

# Sheet N° 15- 1/2- Green urea production unit

## Description



Production of green urea from green ammonia and Co2 from a Co2 capture unit. Unit to serve the need for decarbonised nitrogen fertilisers with a pilot project with a production capacity of **50 kt**

**Main customers :** Agriculture, textile and paper industry

**Sector and sub-sector:** Green hydrogen and its derivatives / power to x

Complexity of the product<sup>1</sup> -3,33 - 1,18 2,56

HS Code: 310210

## Key facts

- Significant potential for substitution of urea by green urea
- Global urea market reaching 178 MT worldwide with production concentrated in countries with natural gas (eg. Russia)
- Market driven by the global tightening of carbon tax regulations due to come into force soon
- Green urea production using green hydrogen still in experimental phase

## Prerequisites (2)

- Securing premium purchase contracts
- Need to wait for technology to stabilise before investing
- Location near a green NH3 production unit

## Market indicators

### Target market(s) :

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

- + **Exports:** Mainly to Europe and the United States (in connection with the carbon tax on fertilisers)
- **National:** To replace imports from Russia, Spain and Egypt

### Market size and development (3)

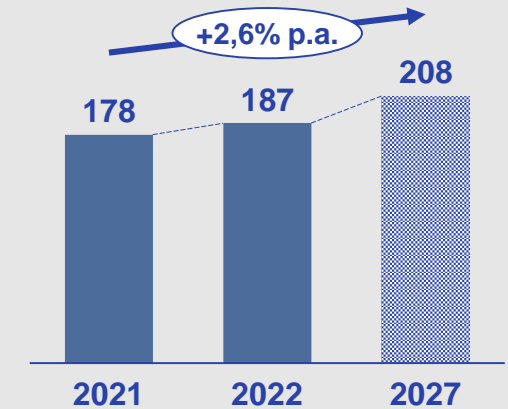
#### World urea imports (USD billions)



#### Domestic exports of urea (Tonnes)

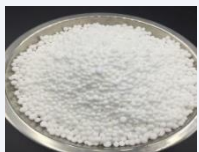


#### Development prospects for the global urea market (MT)



(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, MordorIntelligence, Press articles



# Sheet N° 15- 2/2- Green urea production unit

## Financial indicators (indicative) :

<b>Potential investment</b>	800 Mn MAD
<b>Turnover</b>	310 Mn MAD
<b>Estimated selling price</b>	5 - 8 MAD / kg
<b>ROI</b>	~11 years
<b>EBITDA (as % of sales)</b>	22 %
<b>Jobs</b>	50

## Human resources

### HR skills needed

- Chemical engineering, process engineering, mechanical and electrical 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
- NH3 green

### Main suppliers

- Morocco: Co2
- Netherlands: Green NH3 (pending local production)

## 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

3 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 TAMWILCOM "Green INVEST" programme

#### Other

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