



FROM GREEN DEAL TO GREEN RECOVERY

An initiative of the European solar industry

MAY 2020

In early 2020, the proposal of the European Commission to launch a “Green Deal” set an ambitious double objective for the sake of European citizens’ wealth and health: increasing the European contribution to fight climate change while boosting the European economy.

Within a few months, the COVID-19 crisis added a dramatic level of urgency to act – beyond single national interests. What is needed is no longer a “boost”, but an unprecedented cooperation to “recover” the severely hit European economy under the unchanged or even increasing threat of climate change. European leaders are called to act and transform this urgency into an opportunity, without delay. This is also what the European Solar Industry is committed to.

In this context, the role of the European Solar Industry remains primarily to support the fight against climate change. It brings immediately available solutions to decarbonize energy systems while opening wide business opportunities and creating sustainable jobs – which are at the heart of a Green Recovery for the European continent.

The decarbonisation challenge applies to three sectors: electricity, heating and cooling and transport. Electricity appears today as the relatively easier-to-reach target, while heat and even more transport, are facing complex challenges and will need more time and effort. However, a smart integration of Concentrated Solar Thermal Technologies (CST) in energy policies will result in innovative multi-technologies solutions impacting not just one, but the three above-mentioned sectors.

One solar industry for Europe

The times of industries competing for the deployment of single technologies is over. Solar PV and wind hold and will keep the larger share of installed capacity. The least cost substitution of fossil-based energies comes usually first when countries go through the initial first phase of their energy transition. Unfortunately, this shifted key know-how and essential industrial production capacities of components to non-EU competitors. This should not happen again. A smart integration of the best blend of European technologies will avoid this technological drain and provide sustainable solutions, i.e. adapted to real needs – at real costs.

Therefore, the European “solar industry” can no longer be addressed only as the PV sector, discarding the considerable assets of CST. Today, markets and regulations frame a competition between companies and economies, not between technologies. Presenting the “solar industry” as reduced to PV does not reflect the business reality: not only large corporations, but also many SMEs and research entities in many European countries are working in parallel on sustainable answers using solar technologies. This demonstrates that CST is not a competitor, but a driver for the further deployment of solar electricity generation in and outside Europe, proving its competitiveness versus CCGT and even more, versus coal.

What can CST deliver to the electricity sector?

The European solar thermal industry can provide power on demand at utility scale without further delay, at lower costs than renewable electricity stored in batteries or hydrogen. This is the timely answer to the challenge of intermittency of PV and wind at sustainable costs. This is possible via:

- Complementing PV generation after sunset which will contribute to achieve a more ambitious overall deployment of renewables with a higher impact on decarbonisation and prevent overinvestments in non-dispatchable technologies.
- Constructing new innovative CSP plants with large thermal storage capacity in Southern Europe and EU neighbouring countries with the best solar resources.
- Revamping not only existing CSP plants, but also fossil-fired installations with thermal storage facilities allowing a further use of existing generation and grid connection infrastructures.
- Using all cooperation mechanisms provided by the European Commission between Member States and even with the EU Neighbourhood (Southern / Eastern).
- All this will result in substantially reduced PV curtailments, with an optimised use of natural resources across the continent, allowing shared benefits of bulk storage capacities and new strategic reserves among more Member States.

What can CST deliver to the decarbonisation of the industry sector?

The decarbonisation of the industrial sector is lagging behind. Major contributions by renewable energy must be achieved through high temperature process heat, sustainable fuels and reducing agents. This goes far beyond the potential that can be covered by biomass alone. This role and potential of CST is particularly important for Southern Europe.

- CST can provide and store high temperature heat (up to 900°C) at costs clearly below renewable fuels or electricity-based options.
- CST can provide power and high temperature heat with a very high capacity factor (7000 hours per year) to enable the decarbonisation of industrial processes.
- Due to these characteristics, it also allows an efficient operation of renewable fuel production facilities at constant load and at high capacity factors – both essential to reduce the fuel costs.
- It has the potential to decarbonise heat grids, as it can provide and store heat more efficiently at suitable temperature levels (120°C), compared to non-concentrating collectors, even in central European climate zones.

Why?

- Because CST is the cheapest renewable technology to avoid fossil energy backup, making the energy transition easier in Southern European countries.
- To reap the benefits of the complementarity between PV and CST especially, but also between wind and CST, to make a larger penetration of renewables into the EU electricity sector possible.
- To reflect the currently non-considered value of storage in upcoming auctions for new renewable capacities and the full system costs.
- To release the macroeconomic benefits of renewables for Europe.
- To foster European innovation and keep the European technological leadership in the field of CST, which is just at the beginning of its learning curve. Substantial cost reductions are expected, if backed by strong R&I resources and a proven track record for industrial implementation.

When?

- CST can make a sustainable energy transition happen right now, without waiting for “hoped-for-viability” of other solutions. It will help match the upcoming bulk storage needs in the electricity and process heat sectors that could be used for harder-to-decarbonise industries.
- CST is a mature solar technology with a track record of over more than three decades and has already “pulled” the development phase of a “solar industry” in Europe.

What is the real cost/benefit ratio of a larger use of CST?

When confronting the two-fold objective of a “Green recovery”, the use of LCOEs as only metric for investment decisions is no longer suitable for guiding investments, since the CST technologies are just at the beginning of the learning curve with significant further cost reductions expected. The real ratio between incurred costs and benefits must include a correct valuation of:

- the added flexibility to the electricity systems via thermal storage;
- the environmental impact for each sector (reduction of CO₂ and GHG);
- the part of hidden or externalised costs of single technology choices in the total system costs;
- geopolitical effects on world markets and support to the European Union’s Neighbourhood Instrument policies;
- societal and macroeconomic impacts on national economies due to new business cases for European companies with more sustainable jobs (local engineering, construction, and component supply chain as well as related services) that can not only substitute but also create jobs in the fossil energy sector;
- the recognised excellency of European research that brought to Europe a still undisputed technology and innovation leadership in CST.



Call for action

- Include CST and its characteristics into national regulatory framework conditions and tendering schemes for renewables electricity projects. The design of future auctions should include a market-based valuation of the flexibility added to the system by new capacity – under consideration of shifted or hidden costs of other generation sources (“cost channelling”).
- Adapt the current “least cost” system planning model that was supportive to the deployment of fossil energy sources in the past; but this is no longer adequate for planning systems with a high share of renewables.
- Provide access to comparable financial conditions – as available to non-EU competitors on world markets.
- Finalise the features of currently prepared new financial support mechanisms (CEF, IF) to allow CST to fairly compete for eligibility.
- Extend the concept of a “sector coupling” that should be understood as a coupling of all assets and resources of all renewables where there is a win in efficiency or costs compared to the use of “decarbonised gas” or biogas.
- Support large scale CST demonstration projects for high temperature process heat and industrial decarbonisation projects within a more ambitious European innovation ecosystem.
- Improve funding to the R&I initiatives along the full CST value chain to defend and consolidate the unique worldwide technology leadership of European companies.

A solar industry initiative supported by 176 companies, research entities, and associations based in Europe







For more information, please contact ESTELA at contact@estelasolar.org, www.estelasolar.org