

THE NEED FOR MORE STE/CSP IN THE FUTURE ENERGY MIX



Why does the STE/CSP sector need political support?

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THE ANSWERS: NR 1 -- FIRST A POLITICAL CHOICE



- ➔ “Technology neutrality” is a **fiction** (excepted for incumbent market players, or promoters of mature technologies). Technology is promoted or kept down first of all by the corresponding political framework in which it is embedded.
- ➔ It is therefore urgent to assess the implications of further delayed or withheld action for the sector in terms of:
 - **industry policy** incl. competition conditions inside and outside Europe, and its impacts on employment
 - **technology leadership** including excellence in research and innovation,
 - **attractivity for investors** and IFIs (that will dramatically impact the costs of the technology)

THE ANSWERS: NR 2 — THE NEED FOR ENERGY TRANSITION

The energy transition towards renewables is an **irreversible process**, even if the pace of this transition will vary from country to country.

- It might be accelerated or delayed by price swings on raw materials and fossil fuels or always possible political turmoil, but not stopped.
- It might also be accelerated by the shut-down of nuclear power plants in Europe (be that there is no political acceptance for prolonging the initial operation authorizations) or following serious disturbances or necessary extremely costly repairs (such as cracks and leakages in the containment vessels)
- It will be more and more difficult to finance investment in new fossil generation units, due to environmental reasons

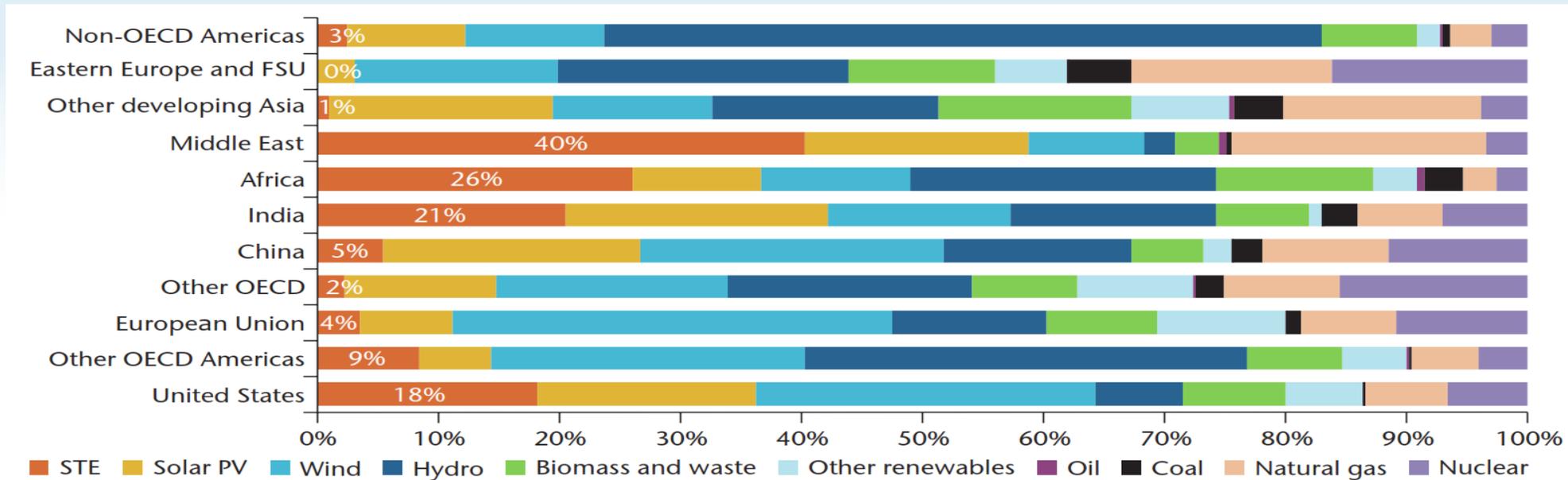
The result will be that **nearly all investments will go into renewable sources**, that — so these investments continue to be into variable RES) will then soon hit a **limit of reliability of the system**.

THE ANSWERS: NR 3 – SECTOR INCLUSIVENESS

- ➔ Besides supplies and services that are normally provided at least cost by local companies of the country where a plant is built (civil works, assembling on site, non-specific auxiliary services) there is a widespread distribution of STE/CSP competences and business potential for companies across at least 9 EU member States.
- ➔ These companies hold references in STE/CSP technology, based for a substantial part on own R&D and are able to successfully compete on global STE/CSP markets — provided that they are politically supported by fair competition conditions and leaning on an own home (means in this case: Euromediterranean) market.

	Member State	GER	BEL	DNK	CZE	ESP	FRA	NLD	ITA	PRT
Activity	Developer	x				x	x		x	
	Civil works					x			x	x
	Solar Field	x				x	x			
	Tower					x			x	x
	Receiver	x		X		x		x		
	Storage	x				x				
	Control	x		X		x	x	x	x	x
	Piping/Valves	x	x			x	x		x	x
	Steam gener.	x		X		x		x	x	
	Turbine	x			x				x	
	Cooling system					x			x	x
	Electrical syst.	x		x	x	x	x	x	x	x
	Auxiliary syst.					x			x	x
	Assembling					x			x	x

THE ANSWERS: NR 4 – STE BUSINESS DEVELOPS FURTHER



➔ European companies should grab a **share of the worldwide STE deployment** instead of dropping technology leadership and the business opportunities to non-European competitors. **Even for Europe, achieving the apparently small share of 4% for STE/CSP by 2050 would mean that from 2015 to 2030 twice as much of the installed STE/CSP capacity should be installed in Europe compared to the average STE/CSP capacity installed in Spain between 2007-2013.**

But

THE ANSWERS: NR 5 – GROWTH AND JOBS

- ➔ Widespread distribution of STE/CSP competences and business potential for companies across at least 9 EU member States.
- ➔ These companies hold references in STE/CSP technology, based for a substantial part on own R&D and are able to successfully compete on global STE/CSP markets - if politically supported by fair competition conditions and based in an own home (means in this case: European) market.
- ➔ Based on the latest IEA estimates , 39-57 Bn€ would be invested on average eve-ry year from now until 2030, creating 275,000 to 520,000 jobs worldwide.
- ➔ For Europe, in case of 15 GW STE/CSP build till 2030, this translates into the fact that more than 160,000 qualified jobs would be created alone in Europe covering a wide spectrum of direct activities.

THE ANSWERS: NR 6 -- DEFENDING TECHNOLOGY LEADERSHIP



- ➔ Maintaining Europe without an own STE/CSP deployment program will question the need for and the further use of non-industry R&D facilities;
- ➔ This will result in an unused potential and knowledge bearers will be acquired at low cost by non-European competitors on labour markets (e.g. former Abengoa staff)
- ➔ Technology will be acquired at lowest costs in case of company takeovers;
- ➔ It is just a matter of time until the absence of a European STE/CSP market severely impacts the mere existence of parts of these knowledge and innovation centres.

THE ANSWERS: NR 7 --- RELIABILITY / AFFORDABILITY OF THE TRANSFORMATION OF THE POWER SYSTEM



The energy transition towards renewables is an **irreversible process**. Only the pace of this transition will vary from country to country.

- ➔ accelerated or delayed by price swings on raw materials and fossil fuels or always possible political turmoil, but not stopped.
- ➔ accelerated by the shut-down of nuclear power plants in Europe (be that there is no political acceptance for prolonging the initial operation authorizations) or following serious disturbances or extremely costly repairs (such as cracks and leakages in the containment vessels)
- ➔ It will be more and more difficult to finance investment in new fossil generation units, due to environmental reasons

The result will be that nearly all investments will go into renewable sources, that – so these investments continue to be into variable RES) will then soon hit a limit of reliability of the system

RELIABILITY / AFFORDABILITY OF THE TRANSFORMATION OF THE POWER SYSTEM (CONT.)



- ➔ **Manageable CO₂-free generation** will reach price peaks due to the lack of timely investments and the resulting scarcity of this energy on European markets; the energy transition will come to a hold — possibly inverting the energy transition back into fossil fuels...
- ➔ The same market forces that trigger the deployment of intermittent technologies alleging lower investment costs will face poor returns on further investments in RES — whatever the technology. This means:
 - **The market value for intermittent power simultaneously injected into saturated systems will dramatically go down to and subsequently**
 - **There will be no more need for manageable CO₂-free capacities to increase the overall RES penetration that makes energy transition a reality.**

Only a clear political support incentivizing a balanced ratio between intermittent and non-intermittent technologies can solve the challenge of achieving an overall RES penetration levels above $> 30\%$ at competitive costs.

BACKUP NOTE: THE *DIMENSIONS* OF ENERGY TRANSITION



Policy makers should realize that the process of “energy transition” has several dimensions:

- *business (cost/return ratio) which underpins concepts such as “affordability”, “LCOE”, “competitiveness” that should be relevant to banks - but much less to political leaders*

For policy-makers, 2 other dimensions should be essential.

- *macro-economics (GDP metrics, reaching up into “social welfare”, public acceptance, etc)*
- *political: if the a.m. macro-economic dimensions is properly reflected against a pure cost approach, the issue of energy transition becomes an efficient instrument to policy makers for binding voters especially in urban areas or environmentally and/or economically stressed regions*