



# Socio-economic impact study: value creation through small-scale PV in Morocco

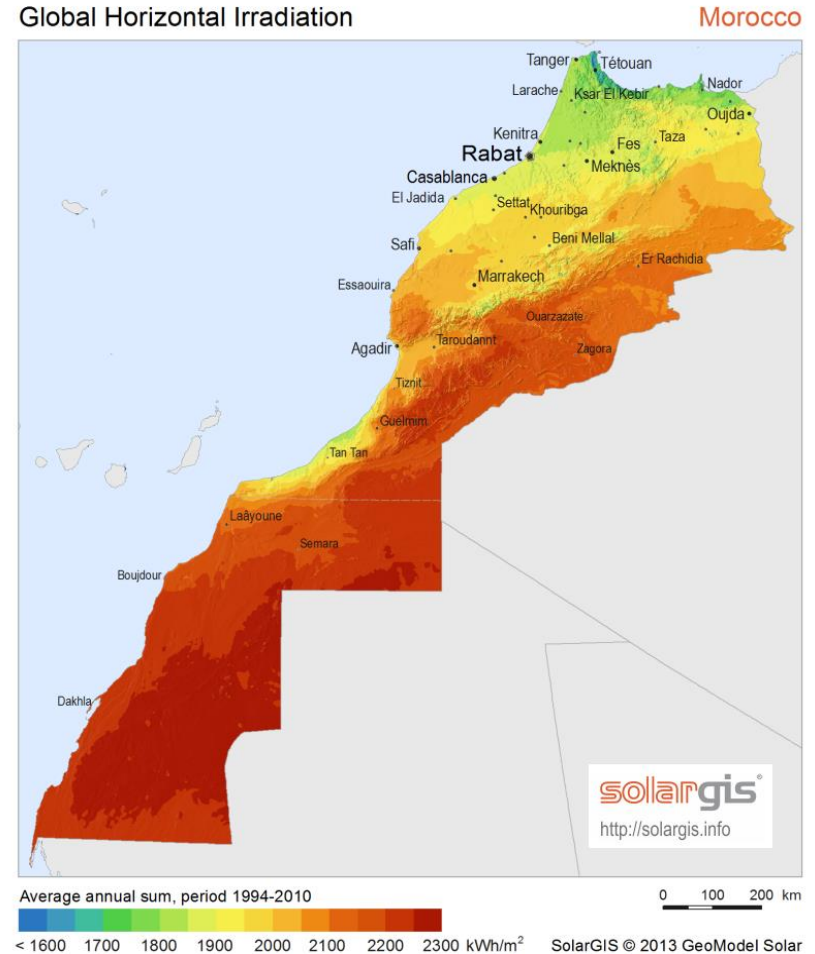
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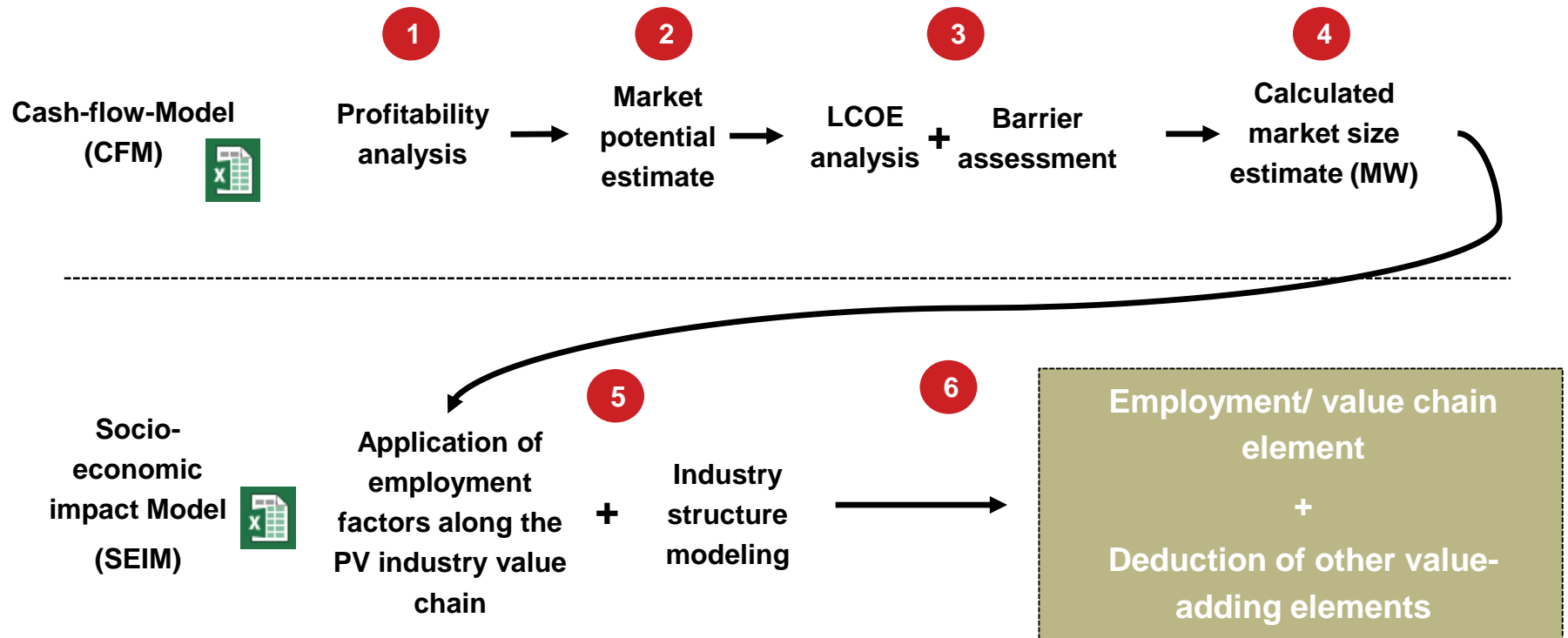
# Estimation of job creation and other socio-economic effects.

- The government in Morocco is in the process of implementing jurisdiction for the introduction of RE energy (PV and other) sources that are connected to the low-voltage grid.
- In order to be able to estimate how many jobs will be created by solar PV connected to the low voltage grid, eclareon was mandated by GIZ to create a study with own-developed computational models.
- The models allow to estimate the potential market growth, job creation potential, economic value added and the impact of different support schemes on the market development.



## How the estimates were generated.

The model is made of 2 integrated MS Excel-based tools:



**The vast majority of direct and indirect jobs (> 90%) will be created in the downstream part of the industrial value chain.**

## Upstream

		Morocco-2014, 100% rooftop
BOS	FTE/MW p.a.	1,6
Module	FTE/MW p.a.	0,6
Cell	FTE/MW p.a.	-
Polysilicon	FTE/MW p.a.	-
Wafer	FTE/MW p.a.	-
Inverter	FTE/MW p.a.	-
Upstream- total	FTE/MW p.a.	2,28

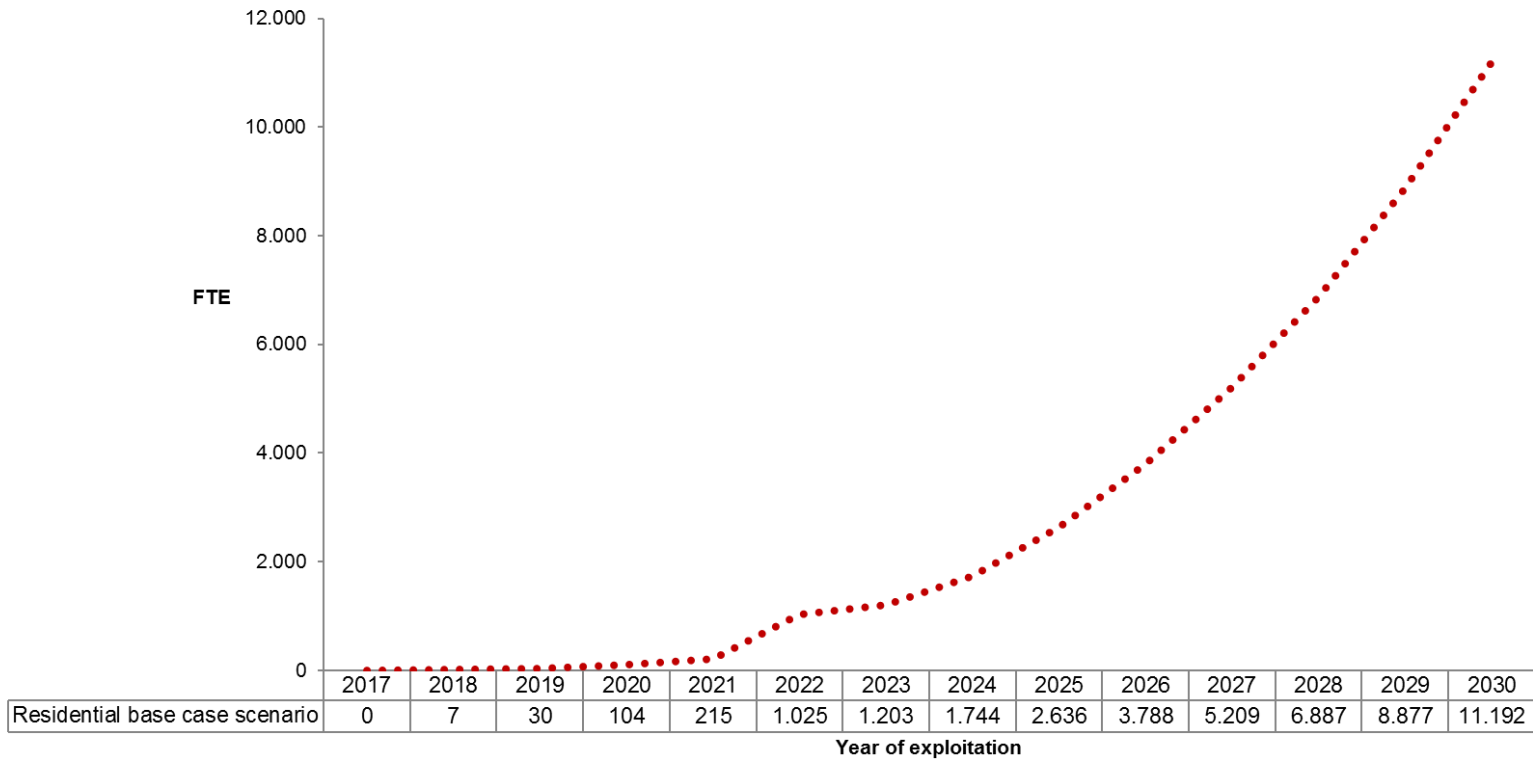
## Downstream

Engineering, studies, administration	FTE/MW p.a.	24,4
Installation	FTE/MW p.a.	22,5
Downstream- annual total	ETP/MW p.a.	46,87
Operations and Maintenance	FTE/MW cum.	1,1
	FTE/MW cum.	1,15

**In the long run, more than 11,000 local jobs could be created by the low voltage PV segment.**

## Development of FTEs

••• Residential base case scenario



## Other socio-economic effects are defined by the economic value added.

### Definition of the 'economic value added':

**1. Sales**

**2. The net salary of employees**

**3. Social security contributions**

**a. Paid by the employer**

**b. Paid by the employee**

**4. Taxes:**

**a. Direct taxes**

**i. Income Taxes for Employees (IR)**

**ii. Taxes on corporations (SI)**

**b. Indirect taxes: T.V.A. on sales**

**5. The after-tax profits of firms in the value chain**

**6. Customs duties on imported equipment**

Selected year(s)	year(s):	2021	2030
<u>Yealy market size(s)</u>			
Residential rooftop	MWp p.a.	8,6	528,5
Commercial rooftop	MWp p.a.	17,8	574,0
<u>Cumulated market size(s):</u>			
Residential rooftop - cum.	MWp cum.	13,6	2.084,6
Commercial rooftop -cum.	MWp cum.	29,2	2.251,7
<u>FTEs by year (low voltage market)</u>			
FTEs - residential rooftop	FTE	215,1	11.191,8
FTE - commercial rooftop	FTE	444,2	12.151,0
%-FTE upstream	%	7%	11%
%-FTE downstream	%	93%	89%
<u>Economic value added (overall market)</u>			
Sales	Mio.MAD	353	11.345
Net salaries	Mio.MAD	49	390
Total- social charges	Mio.MAD	9	2.264
Income tax revenue	Mio.MAD	2	425
Corporate tex revenues	Mio.MAD	2	92
VAT	Mio.MAD	71	103
Net corporate earnings	Mio.MAD	8	2.269
Droits de Customs	Mio.MAD	5	145

**Market barriers play a very important role in the growth of the PV market and therefore have a significant effect on the creation of jobs and the added value of the economy.**

### **Permitting and Licensing:**

- **Non-transparent, complicated and lengthy permitting procedures with excessive administrative fees**
- **Required PV systems registration or electricity production license is burdensome**

### **Grid Connection Rules and Standards:**

- **Lack of involvement of the PV industry in the definition of technical standards**
- **Lack of clarity and transparency of technical standards and grid connection rules**

### **Grid Connection Processes:**

- **No guaranteed grid access for PV systems**
- **Lengthy and complicated grid connection procedures**
- **Insufficient clarity and standardization of grid connection procedures**
- **Excessive grid connection costs**

**If you have questions or comments, please do not hesitate to contact us!**

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