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**giz** Deutsche Gesellschaft  
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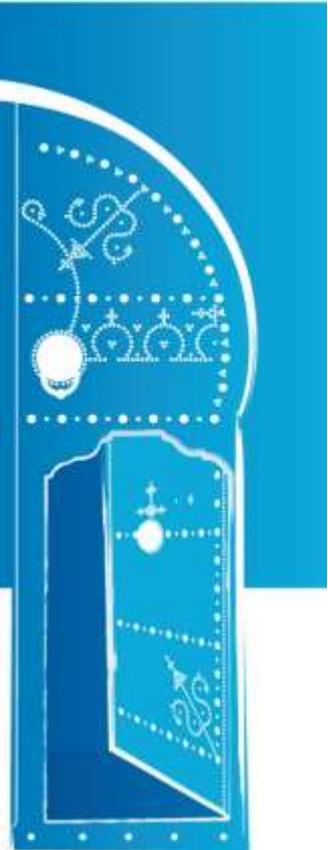
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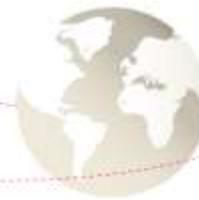


# Projet DMS

## Développement du Marché Solaire en Tunisie

# Financing Commercial Solar Energy in Tunisia





Solar project developers (Droit au But, March 2014):

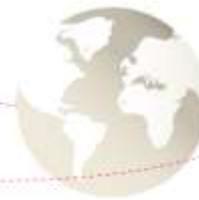
*„Access to finance*

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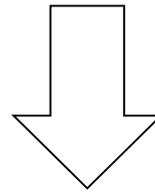
*One of 3 primary obstacles  
to develop the commercial/industrial market“*

Primary obstacles according to private sector:

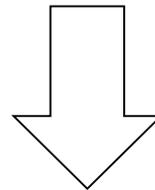
1. Legal Framework
2. Financing
3. Administrative Procedures



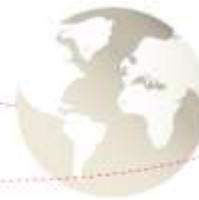
1 Analysis of status quo regarding PV financing



2 Market Support – Accompanying Measures



3 Enhanced Market/Financing Mechanisms



# 1 Analysis of status quo regarding PV financing

## Methodology

### 1. Set investor target group

*Net Metering ; SMEs ; Low Voltage Big Consumers (10-300 kWp) ; Medium Voltage (30 kWp – 1 MWp)*

### 2. Application of diagnostic tool **SV FSE**:10 days interview series with *state institutions, PV project developers, banks, leasing agencies, guarantee agency, commercial and industrial clients, consultants/ other intermediates, donor agencies*

### 3. Recapitulation Workshop

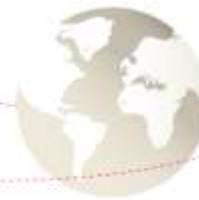
(Chaired by the **Tunisian Banking Association** APTBEF and ANME)

*a) Sector dialogue between banks and PV project developers*

*b) Presentation of banking landscape, market potential, profitability criteria for PV projects, economics of existing reference projects*

### 4. Synopsis Report

➤ *Existing Mechanisms, Promising business models / strategies, CB needs, recommendations*



# 1 Analysis of status quo regarding PV financing

## ... Findings (Key Messages)

1. SMEs begin to demand technical/financial solutions for dealing with rising electricity retail prices (2014: 2x 10 %).
2. Within the defined market segment (Net Metering, SME) FIs tend not to look at the PV project itself (no real cash flows), but rather focus on the **general creditworthiness (counterparty risk)** of the client.  
→ PV financing is classified under the paradigm of general SME (**Corporate**) financing (~standard bank product).
3. Today banks are hesitant to operate in new market segments with a new business models while promoting a « new » technology.  
→ Kick-off strategy has to focus on existing, bankable SME clients in order to realize reference projects.
4. Current SME bank products (7 yrs, 7%) and Net Metering Scheme are sufficient to promote profitable PV investments → Business opportunity for first movers
5. Limited awareness within the financial sector, which has not yet realized business opportunities of financing PV.



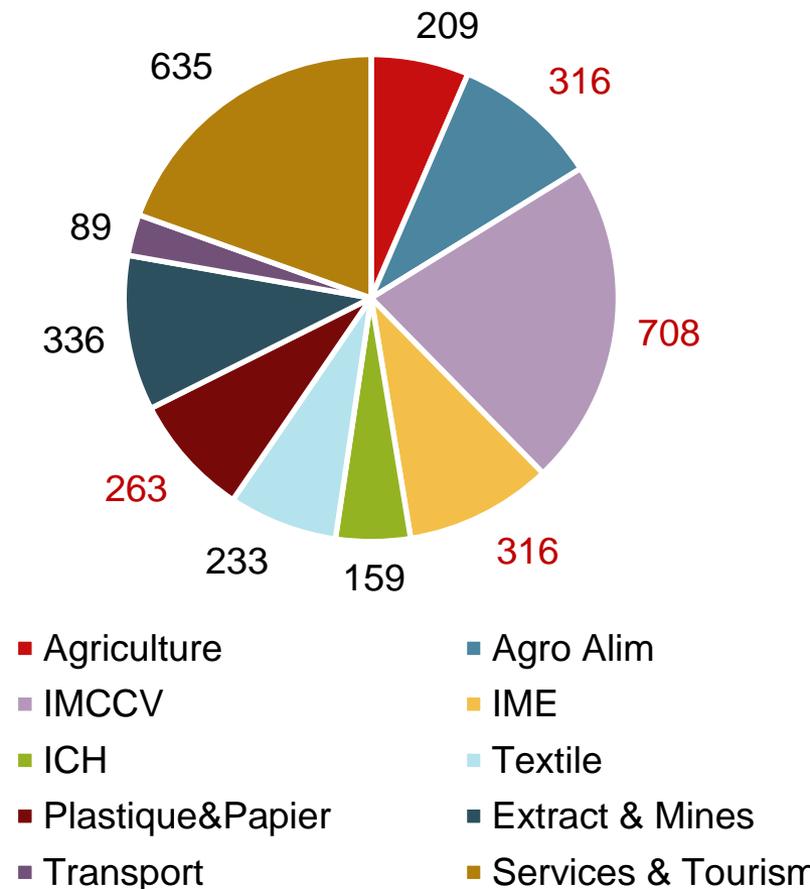
# 1 Analysis of status quo regarding PV financing

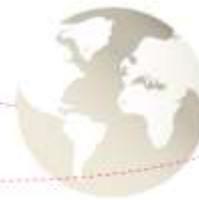
## ... Findings (Key Messages)

### Medium Voltage Segment (30 kWp – 1MWp)

- Clients that could install > 30 kWp: 9.000
- Technical Potential: 3264 MWp
- **Finance Market Size (Debt): ~1,7 Billion TD (conservative estimate)**
- Most Promising Sectors (electricity-vore and bankable): **Food Processing, IME, IMCCV, Plastics**
- Typical Investment Volume in order to cover 70 % of electricity consumption (differs a lot per sector and per individual project): 2 Million TD

Potentiel technique par secteur [MWc]



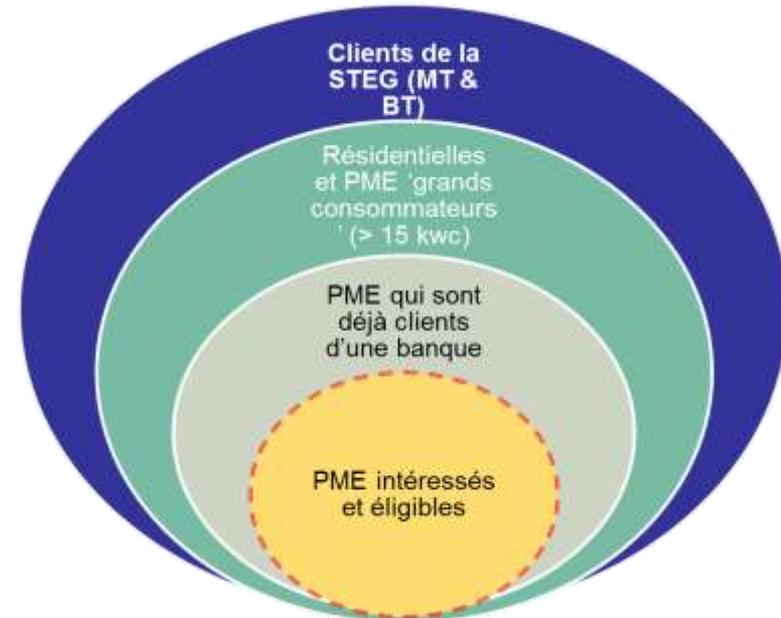


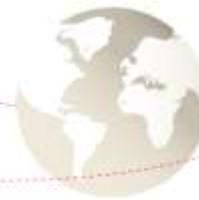
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# 1 Analysis of status quo regarding PV financing

## ... Recommendations for market development

1. Awareness rising campaign for profitable PV investments
2. Creation of cross-sector working groups (FI, PV developers, ANME, **ATPBEF**)
  - a) Open exchange to bank products, risks & guarantee schemes, ...
  - b) Establishment of a common work programme
  - c) Commercial approach / “pilot projects” (support to engaged banks in identifying and approaching clients and in evaluating a small number of projects)
3. Transparency and awareness rising measures (e.g. market web portal)
4. Enable access to independent technical evaluation (e.g. establish institutions like TÜV)
5. Capacity Building measures for FI (enhance familiarity with PV: cash-flow tools, marketing approach to address/guide SME clients regarding RE/EE)
6. Exploit existing state guarantee SME scheme (55-70%); possible extension in the future to less credible clients (medium term)

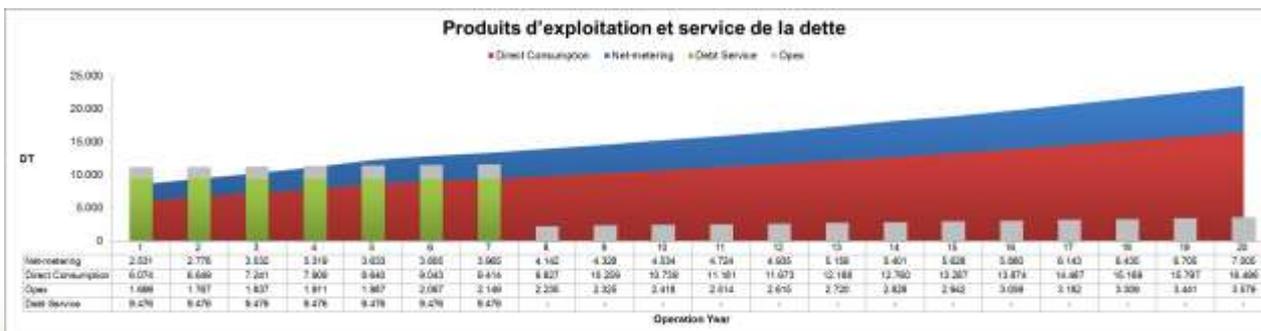




## 2 Market Support - Accompanying Measures

### Transfer of & trainings with DCF-tool

- Sector-wide dissemination of an adapted DCF-Tool to ANME, PV developers, Banks, Consulting/Higher Education
- Banking sector trainings have been coordinated by the banking association
- Tool allows users
  - ✓ To calculate PV projects in all relevant market segments (including profitability and risks)
  - ✓ To validate calculations received from others
  - ✓ To make use of an integrated sensitivity analysis / stress test
  - ✓ To benefit from higher transparency (latest framework interpretation)



Results		
Net-Present-Value	DT	41.589
Project IRR	%	8,56%
Equity IRR	%	11,83%
Amortization	Years	9,06
LCOE	DT/kWh	0,12
Min DSCR	x	0,73 x
Min LLCR	x	0,96 x

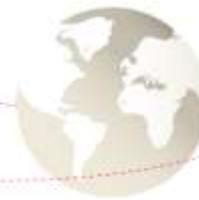
# 2 Market Support - Accompanying Measures

... some impressions



- ✓ *Tool enhances transparency regarding profitability analysis & legal/tariff framework*
- ✓ *PV installers familiarize with DCF analysis & use tool to consult clients*
- ✓ *Banks demand internal DCF-tool trainings*
- ✓ *1 university launched a training class*
- ✓ *ANME uses tool to monitor/adapt promotion mechanisms*





## 2 Market Support - Accompanying Measures

### **B2B Workshop: “Investissement Photovoltaïque : Choix opportun pour l’Industrie de demain”**

#### **200 Participants:**

- ✓ ANME, STEG, Ministries
- ✓ Banks, APTBEF
- ✓ PV installers
- ✓ **Industry (4 sectors, 800 invited)**
- ✓ IFIs





## 2 Market Support - Accompanying Measures

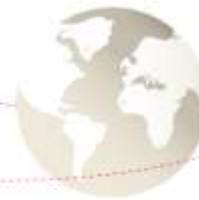
### B2B Workshop: “*Investissement Photovoltaïque : Choix opportun pour l’Industrie de demain*”



#### **Stands**

- ✓ 6 PV installers
- ✓ 3 Banks
- ✓ AHK





# Financing Commercial Solar Energy in Tunisia



**1. Estimation of market size + identification of industrial customers (electricity-vore , but bankable sectors & regions)**

**2. Awareness rising and trainings: Cash-flow tool, B2B**

**3. Working groups: Identification of adequate banking products**

2

3

**1. Commercial approach and products exist to finance PV MV projects**

**2. Rising PV investment volume**

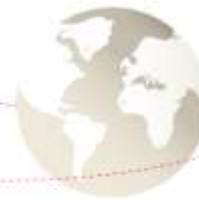
**(3. Refinancing for banks / guarantee schemes offered by third parties are in place)**

1

**1. Analysis of supply and demand for solar energy finance (including current state of technical/financial related familiarity)**

**2. Stakeholder interviews/analysis**

**3. Recommendations for key actors**



# Thank you very much for your attention!

À son titre d'entreprise fédérale, la GIZ soutient le gouvernement allemand dans la réalisation de ses objectifs de coopération internationale pour le développement durable.

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Développement du Marché Solaire

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- [Financing Solar Energy in Tunisia](#)
- [Cash Flow and Sensitivity Analysis of Photovoltaic Projects in Tunisia](#)