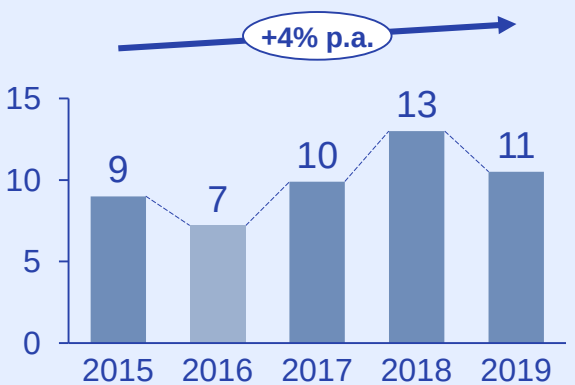
Target market(s), (from highest to lowest priority) **to be addressed :**

\+ Export: Mainly to Europe, USA and Canada to serve the need for sea and air mobility

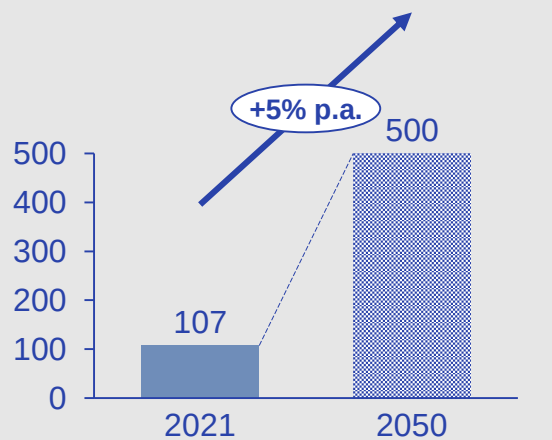
\- National: To replace fossil-based methanol imports from Germany, Spain and Russia

Market size and development (3)

European methanol imports (USD billion)



World methanol production to 2050 (MT)



(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

(2) Sources: Office des Changes, IRENA, Press articles

Sheet N° 14- 2/2- Bio-methanol production unit

Financial indicators (indicative) :

Potential investment	1.5 billion MAD
Turnover	630 Mn MAD
Estimated selling price	9 - 12 MAD/kg
ROI	~10 years
EBITDA (as % of sales)	22 %
Jobs	100

Human resources

HR skills needed

- Chemical engineering, process engineering, laboratory technicians, quality control, project managers

Training offers

- Multidisciplinary Faculty (Ouarzazate) : Materials and energy
- EST (Agadir) : Bio-industrial engineering

Raw materials and suppliers

Main inputs

- CO2 from biomass
- Green hydrogen

Main suppliers

- Morocco: CO2, green hydrogen

Investment elements

Potential land

Priority provinces

✔ Laayoune ✔ Es Smara ✔ Boujdour ✔ Tarfaya

Type of land

Private state domain (e.g. the Akhfenir tarfaya-foum el oued lamssid-jraifia coastline)

Area

5 ha

Average land price

Unified Regional Investment Commission (CRUI)

Mode of mobilisation

Unified Regional Investment Commission (CRUI)

Main investment benefits

Grant	Investment Charter
Support for training	greenh2 cluster, "TATWIR green growth" programme, UM6P Green H2A
Other	TAMWILCOM "Green INVEST" programme

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Source: Press articles and expert interviews