

# What happened in Spain?



- Dec. 2102 (first “wave” of changes)
  - ✓ Made impossible for existing plants to get remunerated for added gas firing (that was reaching up to 15% on some sites, in order to compensate cloud effects, quicker ramp up to the grid needs, etc.)
  - ✓ New levy (tax) on plants generated income of 7 %
- Feb 2013 (2<sup>nd</sup> wave)
  - ✓ Impossible for plants to choose between fixed tariff and market price + premium (sometimes reaching 12 % above fixed tariff)
  - ✓ No longer inflation compensation in tariffs (in Spain around 2 %) and replacement by a new inflation compensation index that resulted in 0% indexation.
  - ✓ RESULT:  $15+7+12\% = - 36 \%$  less remuneration for CSP plants
- (14) July 2013:
  - ✓ Change of the compensation mechanism
  - ✓ Introduction of a new compensation mechanism capped at 7,4% (3% above treasury bonds in Spain) above not real investment costs but above standard costs produced by hired consultants of the Spanish ministry

# The « result »



- During more than one year, no investor / operator in Spain knew what the level of remuneration of the plants was eventually to result from the governmental measures.
- High frustration among national and international investors.
- Nearly complete stop of investment in CSP in Spain - essentially since “standard costs” used in the new mechanism
- Decrease of jobs in the sector
- And... according to the new legislation no power plant is expected to achieve the return threshold of 7,5%!

# Comparison between received support and returns to society in Spain in 2012



European Solar Thermal  
Electricity Association

- + Technological leadership for Spanish industry
- + Attractive to foreign investors
- + Reduced the Spanish pool prices
- + Push to regional convergence policy

Premium: 927 M€

**Supporting the deployment of CSP in Spain was a success story for the Spanish economy**

Savings from avoided payments to jobless : 132 M€

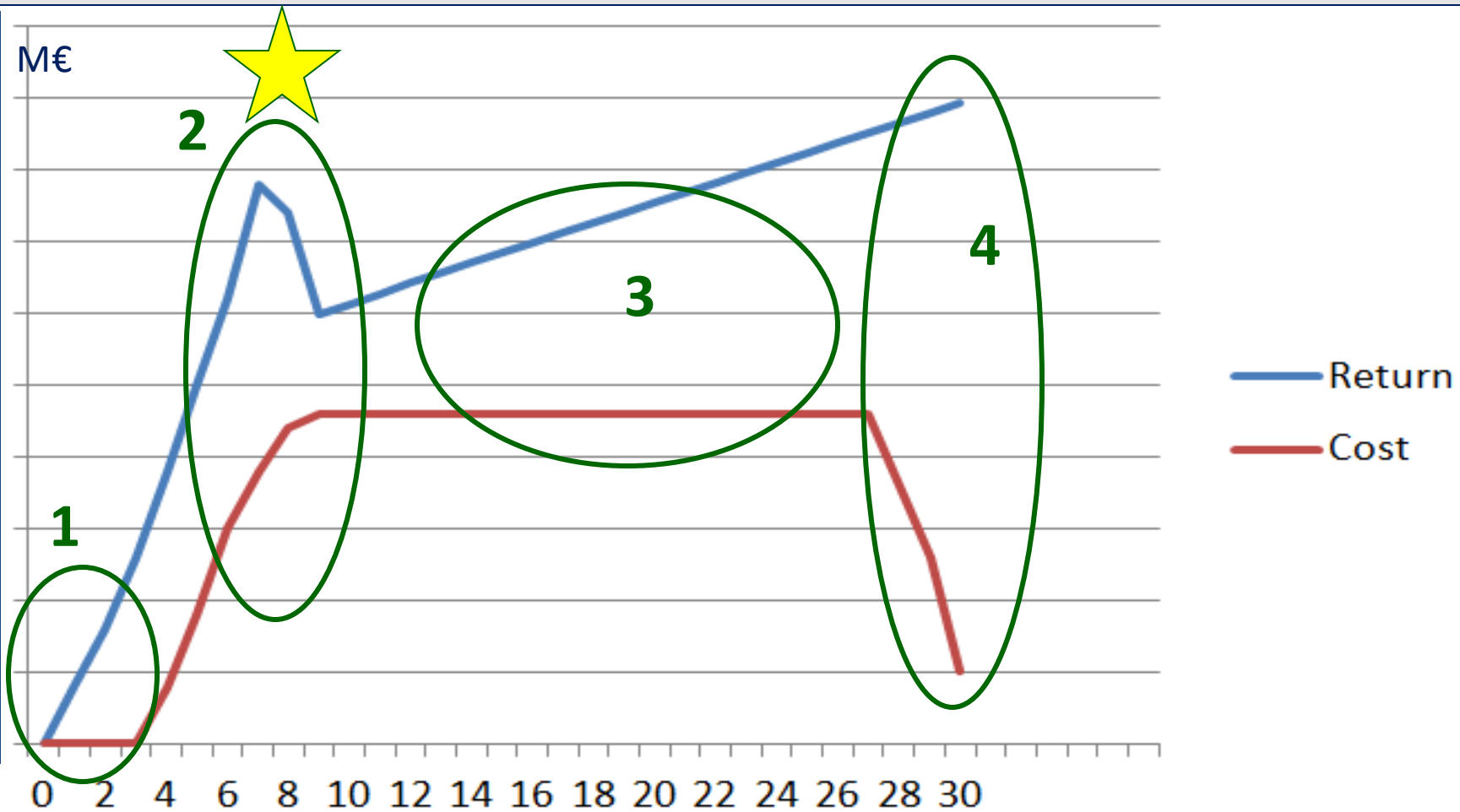
Savings on CO2 emission rights: 17 M€

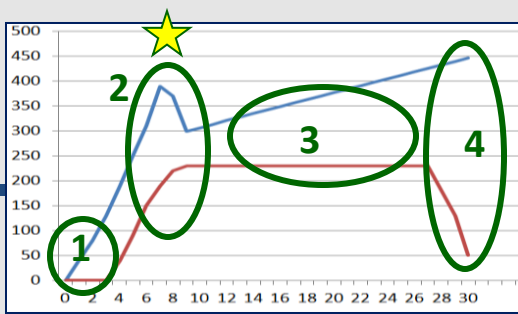
Savings from fossile fuel imports : 131 M€

Fiscal (tax) income (national and regional) 772 M€

Contribución al PIB: 1835 M€







European Solar Thermal  
Electricity Association

## 1. Start up phase

First positive impacts of the construction of the first plants and no payments

## 2. End of the promotion program

Until this point the return will be continuously growing based on the construction plus the electricity generation effects while the increase of the supports for new plants will be lower

★ At this point commercial plants can be deployed without further supports and the country economy will reap the maximum return.

## 3. Mature phase

Two years after the stop of the promotion program -when the breakeven with the conventional energy is reached- the contribution of the construction will finish but the corresponding one to the generation will be continuously increasing while the supporting cost will remain constant.

## 4. Golden end

After the PPA period the supports will fall down to zero in few years while the benefits from the generated electricity will be continuously growing

# Jobs in a typical STE plant in Spain (50 MW, 7,5 h storage)



European Solar Thermal  
Electricity Association

- ❑ **2214 one year equivalent jobs on the whole value chain (promotion, engineering, comp. manufact., & construction)**
- ❑ **500 people average during construction phase in the site**
- ❑ **47 direct jobs for operation and related services during the whole life span of the plant**

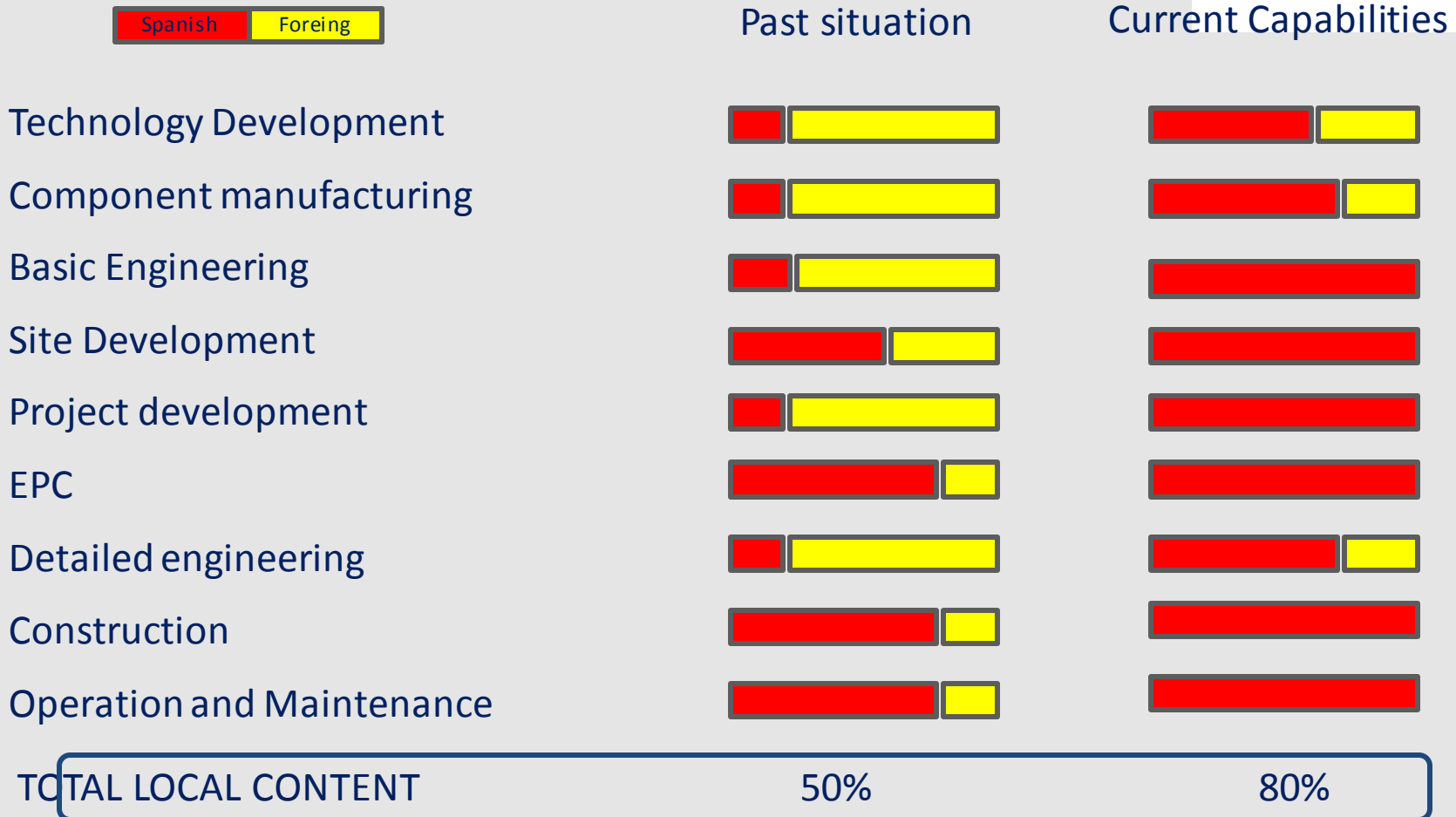
# The natural evolution of local content

## The Spanish example



European Solar Thermal  
Electricity Association

From the first large plants connected in 2008 till the new ones

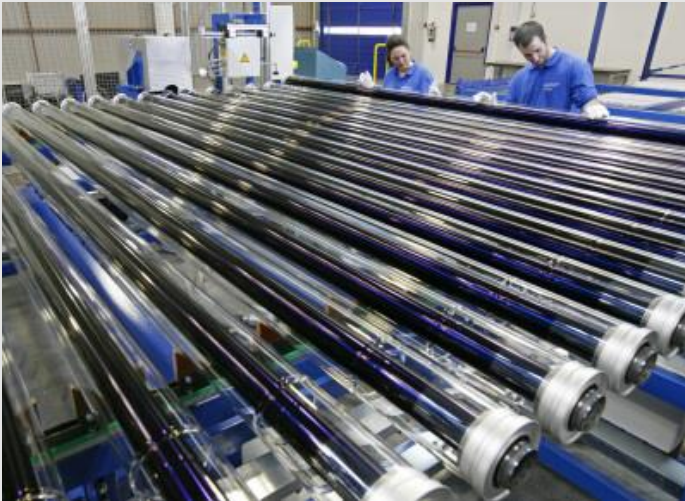


# Industry localization in Spain for solar field components



European Solar Thermal  
Electricity Association

Absorber tubes



Curved mirrors

## Prerequisite:

Stable program of a  
few hundred MW per year



Collector structure