Promotion of self-production in solar buildings

Sana Kacem
Renewable Energy Direction
Tunisian National Agency for Energy Conservation ANME
Summary

✓ ANME presentation
✓ Energy situation
✓ RE law, potential and development
✓ Prosol Elec Program
National Agency for Energy Conservation "ANME"

Presentation

✓ **Creation:**
   ANME was created in 1985.

✓ **Status:**
   ANME is a public institution placed under the aegis of the Ministry of Industry, Energy and Mining.

✓ **Mission:**
   ANME’s role is to implement the state policy for energy conservation through promoting energy efficiency, renewable energies and energy substitution.
Main Intervention Fields

✓ Development and implementation of national programs on EE & RE
✓ Conducting prospective and strategic studies and those relating to the mitigation of GHG emissions related to energy consumption
✓ Management of the National Fund for EE&RE called FNME (a unified incentive mechanism to support the actions of EE&RE)
✓ Proposal of legal and regulatory framework
✓ Granting of tax and financial incentives
✓ Preparation and implementation of awareness raising, information, education and training
✓ Support the R&D and the innovation
✓ Support the development of the EE&RE industry and Encourage the investment in this sectors
THE TUNISIAN ENERGY CONTEXT

- Stagnation of national resources (-6%)
- Increase in demand (+2%)
- Structural energy deficit: 3.8 Mtoe in 2014; 0.5 Mtoe in 2010
- Import of 40% primary energy

- Installed capacity: 4 792 MW
- Production: 17 672 GWh (80% STEG)
- Increase in demand: 5% per year (Peak + 11%)
- Electrification: 99.6%
- Energy mix consists almost of natural gas: 97%

- National production: 45%
- Import: 48% - royalty fee: 7%
- Consumption: 75% for electricity production
- Availability 2030: 20% of the demand

- Important resources (wind, solar)
- Great potential for the production of electricity
Primary Energy

Energy Situation

- Declining of National Resources
- Growing Demand
- Deficit 85%
Tunisian Energy Mix

Primary energy consumption

Energy Mix

- Gaz élec: 38%
- Prod pétr: 48%
- gaz usages finaux: 14%
- Renouv: 1%

MTEP: Million Tonnes of Oil Equivalent
Electricity Sector

Electricity Demand (GWh)

- 1990-2012: Electricity Consumption x3
- Fast growth of the peak (11% per year)

- 40% of the national primary energy consumption
- An electric mix almost totally NG (98%)

Installed capacity: 4 300 MW
Tunisian Electric Mix

Electricity Demand

Electric Mix

- Eolien: 3%
- Hydro: 0.2%
- Fuel: 0%
- Gas: 97%

Growth rate: 5% per year
Fast growth of the peak: 11% per year

Graph shows electricity demand from 1990 to 2012 with a peak of 15000 GWh in 2012.
Energy Situation

• An electric mix almost totally NG (98%)

• 73% of domestic consumption NG

• 40% of the national primary energy consumption

• 2012: 47% of natural gas needs are provided by the Algerian gas
Renewable Energy Potential in Tunisia

**Solar**

Solar Potential: 280 GW

**Wind**

Wind Potential: 10 GW
Electric Mix : 2030

2012

98%
16,800 GWh

2030

30%
70%
37,000 GWh

Chosen Scenario

fossil

Renewable
30\% electricity from renewable energies in 2030

**Share of RE in the electricity mix**

- 2015: 4\%
- 2020: 14\%
- 2025: 24\%
- 2030: 30\%

**Installed REcapacity (MW)**

- 2015: 275 MW
- 2020: 1,225 MW
- 2025: 2,482 MW
- 2030: 3,815 MW

**Objectives by RE technology**

- **Wind**: 1,755 MW
- **Solar PV**: 1,510 MW
- **CSP**: 450 MW
- **Biomass**: 100 MW

**Necessary investment:**
- 2020: 3,680 M\€
- 2030: 6,340 M\€
The new law for electricity production from RE

A step in direction of promoting private investment
Strategy Issues: Main impacts

Investissement:
- 6 milliards € (public, private, companies, households)

Energy Bill:
- 13 milliards € (reduction of fossil energy imports)

Environnement:
- 49.4 Mtco₂ (GHG avoided)

Employment:
- 13700 employments created
The importance of investments requires the use of funding sources favorable through different mechanism of international cooperation and the participation of the private sector for financing and implementing projects, especially centralized projects for RE electricity production.

Need for the establishment of a regulatory framework for the mobilization of private investment to achieve the objective set for the development of renewables

**LAW ON THE PRODUCTION OF ELECTRICITY FROM RENEWABLE ENERGIES**

*Law no°12-2015 of 11 May 2015*
**GENERAL PRESENTATION OF LAW NO° 12-2015**

**Law no°12-2015 of May 11 2015**

**Promulgation of law enforcement texts 2017**

- Decrees
- Orders

**7 CHAPTERS - 42 ARTICLES**

<table>
<thead>
<tr>
<th>General dispositions</th>
<th>- Object of the law, definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>National plan for electricity production from RE</td>
<td>- Fixation of programs</td>
</tr>
<tr>
<td>Operation mode of authorized projects</td>
<td>- Self-production, private production, export</td>
</tr>
<tr>
<td>Technical commission</td>
<td>- Revision of demands</td>
</tr>
<tr>
<td>Type of installation</td>
<td>- Dismantling, continued operation</td>
</tr>
<tr>
<td>Control, offenses and penalties</td>
<td>- Control modalities</td>
</tr>
<tr>
<td>Diverse provisions</td>
<td>- Transitional provisions...</td>
</tr>
</tbody>
</table>
THE LEGAL FRAMEWORK FOR THE PRODUCTION OF RE ELECTRICITY

Self production
- Approval by STEG for sites connected to low voltage grid
- Authorization approved by the Minister for Energy for sites connected to high voltage or medium voltage grid

Authorization for projects for sale \( \leq P_{\text{max}} \)
- Prior approval of the Minister of Energy to found the project company and implement the site
- Prior approval of the Minister of Energy for the exploitation and production of electricity after completion and testing by STEG

Concession for projects for sale \( > P_{\text{max}} \)
- Concession approved by the Minister for Energy after tendering procedure
- Contracts submitted to the Assembly of the Representatives of the People

Concession for export projects
- Concession approved by the Minister for Energy after tendering procedure
- Contracts submitted to the Assembly of the Representatives of the People
ELECTRICITY PRODUCTION FROM RE

CONCESSION
- Export
  - Concession after competitive bidding

LOCAL MARKET
- Concession after competitive bidding

AUTHORIZATION
- Local market
- Prior agreement + authorization for operation
- Self production
- Authorization

SUPREME COMMISSION

TECHNICAL COMMISSION
SELF PRODUCTION PROJECTS

• All STEG customers can produce electricity from RE to cover their demand. Compare law no. 07-2009: Extension for local authorities and public institutions.

• The producer benefits from:
  • Right to transport electricity via national grid to the consumer;
  • Right to sell production surplus

• Projects connected to the low voltage grid: after approval of STEG

• Projects connected to high voltage grid or medium voltage grid: Approved by order of the responsible Minister of Energy

Application texts

• The conditions for transmission of electricity and surplus electricity sale: Decree

• Standard contract for sale of surpluses: approved by the Minister for Energy.
Institution or group of institutions operational in the industrial, agricultural and tertiary sectors are allowed to generate electricity for own consumption and has the right to:

- **Sale the surplus** exclusively to STEG which must remain within the **limits of 30%** of the electricity produced annually.
- **Incentive of 20%** of investment cost for projects of energy conservation with a maximum of **200 000 DT** per project.
- **Transporting electricity** throw the national grid to their points of consumption.
PROSOL ELEC:
Solar Roof Program
Advantages accorded by FNME for renewable energy
Incentive for solar roofs with a maximum of **1 500 DT** for 1 kWp and **1 200 DT** per kWp for 1.5 kWp and plus, and **3 000 DT** per project (Additional benefits for the Residential: 7 years refundable credit through STEG invoice)

Fiscal advantages
Raw materials, semi-finished products and equipment used in energy conservation benefit from a suspension of VAT and the reduction 10% rate of customs duties.
Accomplishments

✓ 380 eligible suppliers
✓ Manufacturers of photovoltaic modules

Mechanism

➢ Subsidy
➢ Refundable credits over 7 years, through STEG bill that will ensure their recovery.

PROSOL Elec : PV Roof top program

Installed Capacity (to 2019) ~ 85 MWc
Principe de comptage

Net = Consommation – Injection

La facture de la STEG ne porte que sur le Net

Si Net < 0 L’excédent est reporté à la facturation suivante
THANKS

Email: sana.kacem@anme.nat.tn
Site Web: www.anme.nat.tn
Tél.: +216 71 906 900