



PROSOL TUNISIA 2007

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I. Introduction

Within the framework of its strategy to develop renewable energies, the Tunisian government have decided to launch an ambitious program aiming the development of the use of Solar Water-Heater (SWH) in the residential sector, through the implementation of a number of encouraging measures. This program called PROSOL TUNISIA (Solar promotion for Tunisia), started in February 2005

II. Different contributors to PROSOL:

Therefore, on the initiative of the Ministry of industry, Energy Small and Medium size enterprises, and the participation of the National Agency for energy conservation (ANME), and with the backup of the Italian Ministry for the Environment and Territory through the United Nations Program for the environment (UNEP) and the Mediterranean Renewable Energy Center (MEDREC), it was decided to launch, a financial mechanism allowing the revitalisation of solar water-heaters market in Tunisia.

The intervening parties in the new program are:

- a) ANME (UGP) : project management and subsidies service,
- b) MEDREC and the PNUE as project financial partners,
- c) Commercial banks for financing about 70% of SWH cost (through a supplier type credit).
- d) STEG as a refunding guarantor of credits through electricity bill

III. Improvements of the financial mechanism for residential PROSOL for 2007:

To improve demand and supply, many improvements to the financing mechanism have been decided in 2007, namely:

- ✚ The introduction of two additional credits levels (**550** and **1150 TD**) in addition to the two already used credit levels (**750** and **950 TD**) to cover 200l and 300 l SWH.
- ✚ Guarantee of payment through STEG invoice
- ✚ Providing of a standard banking credit line " consumers credit " to deal with the - problem of the suppliers debt
- ✚ Acceptance of STEG and ANME to pay the suppliers at end of the month.
- ✚ Simplification of ANME and STEG intern administrative procedures and improvement of the data-processing tools to treat the received files.
- ✚ Reorganization of the UGP and designation of PROSOL director, attached to the General direction of the ANME

The application of new mechanism " PROSOL II " started at the beginning of year 2007.

IV. Description of financing mechanism applied to residential PROSOL 2007:

The new financial mechanism of PROSOL II covers four essential items:

- ✚ A subsidy of **20%** of the cost of SWH, served by the ANME through the National Fund of energy with a maximum of **100 TD/m²**

- ✚ A complementary subsidy of about **80 TD** of the cost of a solar water heater of **300l**, served by the Italian Ministry for the Environment and Territory through the MEDREC Funds.
- ✚ A credit from commercial banks for financing the residual cost of a SWH for the consumer, granted over a period of **5 years**, and recovered through STEG electrical bill.(four credit levels : **550 TD, 750 TD, 950 TD, 1150 TD**)
- ✚ A customer cash participation of about **10%** of the SWH cost.

Three types of solar water heaters have been commercialised in the residential sector, with the backup of PROSOL: 200 L, 300 L, and 500 L solar water heaters.

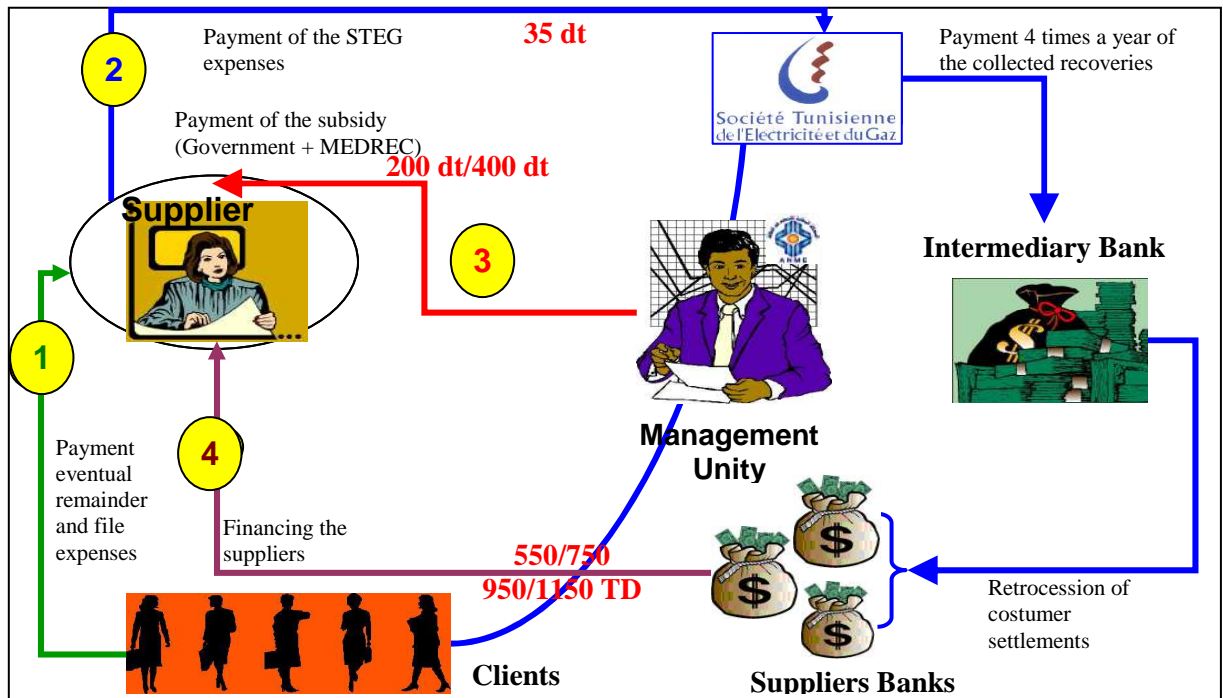


Figure 1 : PROSOL Financial circuit

V. PROSOL results in 2007:

The objective for year 2007 consisted in installing **65 000 m²** of solar water heaters. The achievements in 2007 were about **60 000 m²**, which represents about **92,3 %** of the objective. In addition, the SWH (locally manufactured or imported) offer was ameliorated:

- ✚ The number of eligible suppliers is up to 22 (from which 4 local constructors) supplying 80 models.
- ✚ The number of eligible installers is 546.

➤ Monthly realizations :

The monthly distribution of installations is the following:

Table 1 : PROSOL realizations in 2007 in residential sector (m²)

Months	Realizations 2006	Realizations 2007	Tendency (%2006)
January	1700	2740	↗
February	2250	3204	↗
March	3196	4031	↗

April	3232	6164	↗
Mai	3315	5661	↗
June	4761	6633	↗
July	3095	6171	↗
August	2843	5998	↗
September	3014	6121	↗
October	2293	5118	↗
November	2700	6324	↗
December	2330	1413	↘
Total (m²)	34 730	59 578	↗

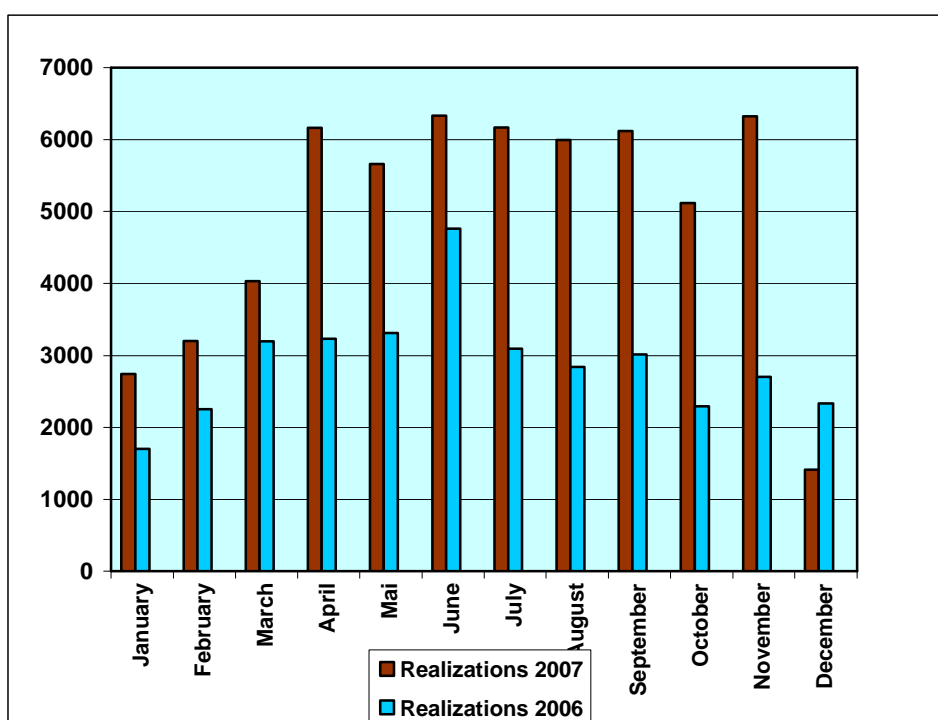


Figure2 : Comparison of realizations in 2006 and those in 2007

➤ **Realizations by supplier**

As in the year 2006, SOFTEN dominated the SWH market in 2007 realizing about 49 % of the installations.

In the following table are detailed the realizations by supplier in 2007 :

Table 2: Distribution of the realizations by supplier (m²)

	2001	%	3001	%	5001	%	total	Tendency (%2006)	Market share %
SOFTEN	12 358	46,81	16 608	50,32	168	100	29134	↗	48,90
SIER	2741	10,38	1364	4,13	0	0	4105	↗	6,89
SINES	3774	14,29	4412	13,37	0	0	8186	↗	13,74
SDR	1240	4,70	1039	3,15	0	0	2279	↗	3,83

AES	90	0,34	64	0,19	0	0	154	↗	0,26
SACEM	94	0,36	316	0,96	0	0	410	↗	0,69
CEG	221	0,84	227	0,69	0	0	448	↗	0,75
SES	443	1,68	1199	3,63	0	0	1642	↗	2,76
SIAME	81	0,31	788	2,39	0	0	869	↗	1,46
MEC	1821	6,90	1161	3,52	0	0	2982	↗	5,01
HIT	9	0,03	40	0,12	0	0	49	↗	0,08
TECH-SOL	2558	9,69	4826	14,62	0	0	7384	↗	12,39
OCEAN	2	0,01	94	0,28	0	0	96	↗	0,16
DOMOTECH	42	0,16	86	0,26	0	0	128	↗	0,21
CTM	0	0	0	0	0	0	0	↗	0
STC	294	1,11	142	0,43	0	0	436	↗	0,73
IPS	0	0	0	0	0	0	0	↗	0
BSI	435	1,65	513	1,55	0	0	948	↗	1,59
SKYENERGY	200	0,76	52	0,16	0	0	252	↗	0,42
SOLAR Technology	0	0	76	0,23	0	0	76	-	0,13
STER	0	0	0	0	0	0	0	-	0
SPECTRA	0	0	0	0	0	0	0	-	0
Total	26 403	100	33 007	100	168	100	59 578	↗	100

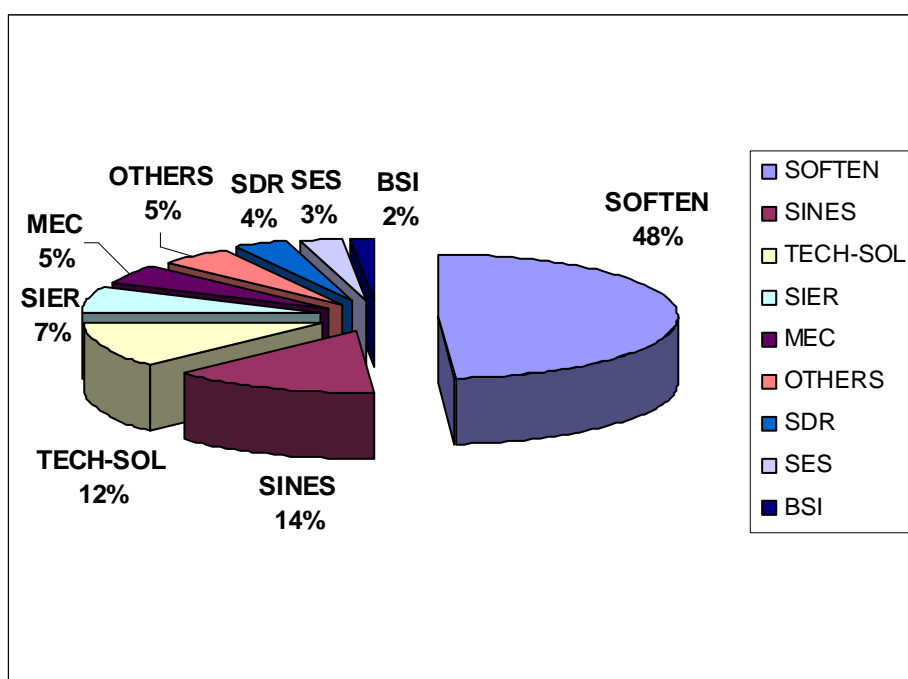


Figure 3: Distribution of installed SWHs in 2007

a) SOFTEN market share, 48,9 % in 2007, decreased compared to that of 2006 (66%).

b) The distribution of 200l SWH and 300l SWH and more is:

- ✚ 60,46 % SWH 200l and 39,54 % SWH 300l and more in term of systems number
- ✚ 44,32 % SWH 200l and 55,68 % SWH 300l and more in surface terms

➤ **PROSOL results for the year 2007**

Table 3 : PROSOL results in 2007

Total number of SWH	20 606
Total surface of installed solar heaters (m²)	59 578
total investment (TD)	29 164 558
Subsidies (TD)	5 750 800
Autofinance and loans (TD)	23 413 758
Average price of the m² of SWH (TD/m²)	489

VI. Impact of PROSOL on the consumption of energy and on the national economy in 2007 :

The **60 000 m²** installed SWH in 2007 using the backup of PROSOL program, have permitted :

- ✚ An energy economy of about **4200 TOE (in relation to the LPG)**
- ✚ Avoided CO₂ emissions of about **11 130 TCO₂E**.

VII. Recapitulative :

Since its launch in February 2005, PROSOL have permitted the installation of about **118 000 m²** representing nearly **52,44 %** of the Tunisian three-year programme 2005-2008 and **104,70 %** of the cumulated surface installed in the whole period 1985-2004. The actual cumulated surface installed represents **40,8%** of the Tunisian government goal by 2009 (500 000 m² of cumulated SWH surface installed).

VIII. Tertiary PROSOL

Considering the success of residential PROSOL program (118 000 m² realized since February 2005), PROSOL programme was widened to the tertiary sector with a series of institutional and financial backups used as promotional actions for the development of the market. The tertiary PROSOL started officially in November 2007.

➤ **Description of the tertiary PROSOL financing Mechanism agreed with IMELS and UNEP**

The financial mechanism of tertiary PROSOL covers two essential items:

- ✚ A 20% subsidy of the solar installation cost with a maximum of 100 DT/m², to be served by the Tunisian National Energy Conservation Fund (FNME);
- ✚ A 20% additional subsidy of the investment amount with a maximum of 100 DT/m², granted by the Italian Ministry of Environment through UNEP to be served as follows:
 - 10% extra subsidy that is to say 30% of the total investment amount with a maximum of 100 DT/m²,
 - 10% subsidy granted as bonus of the loan interest rate of two points, and a maintenance bonus over 3 years beyond the two years of guarantee.

➤ **Tertiary PROSOL Objectives**

The objective of tertiary PROSOL over the period 2007 - 2009 consists in installing **45 000 m²** of SWH according to the following planning:

Tableau 4 : tertiary PROSOL Objectives over the period 2007-2009

	2007	2008	2009	Total
Tertiary sector	15 000	15 000	15 000	45 000

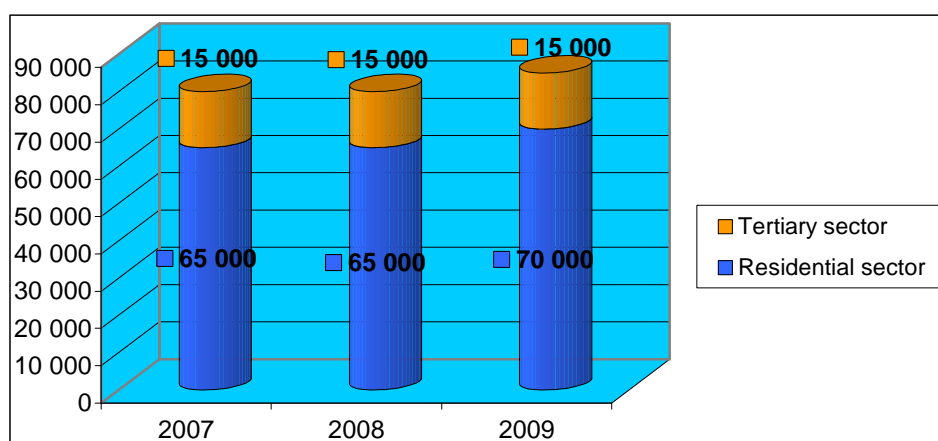


Figure4 : Objectives of PROSOL in the tertiary sector

➤ **Tertiary PROSOL Capacities building and sensitizing actions**

Within the framework of tertiary PROSOL sensitizing and capacity building actions, ANME undertook capacity building actions which allowed the training of:

- 19 Consulting Engineer
- 20 Collective systems installers

- 16 Engineers and technicians working in Heating and air conditioning companies
- 40 hotel maintenance agents

➤ **Tertiary PROSOL eligible operators**

Within the framework of the tertiary PROSOL program, actually:

- 15 prescribers
- 2 Technical controllers
- 4 installation companies

are eligible for the advantages of the programme .

IX. Industrial PROSOL:

In accordance with residential PROSOL success , and in order to promote solar water heating in Tunisian industry sector, within the framework of a pilot project, IMELS, TMIESME, ANME and UNEP agreed to jointly implement a demonstration Industrial Solar Water Heating pilot project.

This project will support the establishment of financing mechanism for the development of collective solar water heating systems for the industrial sector with potential to support the market by implementing a capacity building program, training activities and a communication and awareness raising program.