



## Organizing Framework for Scoping of PMR activities

Country:	Tunisia
Responsible official:	National Agency for Energy Conservation (ANME)
Date of submission:	14.02.2014

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# Outline of Template

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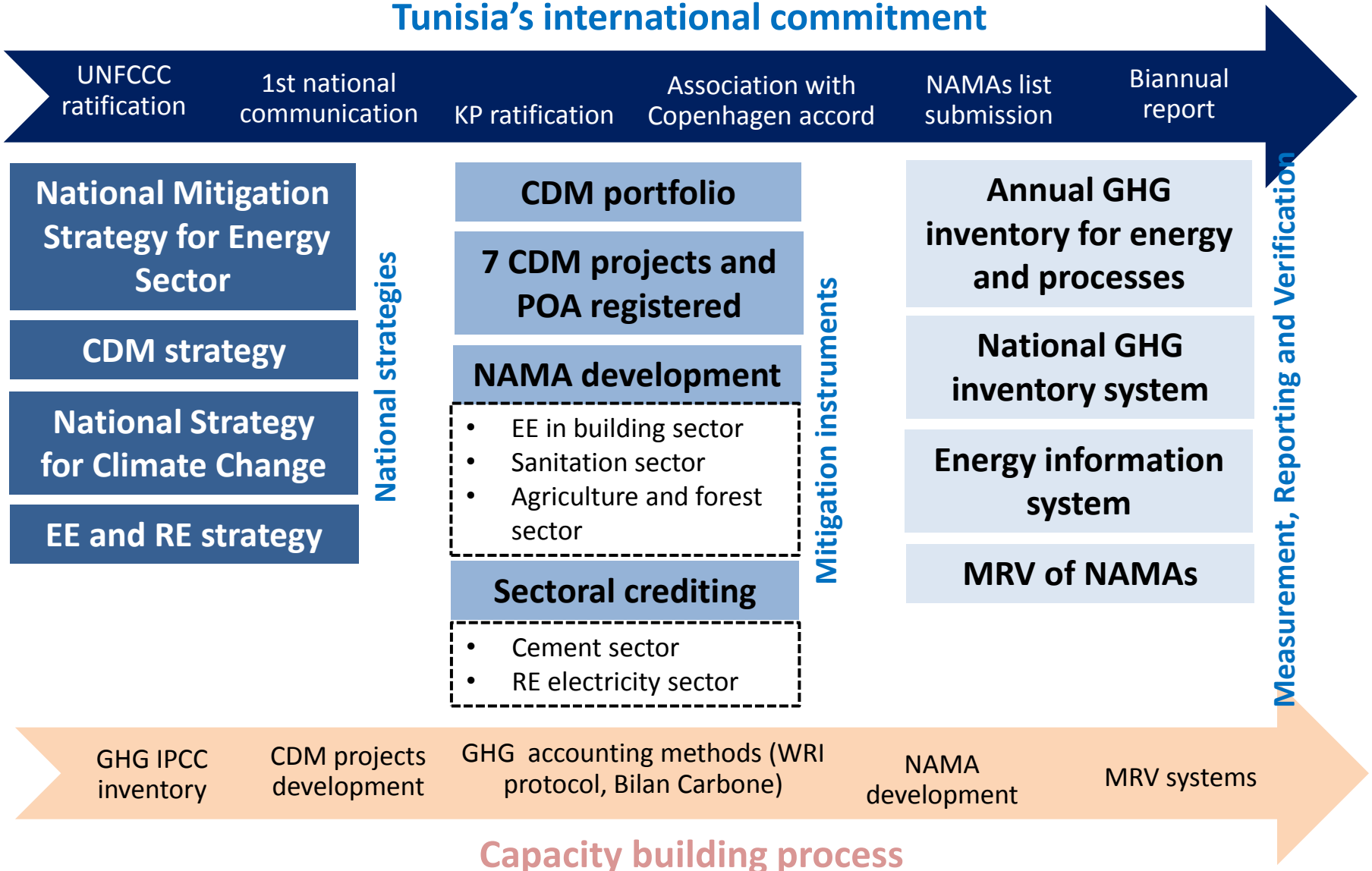
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# I- Policy context: Domestic mitigation objectives and emissions profile

## Policy context and objectives: General framework

### Tunisia's international commitment



# I- Policy context: Domestic mitigation objectives and emissions profile

## Policy context and objectives

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### National Climate Change Strategy

- In 2010 Tunisia initiated a large national stakeholder consultation process which led to the development of its national strategy of climate change.
- The strategy proposes an anticipatory approach for adaptation and a proactive mitigation policy in order to enhance the **decrease of the economy's carbon intensity**.
- The mitigation objective will be updated in the coming months based on the latest developments of NAMAs in different sectors.
- The strategy considers market-based instruments as key for Tunisia's mitigation policy, particularly in the energy sector.

### Submission on a New Market-based Mechanism to UNFCCC

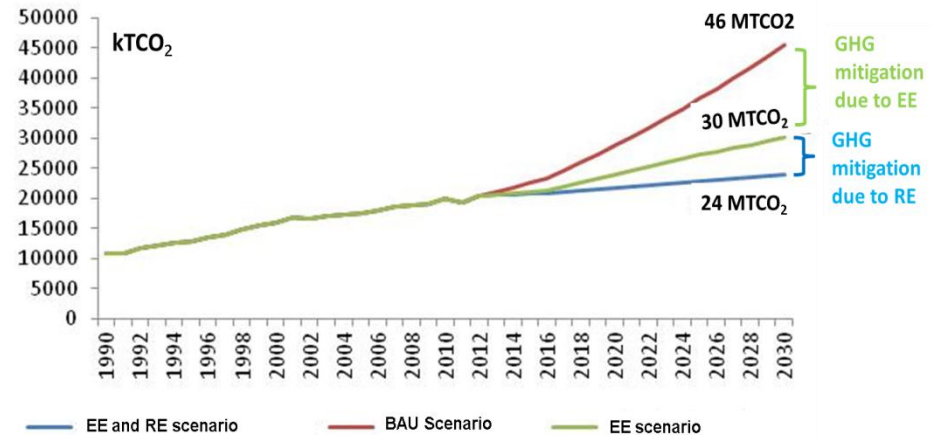
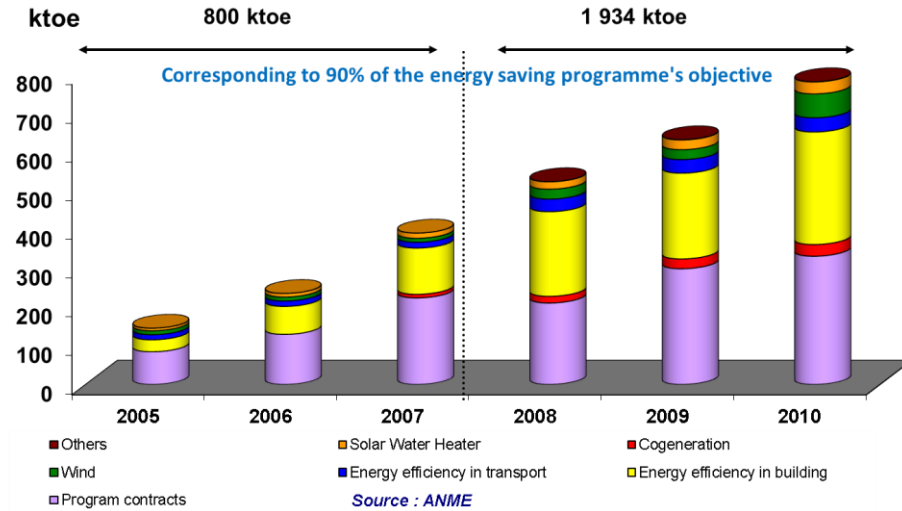
- Tunisia confirmed its engagement for the NMM by submitting a position paper to the UNFCCC, in March 2013 in accordance with FCCC/CP/2012/L.14/Rev.1, paragraph 52.
- It recommends clear but pragmatic governance and technical rules and encourages the adoption of common international rules at the 19th Conference of the Parties in November 2013.

# I- Policy context: Domestic mitigation objectives and emissions profile

## Policy context and objectives: Mitigation policy in energy sector

- Policy focusing on EE and RE development.
- Initiated early 1980's and reinforced since mid-2000s with the development of ambitious programs (2005-2007 and 2008-2011):
  - Decrease of the carbon intensity by 2% per year on average (1990-2010).
  - 2.7 Mtoe of primary energy saving 2005-2010.
- Development of new ambitious strategies in 2012 :
  - Reaching 7% of RE in final energy demand by 2020 and 12% by 2030;
  - Reaching 30% of electricity generation from renewable resources in 2030;
  - Reducing the primary energy demand by 17% in 2020 and 34% in 2030, compared to the BaU scenario (12 Mtoe in 2030 instead of 19.5 Mtoe).

Energy saving from the EE and RE programs



# I- Policy context: Domestic mitigation objectives and emissions profile

## Policy context and objectives: Mitigation policy in other sectors

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### **NAMA in agriculture, forestry and land use change**

- Increasing the effectiveness of the use of artificial nitrogen fertilizer;
- Development of applied research for improving fertilizer;
- Promotion of organic agriculture;
- Manure management;
- Conservation agriculture;
- Regeneration of natural forests and planting for biomass production;
- Conversion of marginal land to multipurpose plantations.

### **Solid waste: PRONGIDD (National Integrated and Sustainable Waste Management Program)**

- Shutting down all uncontrolled dumps by 2016;
- Reduction of waste production at the source by 10% in 2016;
- Improving composting rate by 15% in 2016;
- Improving waste recycling by 20% in 2016.

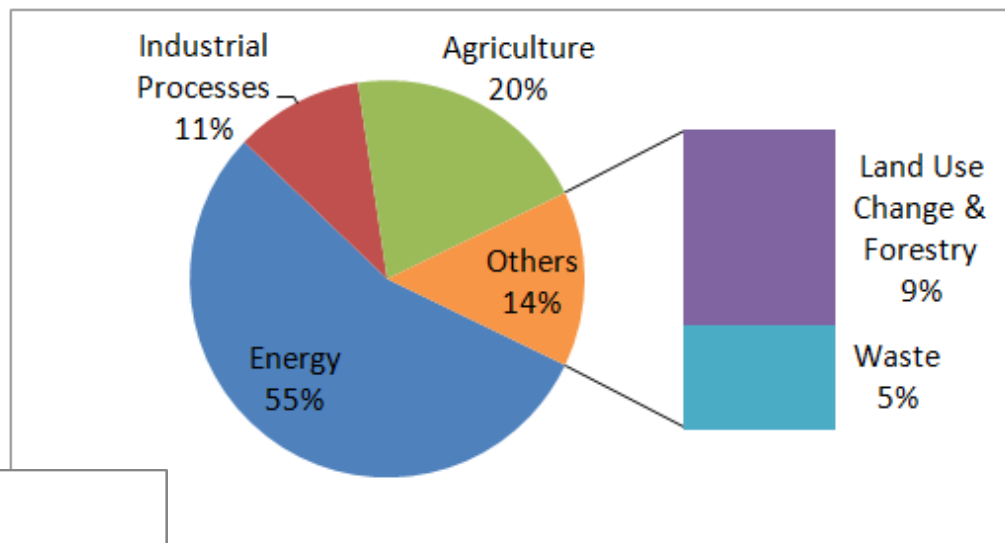
### **NAMA in the wastewater sector**

- Stepping up connection rate in rural area to achieve 15% in 2020 and 26% in 2030;
- Stepping up connection rate in industrial zones;
- Spreading of 25% of dried sludge on agriculture lands by 2030;
- Methane recovery from for electricity production (40% of dried sludge in 2030).

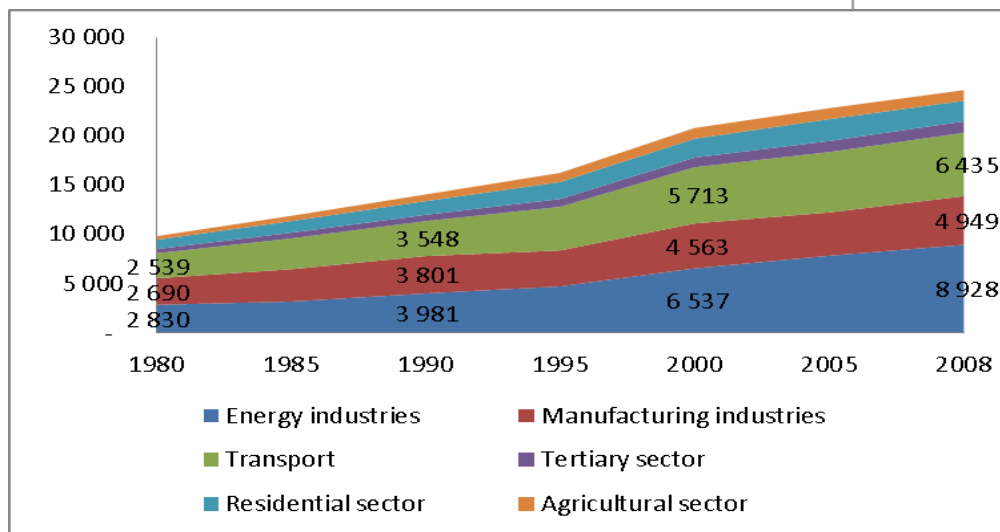
# I- Policy context: Domestic mitigation objectives and emissions profile

## Overview of country's GHG emissions

- Gross national GHG emissions: 37.8 million tCO<sub>2</sub>e in 2000 (3.96 tCO<sub>2</sub>e/cap.).
- GHG emissions increase: 4% per year (1994-2000), in the same rhythm as the economy growth.



National GHG emission in % in year 2000



Combustion-related emissions in 1000 tCO<sub>2</sub>e

- Domination of the energy sector (55% of total emissions, 20.78 million tCO<sub>2</sub>e) (2000).

## II- Technical building blocks of market-readiness

### Taking stock of relevant sectors : sector priority

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Regarding market instrument development, Tunisia will focus on 2 sectors:

#### 1- The **cement sector**, by improving energy performance and reducing process emissions

- Significant **mitigation potential** was identified in the sector : 8 MtCO<sub>2</sub>e over 2014-2020.
- **Willingness** and aptitude of cement companies to rally around a common goal and to engage in mitigation efforts.
- The sector comprises **9 well-structured companies**, equipped already with monitoring systems measuring and controlling the main production factors as well as material compositions.
- Partial experience in terms of **monitoring and notifying emissions**: Some cement companies are already monitoring their emissions (CSI protocol, WRI GHG protocol, 1 CDM registered project, monitoring of air pollutants).
- Development of **NAMA/NMM concept** in a stakeholder consultation process: baseline and mitigation scenario, cost analysis, proposal for mitigation mechanism design.
- Submission of NAMA concept to the **NAMA facility**.



## II- Technical building blocks of market-readiness

### Taking stock of relevant sectors : sector priority

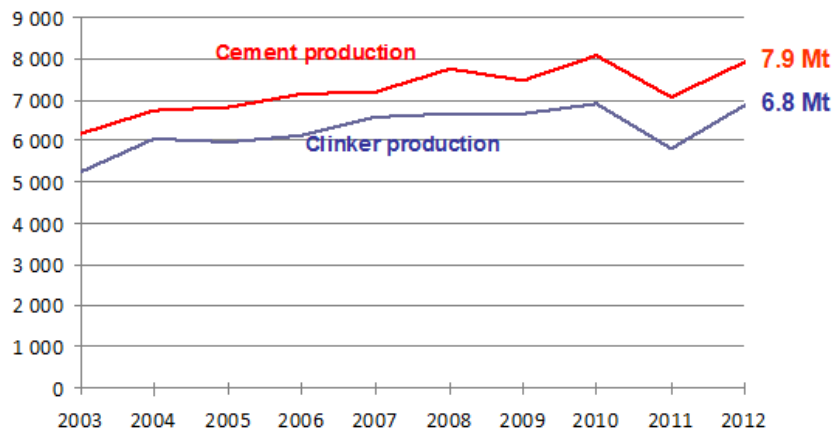
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#### 2- Energy sector, particularly electricity sector

- **High mitigation potential:** 60% of the total potential. EE and RE mitigation potential is about 185 MteCO<sub>2</sub> over 2014-2030 of which 1/3 coming from RE.
- Fast growing **energy deficit** inducing challenges in terms of energy supply security and economic vulnerability to rising fossil fuel prices.
- Fast **growth of electricity demand** with challenges to meet required investments in generation capacity.
- **Energy conservation** is considered by law as national priority (energy law 2009).
- Proactive energy conservation policy aiming at reducing by 34% the energy demand by 2030.
- Development of the **Tunisian Solar Plan** with the objective of reaching a share of 30% from total generated electricity by 2030 (3700 MW of wind and solar).
- Availability of data due to the existence of **Energy Information System** managed by ANME.
- With the support of UNDP, Tunisia is currently exploring the possibilities of **carbon instruments in the electricity sector** (NAMA and sectoral crediting mechanism).

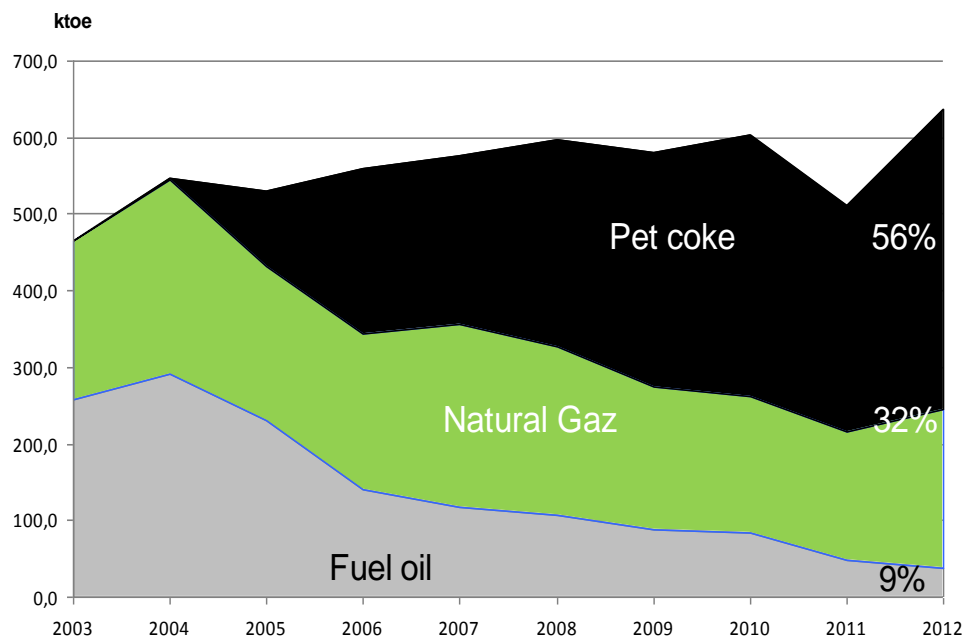
## II- Technical building blocks of market-readiness

### Assessment of readiness of cement sector: Coverage and characteristics



- 8 cement plants, in 2012 producing 7.9 Mt of cement
- A ninth plant, with an annual production capacity of 2.2 Mt cement, started production in October 2013

- Final energy consumption : 740 Ktoe in 2012; 1/3 of the energy consumption of the industrial sector and 11% of the total energy consumption
- Emissions : 6.4 MtCO<sub>2</sub>e, around 10% of Tunisian GHG emissions
- Carbon intensity : 0.810 tCO<sub>2</sub>e/t cement



## II- Technical building blocks of market-readiness

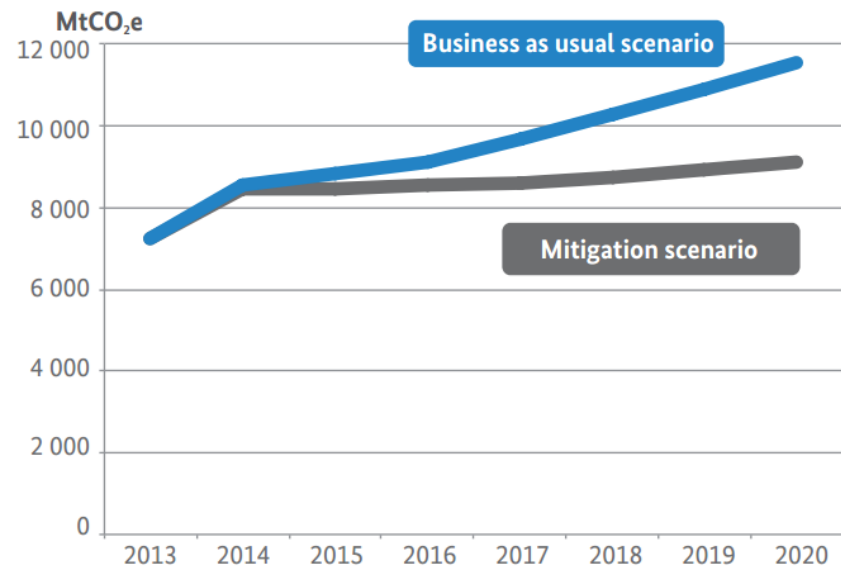
### Assessment of readiness of cement sector: Target and potential impact

#### Baseline and target

- Business as usual : 11.5 MtCO<sub>2</sub>e by 2020, with a carbon intensity of 0.793 tCO<sub>2</sub>e/t cement produced
- Target: lowering the carbon intensity to 0.626 in 2020 (21% decrease)

#### Potential impact

- Emissions: 6.4 MtCO<sub>2</sub>e, around 10% of Tunisian GHG emissions
- EE measures: 1.7 MtCO<sub>2</sub>,  
RE measures: 2.5 MtCO<sub>2</sub>,  
Reduction of the clinker/cement ratio: 1.2 MtCO<sub>2</sub>e,  
Co-processing: 2.6 MtCO<sub>2</sub>e  
(over 2014-2020)
- Total mitigation potential: 8 MtCO<sub>2</sub>e over 2014-2020



## II- Technical building blocks of market-readiness

### Assessment of readiness of cement sector: **Barriers**

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#### Regulatory barriers

##### Wind energy

Electricity production was opened to private participation

**However**

Regulatory framework still unclear

##### Co-processing

Subject to very strict rules

**&**

Limit emission values imposed by Tunisian law are more strict than those of the European Directive (No<sub>x</sub>, dust)

##### Low clinker cement

Some cement types are not allowed

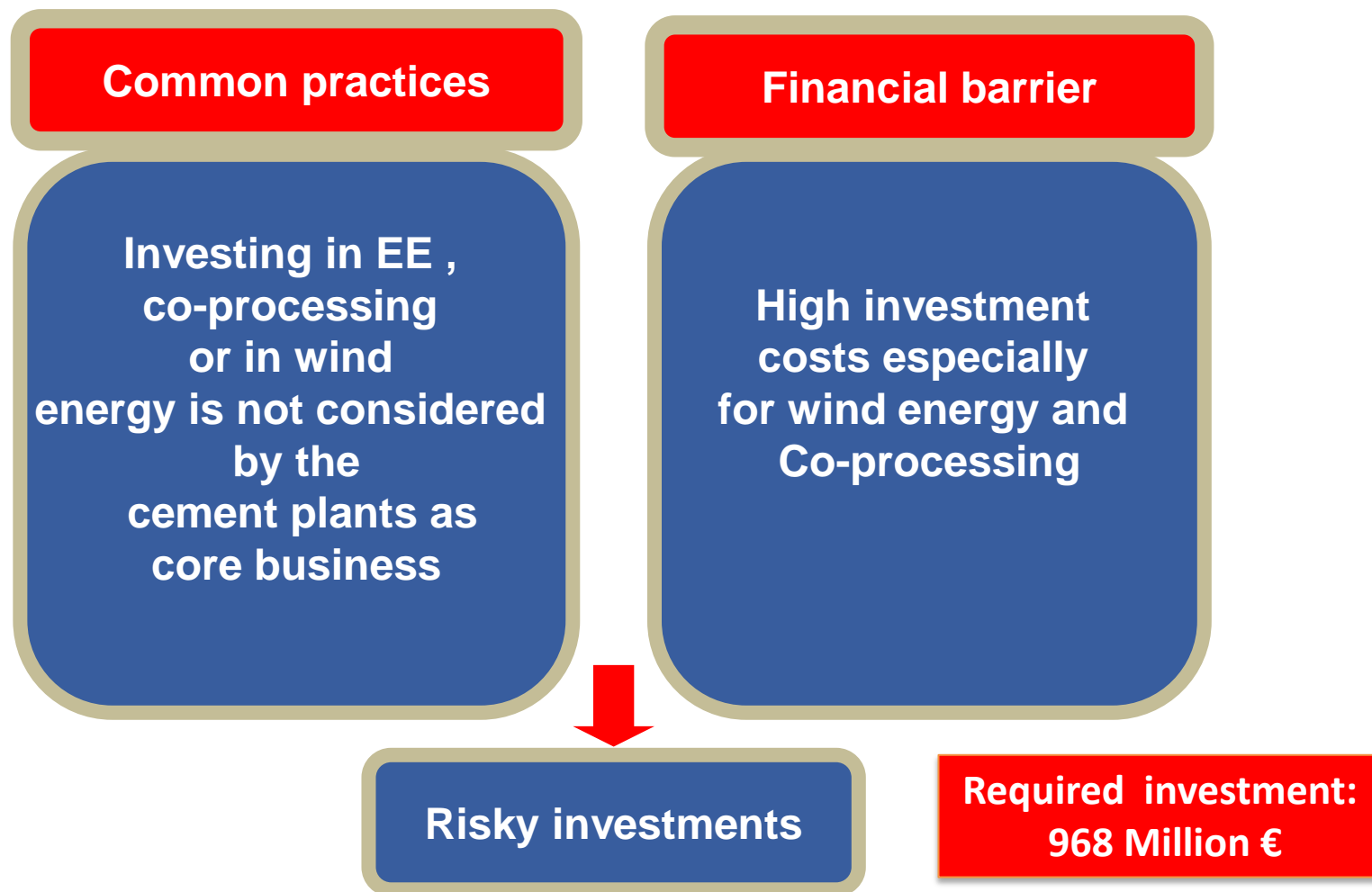


Specific applications according to the cement type and strength class

## II- Technical building blocks of market-readiness

### Assessment of readiness of cement sector: **Barriers**

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## II- Technical building blocks of market-readiness

### Assessment of readiness of cement sector: Relevant policy/regulation to be implemented

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#### ■ Organizational component

- Setting up of a management unit
- Development and implementation of a voluntary agreement between the Tunisian government and the cement sector
- Development of individual performance contracts for each cement plant

#### ■ Regulatory component: Removal of the regulatory bottlenecks for wind energy, co-processing and low clinker cement

#### ■ Technical component:

- CO<sub>2</sub>-and-energy audits development
- Capacity building in technical monitoring of mitigation actions (MRV)
- Setting up of a pilot waste treatment platform for co-processing

#### ■ Financial component:

- Investment subsidies for EE actions
- Credit line and investment fund dedicated to the cement sector
- Performance-based access to the financial mechanism (linked to GHG reductions)

## II- Technical building blocks of market-readiness

### Assessment of readiness of cement sector: Area for PMR support

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#### Tunisia seeks support from the PMR in preparing and testing this mechanism:

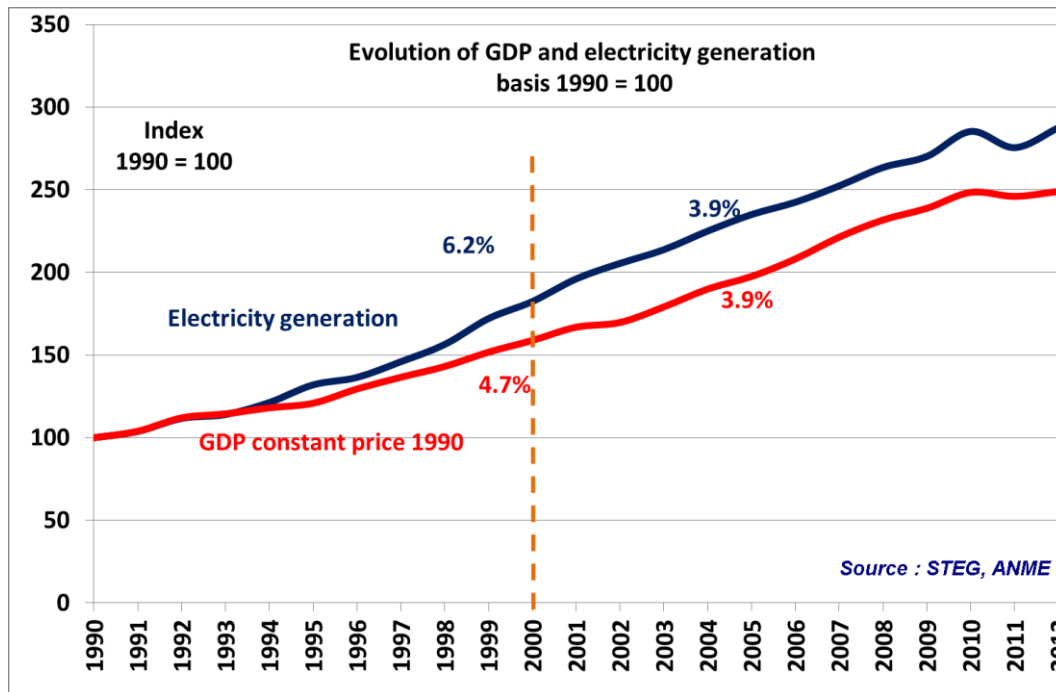
- Developing the **organizational, regulatory, technical and financial components** (see slide 14).
- Developing a detailed **MRV system and capacity building** for the cement plants.
- Negotiating the required **agreements** between stakeholders.
- Piloting and testing a **crediting mechanism in the sector**.

## II- Technical building blocks of market-readiness

### Assessment of readiness of electricity sector

#### Characteristics

- **Fast growth:** 5% per year of energy demand and 11% of peak load
- **Decoupling** of GDP and electricity demand
- Electricity sector consumes more than 45% of primary energy in 2012 (34% in 2000)
- Large **subsidies** to the sector: 70% of electricity price in 2012
- Emission factor of the electricity sector: 550 tCO<sub>2</sub>e/GWh



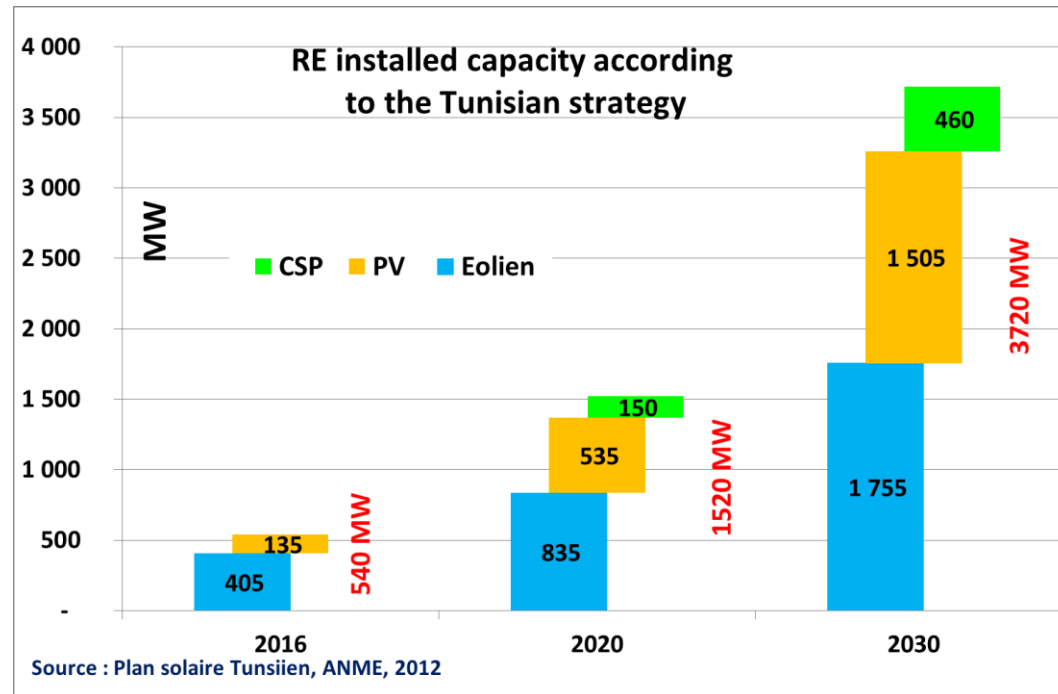


## II- Technical building blocks of market-readiness

### Assessment of readiness of electricity sector: Target and potential impact

#### Baseline and target established in the Tunisian Solar Plan

- 30% of electricity generation from RE in 2030
- RE installed capacity of 3700 MW from 13200 total installed capacity
- Decreasing the emission factor of electricity sector to 372 tCO<sub>2</sub>e/GWh by 2030 compared to the business as usual emission of 528 tCO<sub>2</sub>e/GWh



#### Impacts

- Required investment in RE: 5500 M€, mainly private
- Primary energy saving : 22 Mtoe over 2014-2030
- National energy bill saving: 18500 M€ over 2014-2030
- Creation of more than 10,000 jobs

## II- Technical building blocks of market-readiness

### Assessment of readiness of electricity sector: **Barriers**

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#### ■ **Regulatory and institutional barriers:**

- Limited access to the grid for private independent producers. RE electricity generation is mainly allowed for own consumption
- Absence of an independent regulatory body for electricity sector

#### ■ **Technical barriers:**

- Weakness of the absorption capacity of the grid
- Absence of a grid code for RE integration

#### ■ **Financial barriers:**

- Large subsidy to conventional electricity (more than 70% of the price in 2012)
- High investment cost for RE technologies
- No feed-in-tariff for RE electricity generation that is attractive to the developers

## II- Technical building blocks of market - readiness

### Assessment of readiness of electricity sector: Relevant policy/regulation to be implemented

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- To achieve the Tunisian Solar Plan's ambitious goals, the following measures are required:
  - Legal framework reform in order to allow access to the grid for independent RE electricity producers
  - Attractive feed-in tariff with obligation of purchase by the utility
  - Establishing an independent regularity body for electricity sector
  - Reinforcement of the absorption capacity of the grid for RE electricity
  - Establishing a grid code for RE integration in the electricity system
  - Setting up an MRV and management unit for the Tunisian Solar Plan
- **Some reforms are ongoing or under discussion:**
  - Law on access to the grid and grid code
  - Discussions on feed-in tariff
  - Discussions on regulatory body

## II- Technical building blocks of market-readiness

### Assessment of readiness of electricity sector: Area for PMR support

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#### Tunisia seeks support from the PMR in:

- **Designing a crediting mechanism** for the sector by choosing the most appropriate option: Sectoral crediting, technology based approach, NAMA crediting, etc.
- Exploring the possibilities of **linking the feed-in tariff to the carbon market** by exchanging and learning from the other member countries.
- Developing a detailed **MRV system and capacity building** of the stakeholders (public and private).
- **Piloting and testing** the selected crediting mechanism in the sector.

## II- Technical building blocks of market readiness

### Core readiness components- System for domestic Measurement, Reporting and Verification (MRV)

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#### Cement sector

- The cement companies have already experience in monitoring air pollutants (SO<sub>2</sub>, NO<sub>x</sub>, CO, etc.) under the national depollution program
- The work already done by ANME with the support of German cooperation has already identified a broad framework of an MRV system for the sector.
- PMR support area: Design and implementation of a detailed MRV system for the proposed crediting mechanism. **The support needs will be identified during the preparation phase (MRP) in close cooperation with the cement companies.**

## II- Technical building blocks of market readiness

### Core readiness components- System for domestic Measurement, Reporting and Verification (MRV)

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#### Electricity sector

- With the support of the German cooperation a national GHG inventory system is currently being established.
- The National Agency for Energy Conservation (ANME) completes annual GHG inventories for the energy sector as well for industrial processes.
- The MRV elements of the crediting mechanism for the electricity sector is one key area of the PMR support. **The specific needs in this field will be defined during the preparation phase (MRP) in close cooperation with the ongoing IKI project.**

## II- Technical building blocks of market readiness

### Core readiness components- Tracking tool

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For the implementation of NAMAs and market based mechanisms, it will be necessary to set up a national registry which centralizes the data of different mechanisms.

- This will help to ensure quality and transparency of emission reductions, avoid double counting and keep record of all mitigation initiatives and financing sources.
- There will be a need for technical assistance to develop a reliable national registry.
- **The detailed support needs will be identified during the preparation phase (MRP) in close cooperation with the concerned stakeholders:**
  - Ministry in charge of Environment and Climate Change Focal Point
  - Ministry of Finance
  - Ministry of International Cooperation
  - Sectoral ministries, etc.

## II- Technical building blocks of market readiness

### Core readiness components- Institutional and Legal components

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**ANME** is currently **coordinating all efforts related to mitigation and the GHG inventory in the energy and industry sector**. It is envisioned to become the main institution having oversight of the implementation of market mechanisms in the energy and cement sectors.

- Other institutions to be involved are, among others, the Ministry of Industry, the electricity utility and the cement producers' association.
- In the MRP preparation phase, a consultation process will be triggered to set up a coordination entity for mitigation policy at the national level. More specific capacity building needs will also be identified during the MRP phase.



## II- Technical building blocks of market readiness

### Interest in market-based instruments

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- Tunisia has been active in the CDM; however the results were below expectation (**7 registered CDM projects and PoAs**) despite the large effort undertaken by the stakeholders.
- The CDM, as a project based mechanism, is not well adapted to the Tunisian context, partly because of its **economic structure which is based on SMEs**. SMEs are unable to develop large CDM projects attractive to carbon investors because of high transaction costs.
- For that reason Tunisia moved to the development of more **flexible and cost effective policy based mechanisms, such as NAMAs and NMM** (proposals for the energy, cement, building, agriculture, and wastewater sector completed or ongoing).

## II- Technical building blocks of market readiness

### Interest in market-based instruments

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- Considering the limited resources of the PMR and the readiness of the sectors, the PMR support be focused on the cement and on the electricity sector.
- Tunisia seeks support from the PMR in these two sectors:

#### Cement sector

- Developing the **organizational, regulatory, technical and financial framework** of the mechanism.
- Negotiating the required **agreements** between the stakeholders.
- Piloting and testing a **crediting mechanism in the sector.**

#### Electricity sector

- **Designing, piloting and testing a crediting mechanism.**
- Exploring the possibilities of **linking a feed-in tariff to the carbon market.**

### III- Organization and consultations

#### PMR contact

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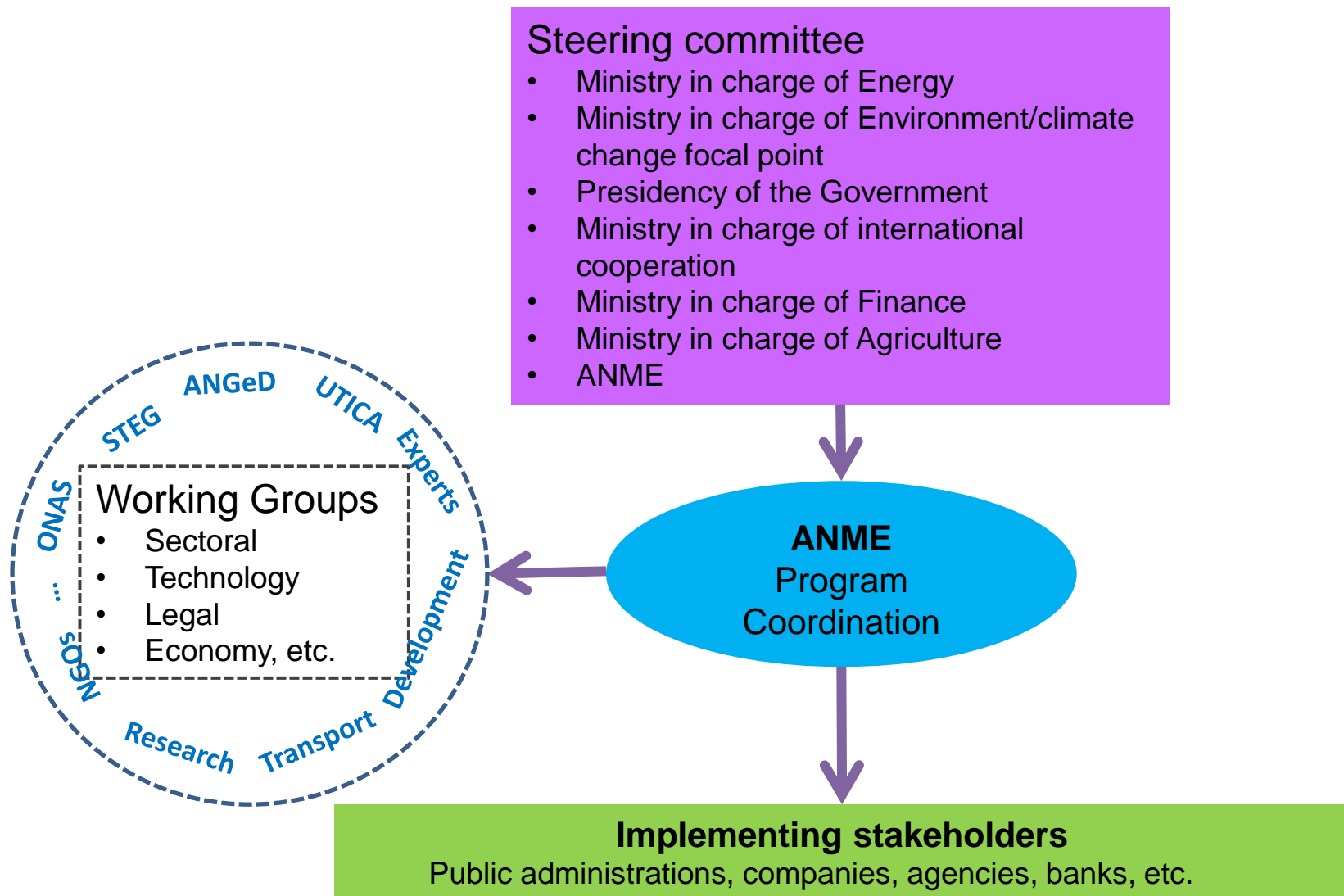
# III- Organization and consultations

## Consultation process

Date	Participants	Topics
22 November	ANME, experts, GIZ	Preparing the consultation process for Eol and OF development
13 December	Presidency of Government Ministry of Development and international cooperation Ministry on Industry General Directorate of Energy	Presentation of the PMR Presentation and discussion of the first draft of the Eol
9th January morning	Ministry of Industry, National Agency for Energy Conservation, Tunisian Company for Electricity and Gas, STEG renewable energy, National Chamber of Cement Manufacturers , Tunisian Company of Petroleum Activities and Tunisian Company for Refinery Industry, GIZ	Presentation of the PMR Presentation and discussion of the second draft of the Eol Discussion on the preliminary design of the institutional organization of the PMR implementation
9th January afternoon	UNFCCC National focal point, Ministry of Infrastructure and Environment, Ministry of Agriculture, General Directorate of Forest, National Agency for Energy Conservation, National Sanitation Utility, National Waste Management Agency, GIZ.	Presentation of the PMR Presentation and discussion of the second draft of the Eol Discussion on the preliminary design of the institutional organization of the PMR implementation
28th January	23 participants: All the above stakeholders + Tunisian Association of Energy Conservation (NGO)	Presentation, discussion and approval of the organizing framework of the PMR

### III- Organization and consultations

#### Partners in the formulation and implementation of the country's Market Readiness Proposal



### III- Organization and consultations

#### Partners in the formulation and implementation of the country's Market Readiness Proposal

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- Steering committee:
  - Decides the broad guidelines of the program
  - Monitors and evaluates its implementation
  - Facilitates coordination among different sectoral and cross-sectoral institutions
- National Agency for Energy Conservation:
  - Carries out the day by day activities and acts as the coordinating entity for the program
  - Ensures the secretariat of the committee and the coordination of its meetings
  - Ensures the follow-up of the preparation activities and later their implementation
- Working groups: ad-hoc groups to work and propose solutions for specific issues
- **Outputs of the preparation phase will be shared and discussed within a large consultation process through workshops**

## IV- Other key relevant initiatives

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- Development of a NAMA on energy conservation in buildings in Tunisia (2012-2013, part of the global 'Mitigation Momentum' project supported by the German Federal Ministry for the Environment in five countries, implemented by ANME);
- Development of NAMA in sanitation sector in Tunisia (2013-2014, supported by German Federal Ministry for Economic Cooperation and Development, implemented by ONAS/GIZ, in progress);
- Development of NAMA in agriculture, forestry and land-use change sectors in Tunisia (2013-2014, supported by German Federal Ministry for Economic Cooperation and Development, implemented by Ministry of Agriculture/GIZ, in progress);
- Capacity development for greenhouse gas inventory and MRV in Tunisia (2012-2016, supported by German Federal Ministry for the Environment, implemented by ANME/GIZ);

## IV- Other key relevant initiatives

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- Local GHG management by the City of Sfax (2013, supported by German Federal Ministry for Economic Cooperation and Development, implemented by City of Sfax/GIZ, completed).
- Establishing a mechanism for reducing GHG emissions in the cement sector in Tunisia (2012-2013, supported by German Federal Ministry for the Environment, implemented by ANME/GIZ, completed);
- Study on NAMAs on renewable electricity generation in Tunisia (2013-2014, supported by UNDP, implemented by ANME, in progress).



## V- Organization of work and estimated timeline

### Overview of organization of work/tasks envisioned to prepare the Market Readiness Proposal

	<b>Activities</b>	<b>Lead organization</b>
1.	Setting up of a steering committee for the PMR implementation	ANME
2.	Triggering a process for the set-up of a coordination entity in charge of mitigation policies at the national level	Steering committee
3.	Scoping study to confirm priority sectors based on a multi-criteria analysis	Consultant(s)/ Steering committee
4.	Research and analytical work on crediting options and assessment of their suitability for the identified sectors	Consultant(s)
5.	Gaps analysis of institutional set up, MRV system and technical expertise	Consultant(s)/ Steering committee
6.	Selection of (a) pilot project(s) and drafting of its preliminary design: baseline and mitigation scenario, economic, legal, institutional, organizational framework.	Consultant(s)/ Steering committee
7.	MRP drafting	Consultant(s)
8.	Conduction of stakeholder consultation and training workshops throughout the process of the MRP preparation	Steering committee/ Consultant(s)

# V- Organization of work and estimated timeline

## Overview of estimated timeline for formulation of Market Readiness Proposal

	Activities	1	2	3	4	5	6	7	8	9	10	11	12
1	Setting up of a steering committee for the PMR implementation	Yellow											
2	Triggering a process for the set-up of a coordination entity in charge of mitigation policies at the national level		Yellow	Yellow	Yellow	Yellow	Yellow	Yellow					
3	Scoping study to confirm priority sectors based on a multi-criteria analysis		Yellow	Yellow									
4	Research and analytical work on crediting options and assessment of their suitability for the identified sectors			Yellow	Yellow	Yellow	Yellow	Yellow					
5	Gaps analysis of institutional set up, MRV system and technical expertise						Yellow	Yellow	Yellow	Yellow	Yellow		
6	Selection of (a) pilot project(s) and drafting of its preliminary design: baseline and mitigation scenario, economic, legal, institutional, organizational framework.								Yellow	Yellow	Yellow	Yellow	Yellow
7	MRP drafting										Yellow	Yellow	Yellow
8	Conduction of stakeholder consultation workshops and trainings throughout the process of the MRP preparation	Blue		Blue		Blue		Blue			Blue		Blue

## VI- Conclusions – Summary of priority areas for PMR support

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- Two sectors are identified as a priority for the market-based mechanisms implementation: the **cement** sector and the **electricity** sector.
- Tunisia plans to implement **sectoral crediting mechanisms** in these sectors.
- Tunisia considers the PMR as a platform to **innovate and exchange experiences** with the other members. We would like to explore innovative mechanisms, such as linking renewable electricity incentive mechanisms (e.g. feed-in tariff) with the carbon market.
- Tunisia wants to use PMR assistance
  - to **set up a coordination entity for mitigation policy** at the national level.
  - to set up a **national registry** to keep record of all mitigation initiatives and financing sources.
  - to **build market readiness** by developing the legal, financial and technical framework in the cement and energy sector.
  - to **pilot a sectoral crediting mechanism** in at least one of the two sectors.

