

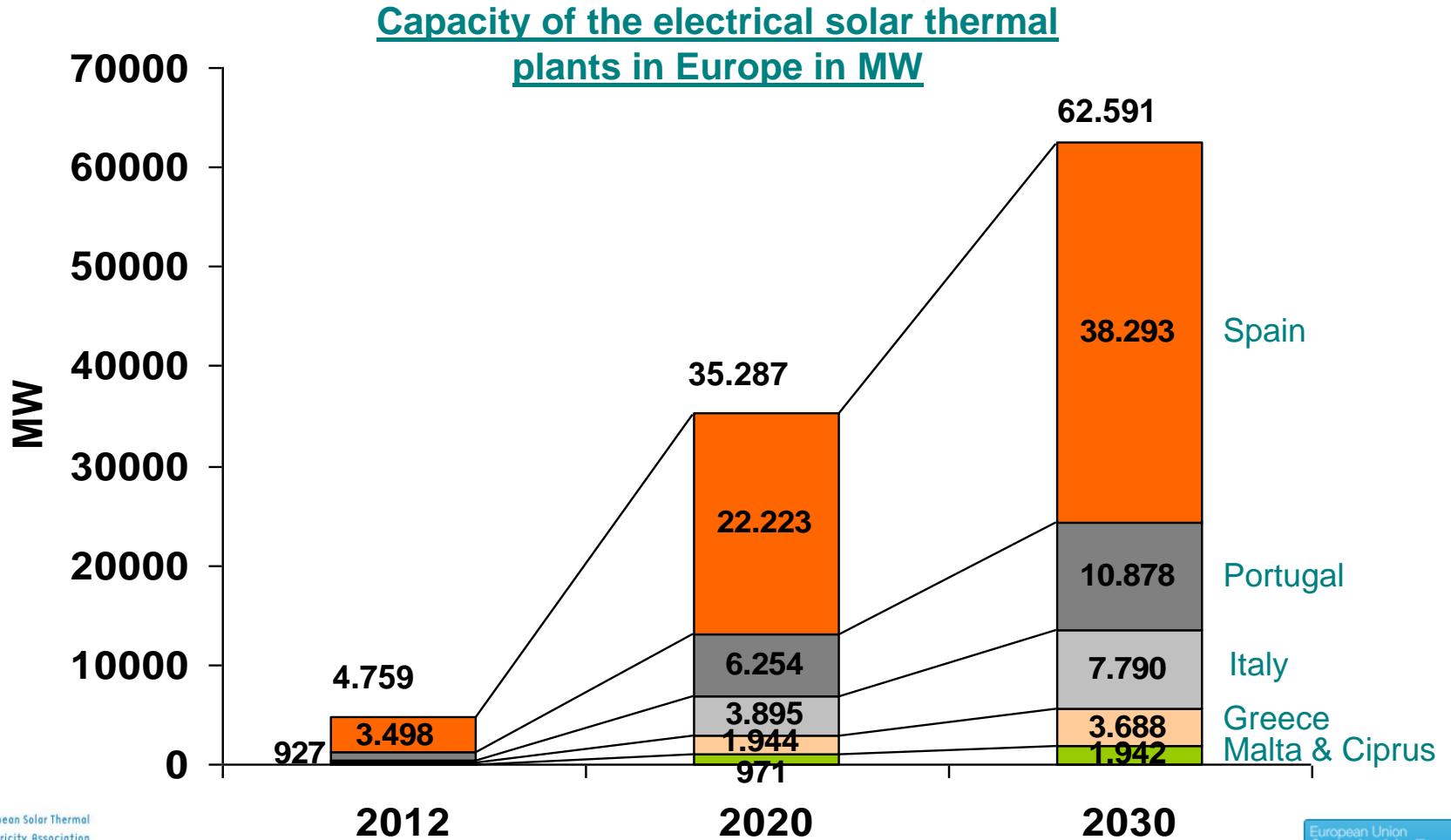
Renewable Energy Policy Workshop

Renewable Energies in the Electricity Sector

Wednesday, 30 January 2008

Renewable Energy Policy Workshop

The capacity of the solar thermal industry can accommodate the large growth projected by ESTELA.

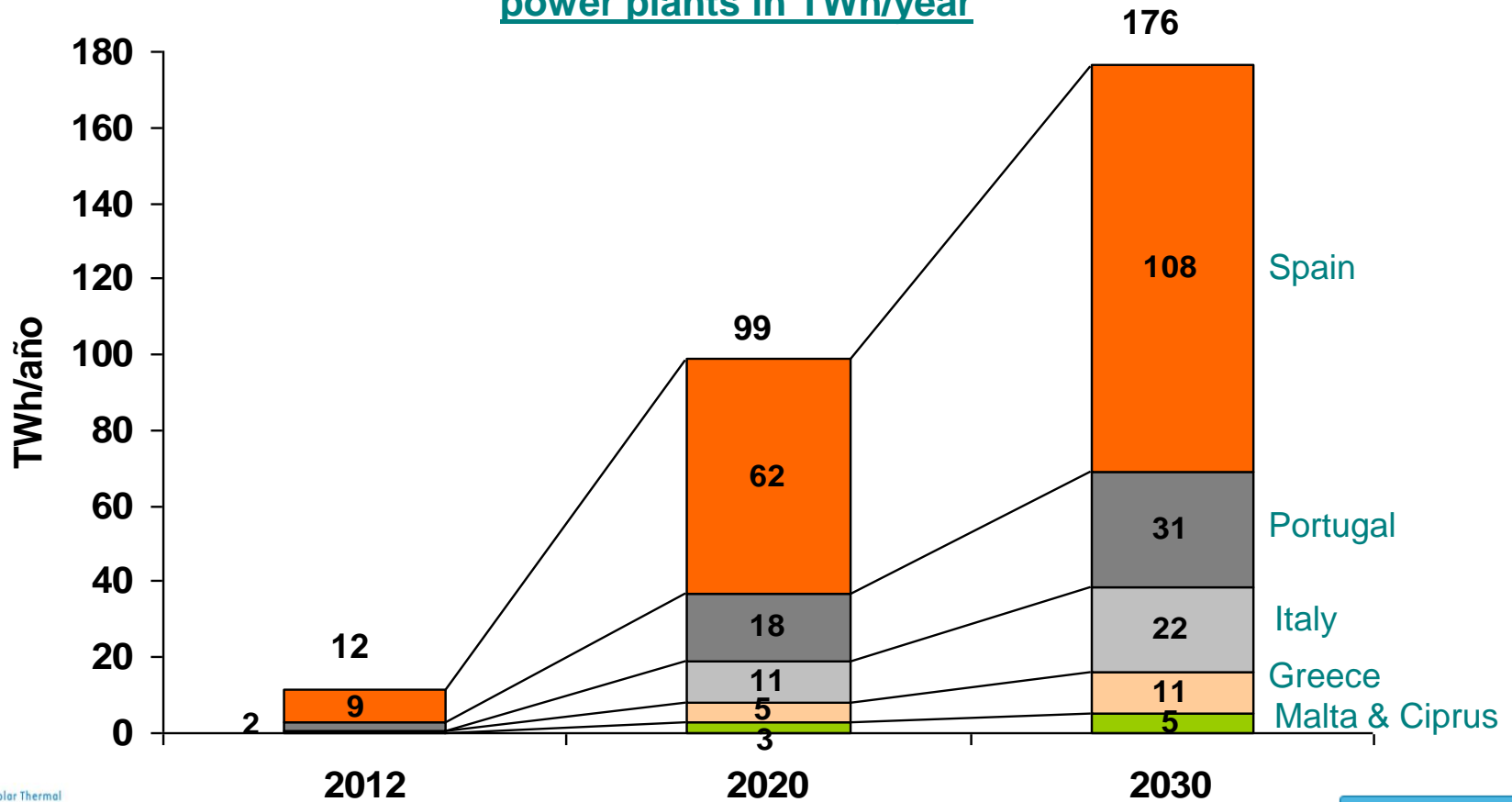


Source: Estela 2008

Renewable Energy Policy Workshop

European solar thermal power plants might produce in 2030 more than 176 TWh/year...

Electrical generation of European solar thermal power plants in TWh/year

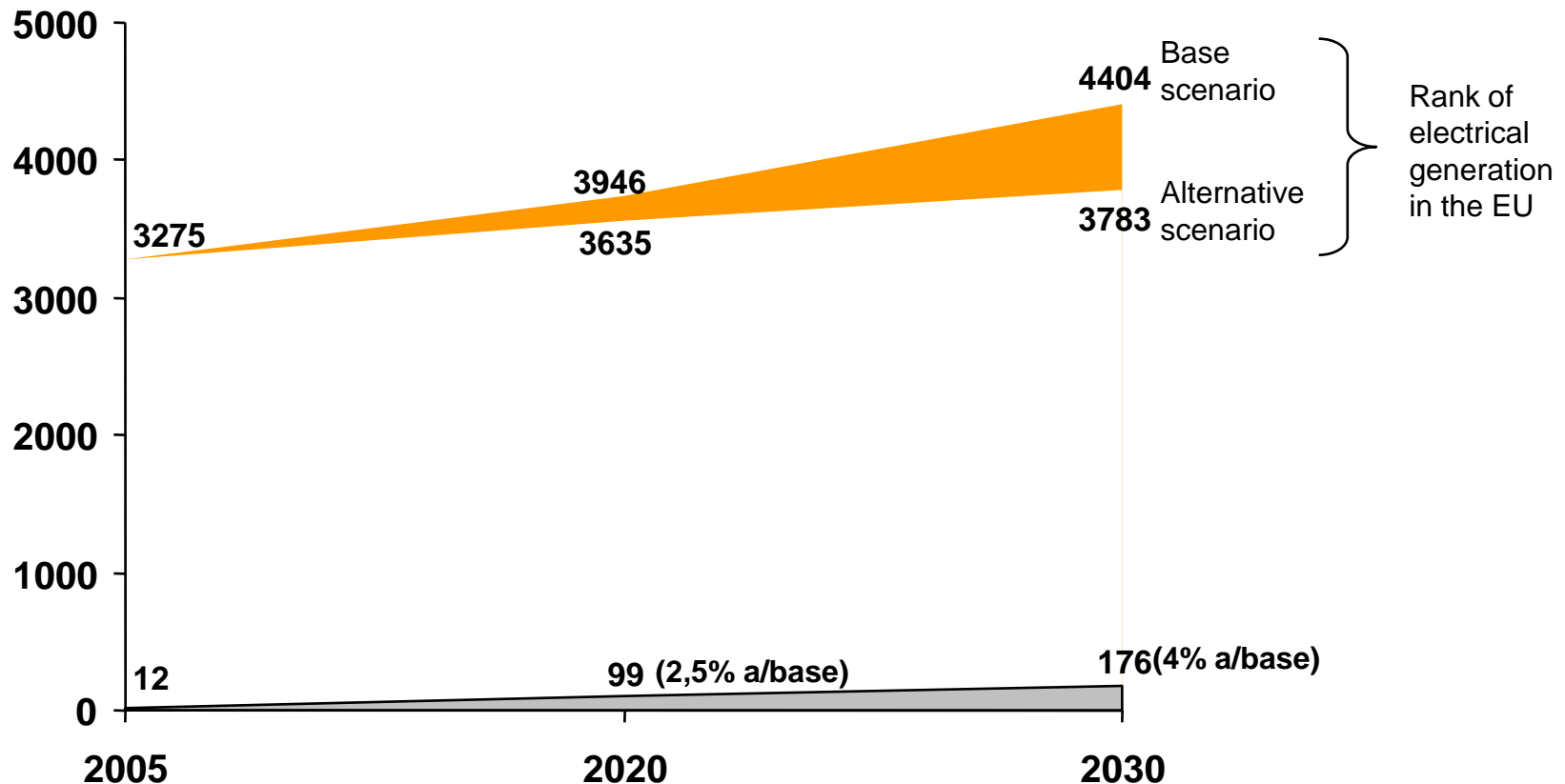


Source: Estela 2008

Renewable Energy Policy Workshop

...which, however, represents only the 4 - 5% of the whole annual electrical generation of the EU

Electrical generation of European solar thermal power plants in TWh/year

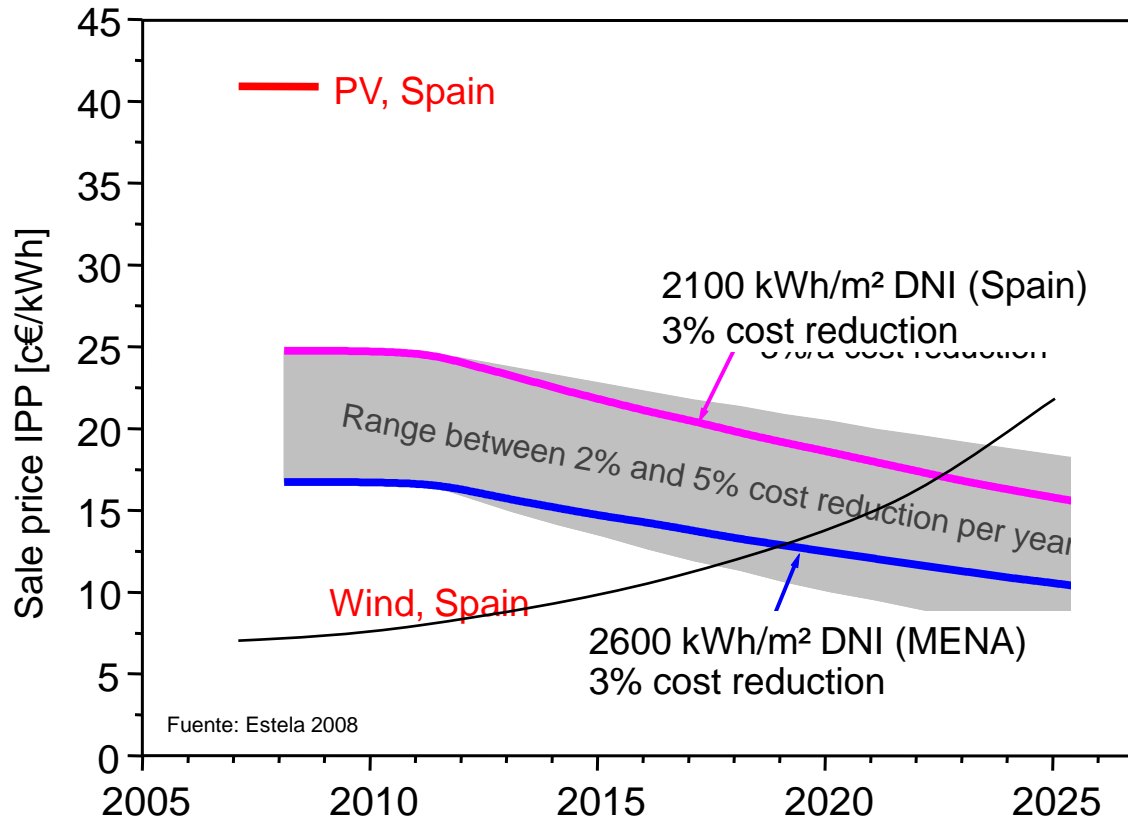


Source: Estela, IEA 2008

Renewable Energy Policy Workshop

Thermal solar electricity costs will slowly decrease with time, but we can expect an increase of costs from non-renewable sources.

Estimated electricity prices: feed-in tariff vs. non-renewable price



Why the fossil electricity price will increase?

- Progressive internalization of environmental costs
- Relative scarcity of certain fuels, with increased extraction and treatment costs
- Reduction in the working hours of fossil fueled plants to accommodate inexpensive but non dispatchable sources (wind, minihydro)

Renewable Energy Policy Workshop

What can we expect from the Renewable Energy Directive regarding the renewable electricity portfolio?

- **Dispatchability / Manageability will become a major issue as the electrical systems become more complex and distributed**
- **The capacity to produce when required by the system (and not to produce when not required) should be an important criteria when evaluating any generation technology actual cost and the optimum generation mix**
- **Availability of an integrated/interconnected grid, with capacity to transport huge amounts of electricity at low cost, may impact the ideal generation mix, both inside the EU and within the neighbouring / Mediterranean countries**

Renewable Energy Policy Workshop

What can we expect from the Renewable Energy Directive regarding the renewable electricity portfolio?

- Such large capacity grid may affect the ways in which we perceive manageability of a certain technology, going from a “plant basis” to a “technology / source basis”. I.e. the production we may expect from one particular source (solar-thermal, wind) will depend not only from the technology used and the availability of the resource (sun, wind) at one specific location and time, but from a statistical prediction based on the availability of hundreds of such plants distributed over a very large territory (i.e. the EU territory plus the neighbouring countries)
- The previous concept, when reinforced by the adequate use of accumulation/hybridation technologies in the plants, may counterweight the obvious problems of discontinuity and unpredictability of the natural resources.