



HORIZON  
STE

# Proceedings of the European webinar on Concentrating Solar Thermal Technologies & The CST Funding Programmes Survey Results

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*Report contributing to WP3 objectives (ID3.1)*

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ESTELA, European Solar Thermal Electricity Association

### Contributing Partners



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## ABOUT THE PROJECT

HORIZON-STE is a Horizon 2020 funded project aiming at supporting the Implementation of the Initiative for Global Leadership in Solar Thermal Electricity (STE), also known as Concentrated Solar Power (CSP), which was launched by the European Commission and adopted within the Strategic Energy Technology Plan (SET Plan) of the European Commission.

Since more than a decade, Europe's STE sector holds a worldwide technology leader until its further development abruptly hindered in Europe. To unlock this situation, the European Commission has launched a dedicated Initiative – Initiative for Global Leadership in CSP focusing on 2 targets: a cost reduction target and an innovation target, in order to keep STE's global technology leadership and rebuild a home market in Europe.

Acting as competence centre of the Implementation Working Group within the SET Plan of the European Commission, the overall goal of HORIZON-STE is to support the execution of the Implementation Plan regarding both STE Research and Innovation lines as well as First-Of-A-Kind projects that will help steer countries through political, legislative, and institutional shortcomings linked to various national policies concerning solar thermal electricity. Much of the focus centres on improving procurement of manageable renewable energy sources (RES) and increased public funding for STE research.



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## EXECUTIVE SUMMARY

This document is composed of two different sections. The first section is a summary of the European webinar on Concentrating Solar Thermal (CST) Technologies held on September 20<sup>th</sup>, 2022, while the second section is devoted to the online survey about funding sources for CST technologies. Both items belong to the activities planned in WP3 of HORIZON-STE.

The European webinar was organized by CIEMAT and it has been the last public event of HORIZON-STE, which ends on September 30<sup>th</sup>, 2022. Since Research and Innovation (R&I) are essential to achieve the required cost reduction of CST technologies, and the lack of public funding to support this R&I effort has become a great barrier in recent years, a study has been performed in HORIZON-STE about possibilities to implement a European Joint Funding Programme, which could be the way to channelize the public funding from all the European countries willing to support CST technologies. The results from this study had to be discussed with CST stakeholders to achieve a consensus about options.

Taking also into account that the EU-SOLARIS ERIC (a new ESFRI entity) will have a significant impact on the use of the European CST research infrastructures in the medium-long term, this webinar was organized with three objectives:

1. to analyse the presence of concentrating solar thermal (CST) technologies in the Horizon Europe Framework Programme, discussing options to increase the funding for CST technologies within the EC framework programs, not only for electricity generation, but also for process heat applications and green fuels production,
2. to present the results obtained from the study performed in HORIZON-STE about possibilities to implement a European Joint Funding Programme for CST technologies, and
3. to present EU-SOLARIS ERIC to the CST stakeholders

The Seminar began at 09:30 a.m. and lasted until 12:15 pm. After a welcoming by Eduardo Zarza (CIEMAT-PSA), the HORIZON-STE project coordinator, Marcel Bial (ESTELA), introduced this project to the audience. Next, Luisa Revilla, who is the Spanish National Representative at the Programme Committee of Cluster 5 in Horizon Europe, gave a presentation about the presence of CST technologies in the Horizon Europe work programmes for 2021-22 and 2023-24, pointing out the low budget allocated to CST technologies (about 4% of the total budget) compared with the 20% (approximately) devoted to Photovoltaic topics.

Afterwards, Eduardo Zarza presented a summary of deliverable HORIZON-STE D3.3 “Report on Options for Future European Joint Programme for the CSP Sector”, thus showing the main findings and conclusions obtained from the analysis of the several



funding schemes and collaborative networks existing for CST technologies at European level. In this presentation, the advantages and disadvantages of each of the schemes and networks analysed were explained, concluding that none of them can, alone, lead to the implementation of a European Joint Funding Programme for CST technologies.

The last presentation in this webinar was made by Julián Blanco (CIEMAT-PSA), who presented EU-SOLARIS ERIC, the new ESFRI (European Strategy Forum for Research Infrastructures) entity that will be legally launched in October 2022.

Time for comments and discussion was allocated after each presentation. Although 86 people had previously registered online for this webinar, finally the number of people connected was fluctuating between 41 and 48 during the webinar.

The second section of this document contains the results and conclusions obtained from the online CST Funding Programmes Survey. It was conducted during the third week of September 2022 to collect the opinions of the CST stakeholders about the funding sources available for this sector. One of the main conclusions is that there is a significant lack of public funding for RDI projects, thus jeopardizing the technology improvement and the pursued cost reduction. Further information about this survey is given in section 2.



## ABBREVIATIONS

CET	Clean Energy Transition
CDTI	Centre for the Development of Industrial Technology (Centro para el Desarrollo Tecnológico Industrial)
CSP	Concentrating Solar Power, which is equivalent to Solar Thermal Electricity (STE)
CST	Concentrating Solar Thermal
EC	European Commission
EERA	European Energy Research Alliance
ERA	European Research Area
ERIC	European Research Infrastructure Consortium
ESFRI	European Strategy Forum on Research Infrastructures
ETIP	European Technology Industrial platform
EU-SOLARIS	European SOLAR Research Infrastructure for Concentrated Solar Power
FP	Framework Programmes
JP	Joint Programme for EERA
RES	Renewable Energy Sources
R&I	Research and Innovation
RDI / RTDI	Research, (Technology) Development, and Innovation
PV	Photovoltaics
STE	Solar Thermal Electricity, which is equivalent to Concentrating Solar Power (CSP)



## 1. EUROPEAN WEBINAR ON CST TECHNOLOGIES

### 1.1 Webinar objectives

For more than a decade, Europe's Solar Thermal Electricity sector has become a worldwide technology leader. However, further deployment has been hindered in Europe since 2013 mostly due to retroactive changes in the investment conditions in Spain. To unlock this situation, the European Commission launched a dedicated initiative – Initiative for Global Leadership in Concentrated Solar Power – focusing on 2 targets: a cost reduction target and an innovation target, in order to keep STE/CSP's global technology leadership and to rebuild a home market in Europe.

Since Research and Innovation (R&I) are essential to achieve these two targets, and a lack of public funding for R&I on STE/CSP has become a great barrier in recent years, a study has been performed in Task 3.4 of HORIZON-STE about possibilities to implement a European Joint Funding Programme, which could be the way to channelize the public funding from all the European countries willing to support STE/CSP technologies. The results from this study must be discussed with STE/CSP stakeholders to achieve a consensus about options.

The great reduction in the budget devoted by the European Commission in the framework programmes for topics related to concentrating solar thermal (CST) technologies is hindering the technology improvements in this sector. It is therefore highly advisable an internal discussion among stakeholders on how this budget could be increased in future European programmes.

Taking also into account that the new EU-SOLARIS ERIC will have a significant impact on the use of the European CST research infrastructures in the medium-long term, it was considered convenient to inform the CST stakeholders about the new ESFRI entity (EU-SOLARIS), which will be legally launched in October 2022.

So, there were several questions that had to be discussed with stakeholders to get opinions and suggestions. At the same time, two workshops were planned in Tasks 3.3 and 3.4 of HORIZON-STE:

- a workshop as a brokerage event was planned within the activities of Task 3.3 "Coordination of stakeholders for R&I activities" to enhance the participation of CST stakeholders in R&D projects.
- another workshop was planned in Task 3.4 "Evaluation of implementation" to discuss options to define a European Joint Funding Programme on CSP. Deliverable D3.3 ("Report on options for future European Joint Programme for the CSP sector") is directly connected with this workshop.



Taking into consideration the workshops planned in Tasks 3.3 and 3.4 and the subjects for discussion already mentioned, it was finally decided to merge into a single online workshop (webinar) the two events planned in Task 3.3. and 3.4. This decision was taken in order to facilitate the participation of CST stakeholders and make a more efficient use of the time.

So, CIEMAT organized a European webinar on September 20<sup>th</sup>, 2022, with the following objectives:

1. To analyse the position of concentrating solar thermal (CST) technologies in the Horizon Europe framework programme, discussing options to increase the funding for CST technologies, for both electricity generation and process heat applications, within the EC framework programs.
2. To present the results obtained from the study performed in WP3 of HORIZON-STE about possibilities to implement a European Joint Funding Programme for CST technologies
3. To present EU-SOLARIS ERIC to the CST stakeholders

Free registration and additional information about this webinar were available at: <https://agenda.ciemat.es/e/webinar.Horizon-STE> and <https://horizon-ste.eu/events/cst-stakeholders-webinar/>

## 1.2 Webinar agenda

The agenda of this webinar is shown in Figure 1. Keeping in mind the importance of the feedback to be provided by the participants, enough time for open discussions was allocated in the agenda after each presentation.

First of all, Eduardo Zarza (CIEMAT-PSA) opened the webinar with a welcoming to the participants and explained the objectives of the Webinar. Afterwards, the HORIZON-STE project coordinator, Marcel Bial (ESTELA), made a short introduction to the project and reported on the conclusions achieved in the integrated country report elaborated for Spain in HORIZON-STE.

After the introduction to HORIZON-STE made by Marcel Bial, the Spanish National Representative at the Programme Committee of Cluster 5 of Horizon Europe (the current E.C. framework programme), M<sup>a</sup>. Luisa Revilla (CDTI), presented the calls planned for CST topics in the work programme 2023-24 of Horizon Europe, and the budget devoted to CST topics in the work programme 2021-22. About 20% of the total budget spent by the European Commission in the work programme 2021-22 was devoted to topics related to PV, while only 4% was devoted to CST technologies. The percentages will be very similar in the work programme for 2023-24. She also explained the preparation process for the



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Implementation of the  
Initiative for Global Leadership in  
Solar Thermal Electricity

draft version of the work programmes that are then distributed for comments in the member states.

## PROGRAM

09:30-09:45	Opening of the Webinar (Eduardo Zarza, PSA)
09:45-10:00	Project HORIZON-STE: introduction and objectives (Marcel Bial, Secretary General of ESTELA)
10:00 -10:15	Concentrating Solar Thermal Technologies in HORIZON EUROPE (Luisa Revilla, CDTI)
10:15 -10:45	Open discussion on how the presence of the CST technologies in the EC Framework Programmes can be increased (Chaired by Luisa Revilla, CDTI)

10:45 – 11:00 Break

11:00-11:20	Possibilities for a European Joint Funding Programme on CST (Eduardo Zarza, PSA)
11:20-11:40	Open discussion on possibilities for a European Joint Funding Programme on CST (Chaired by Eduardo Zarza, PSA)

11:40-11:55	EU-SOLARIS ERIC (Julián Blanco, PSA)
11:55-12:10	Questions and discussion (Chaired by Julián Blanco, PSA)
12:15	Closing of the Webinar



Figure 1: Agenda of the webinar held on September 20<sup>th</sup>, 2022

The influence of the European Technology Industrial platforms (ETIPs) and the priorities defined by the member states play a significant role in the elaboration of the draft documents. Since CST technologies are not within the priorities of many member states, the main action that CST stakeholders can take to increase the weight of CST topics in the framework programmes is the submission of comments to the draft documents. The implementation of a working group within the EERA Joint Programme on CSP to coordinate the preparation and submission of comments to the draft versions of the work programmes issued by the EC was considered essential to be more successful with the comments submitted by the CST stakeholders. Having in mind the importance of the



inputs given by the member states at the institutional level, it was pointed out that an effort must be put within each country to translate to the national authorities the benefits of CST technologies for the decarbonization of the energy sector.

After a short break, Eduardo Zarza presented the summary of the deliverable D3.3 “Report on Options for a Future European Joint Funding Program for CSP sector”. He explained the main advantages and disadvantages of each of the collaborative and funding schemes analysed in Task 3.4 of HORIZON-STE and published in deliverable D3.3.

Based on the outcomes from Section 3 of deliverable D3.3 “*Context for a European Joint Programme for the CSP Sector*”, currently there is no existing instrument or structure that can support a European Joint Funding Programme that fully fulfils the needs of the European CST sector. To realize such a programme, three actions are recommended in D3.3:

- First, it is recommended to further harmonize the EERA-JP-CSP, EU-SOLARIS ERIC, CETPartnership, and EU Framework Programs (FPs) within the following context. While EERA-JP-CSP is not a funding instrument, it is the most complete network of key CST research actors in ERA, and therefore is in a unique position to represent the interests of the European CST research sector and to harmonize European CST R&I activities. The strengths of EU-SOLARIS ERIC are that the member states have demonstrated a commitment to aligning national CST research infrastructures and R&I investments to pursue solutions to common challenges, and EU-SOLARIS ERIC contains most of Europe’s most significant CST Research Infrastructure facilities. However, currently, only Cyprus, France, Germany, and Spain have committed to being members of EU-SOLARIS ERIC with Portugal and Italy as observers, and key states such as Greece, Israel, Switzerland, and Turkey that historically have contributed to European co-fund schemes (e.g., CSP ERANET) are currently not affiliated with EU-SOLARIS ERIC. Thus, the footprint of EU-SOLARIS ERIC does not currently fully include all key countries and scientific funding agencies in EERA. The CETPartnership is an established Joint Funding Programme that includes the key countries and scientific funding institutions for CST within Europe and the resulting calls are expected to target solutions that CST can produce. However, and in contrast to the ERANET calls such as CSP ERANET, the CETPartnership calls are not expected to specifically target or reserve budget for CST technologies. Therefore the CETPartnership is currently not a European Joint Funding Programme with calls that can specifically target the CST Sector.
- Second, outreach should be performed to the other European renewable energy sectors that would benefit from technology specific joint funding programmes. A natural platform for this outreach is the Horizon Europe *CST4ALL* project that starts on 01 October 2022. *CST4ALL* aims to build-on HORIZON-STE successes with a



specific emphasis on identifying and collaborating with other renewable energy sectors on common challenges.

- Third, key decision makers need to be convinced of the value of adapting the existing CETPartnership structures to create technology specific European Joint Funding Programmes, including for the CST Sector. Here the increased harmonization among all European key stakeholders that would benefit from technology specific joint funding programmes will increase their ability to effectively communicate to key decision makers the unique value that technology specific joint funding programmes would bring to Europe's clean energy transition.

The last presentation in the webinar was made by Julian Blanco (CIEMAT-PSA) and it was devoted to EU-SOLARIS, which is a new entity of ESFRI (European Strategic Forum for Research Infrastructures). EU-SOLARIS will link the main European research centres devoted to CST technologies and it is therefore expected that it will play a significant role in the R&D activities in this sector. He explained the objectives of EU-SOLARIS and the central role that Spain will play in this new ESFRI entity, which central node will be located at the Plataforma Solar de Almería (PSA). Figure 2 is a snapshot taken during the presentation made by Julián Blanco.

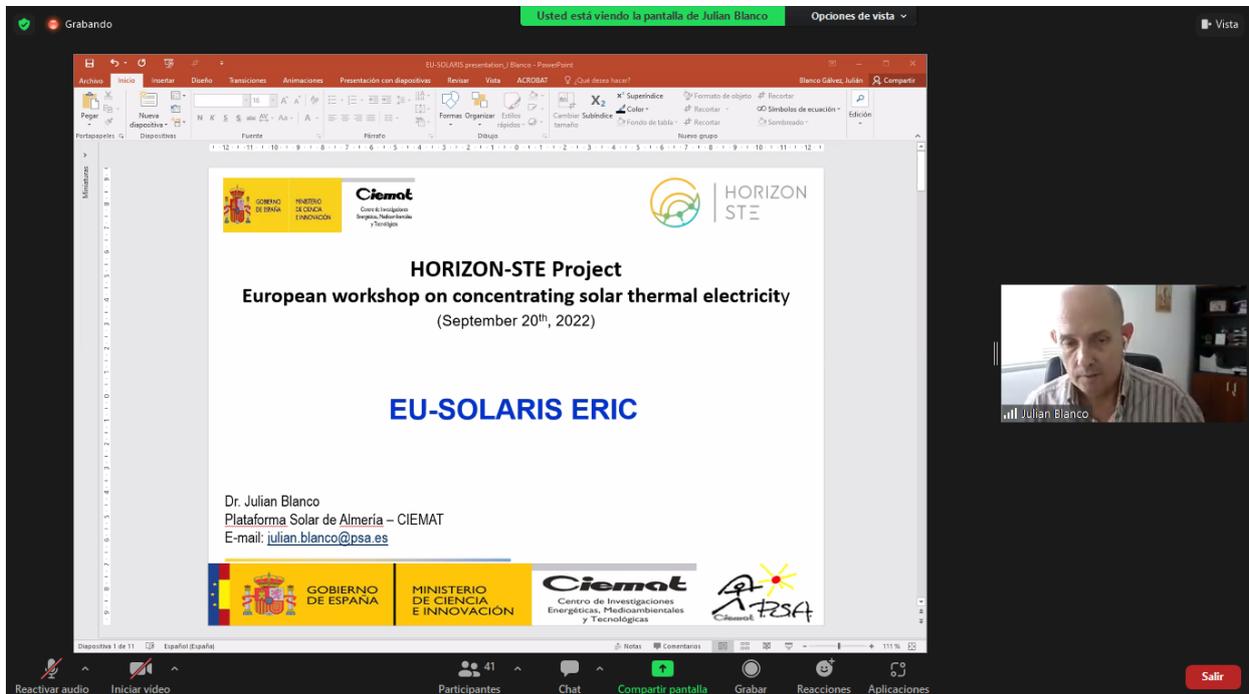
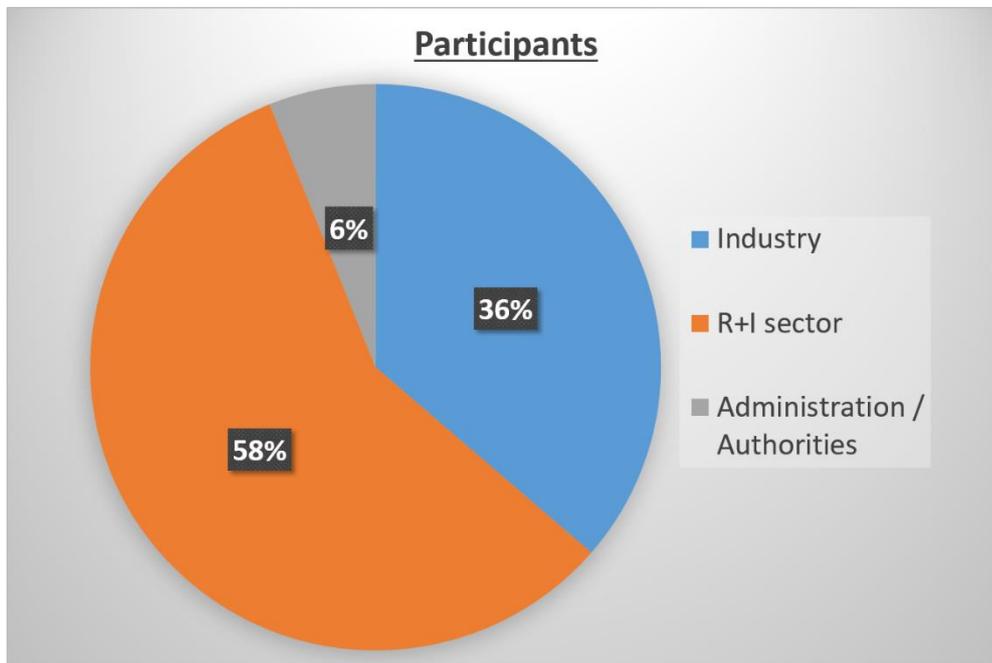


Figure 2: Snapshot of the participation of Julián Blanco (CIEMAT-PSA)



### 1.3 Participants

Although 86 people previously registered on-line for this webinar, finally the number of people connected was fluctuating between 41 and 48 during the webinar. Figure 3 gives the breakdown of participants into three different categories: a) Industry, b) R&I sector, and c) Spanish Authorities/Administration. It is depicted in Figure 3 the good balance between the Industry and the R&I sector, which is in agreement with the high commitment of both groups of stakeholders with Concentrating Solar Thermal (CST) Technologies and the status of this sector.



*Figure 3: Breakdown of participants*



## 2. CST FUNDING PROGRAMMES SURVEY RESULTS

Within the Horizon-STE project, “The CST Funding Programmes Survey” was launched in September 2022 to gather stakeholders' opinions and ideas about the suitability of current funding programmes at both national and international levels. The main motivation is to support the development of the CST technologies and the interest on these technologies in the future calls for proposals. The questions were asked considering both national and European funding programs between 2019 and 2022.

The survey consists of six open-ended questions:

1. Did you participate in Call for Proposals for research on CST topics (Y/N)? If yes, how many?
2. If you participated, were your project proposals selected for funding? (Y/N) if yes, how many?
3. Was the budget allocated to your project covering all your R&I needs?
4. Did you find suitable Calls at the national or international level to submit all the R&I project ideas relevant to you?
5. Do you think that the technology-neutral approach of the Calls for proposals is suitable for the CST technology? (Y/N) Comments?
6. How would you propose to improve the national and international funding programs for CST R&I?

The survey opened on September 13<sup>th</sup>, 2022 and closed on September 23<sup>rd</sup>, 2022. WP3 partners CIEMAT, DLR, ENEA and METU prepared the questions of the survey before the EU Cooperation event that took place on 14 September 2022. The survey was distributed to the HORIZON-STE newsletter subscribers, the registrants of the EU Cooperation Event, the registrants of the WP3 webinar that took place on 20 September 2022 and all consortium members' CST Networks and communication channels. The survey results are reported in the present document along with the proceedings of the WP3 webinar as supplementary material in the form of a “Report contributing to WP3 objectives (ID3.1)”.

The profile study of the participants shows that most of the participants are key experts in CST research, and have experience and well-grounded ideas on CST funding programmes. 29 participants filled out the survey. 24 survey participants (82% of all) attended in a Call for Proposals for research on CST topics. 9 participants attended in just one proposal<sup>1</sup>, and the remaining 15 participants attended more than 2 proposals

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<sup>1</sup> Among these 9 participants, 3 of them only mentioned that they participated to the call but did not give the number of proposals they participated. We accepted them to have one proposal



(maximum number of proposals attended is “more than 10 Proposals” and one of the participants mentioned s/he is attending one Horizon proposal per year on average). This shows that most of the participants have the expertise, interest and experience in CST RTD/RTDI activities via funding programmes. 17 out of 24 survey participants’ (71% of all) proposals were funded. This shows that ***most of the survey participants have R&D research project experience in CST topics, and hence the results of this survey are expert opinions.***

Regarding the budget allocated to their project, only 4 of the 17 funded participants said that it covered all R&I needs (3<sup>rd</sup> question). 6 participants found it “almost/partially enough” and mentioned that national funding is significantly limited, at least 25% of the budget is own contribution, and depending on the call, some expenses (such as management and dissemination activities or travels costs) are not covered by national funding part of the call. 7 participants found the budget “not enough” to cover R&I needs, and mentioned that the budget is short, some extra budget had to be put by proposers, and additional institutional funding is required. These show that approximately 77% of funded participants find that project budgets do not cover all RTD/RTDI needs, and this shows that ***there is lack of funding in CST R&D&I.***

In following question, we asked whether survey participants find suitable calls at national or international level to submit all the R&I project ideas relevant. Only 8 out of 29 participants said that they found, the remaining 21 participants answered “NO” with giving specific reasons. One of the participants said they have to adapt the scope of the proposal since the funding programmes do not provide calls that exactly fit their R&D needs. Another survey participant found national calls generic (no specific topic defined). Therefore, all proposals can theoretically fit, but at the EU level, calls are currently very limited. One of the participants mentioned that “In the last few years CST program has been restricted because of the high cost of the technology and the competition with PV and Wind, only a few calls were opened for EU countries.” This analysis shows that ***there is an increasing need for tailor-made funding programs and calls which are initiated, built, and established in close collaboration between the funding authorities and all relevant stakeholders.***

Question 5 specifically asks whether the technology-neutral approach<sup>2</sup> of the calls is suitable for the CST technology or not. Only 5 participants mentioned that depending on the call, a technology-neutral approach sometimes may work. 9 participants found the technology-neutral approach is suitable for the CST technology. On the other hand, 1

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<sup>2</sup> *Technology neutrality is defined as “neither to impose nor to discriminate in favour of the use of a particular type of technology, and not preclude the taking of proportionate steps to promote certain specific services where this is justified” in Directive 2002/21 on a common regulatory framework for electronic communications networks and services (Framework Directive) [2002] OJ L108/33 ( source: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32002L0021> )*



participant who found this approach suitable recommended that the calls should have taken into account other benefits of the technologies (such as hours of operation/year, grid support, kWh/year/used m<sup>2</sup>, etc). One of these participants mentioned that both low TRL (3-5) and high TRL (6-8) are required so the calls should be technology neutral. One of the participants told that “technology neutral is okay as long as the value of the technology to Europe (energy security and cost to integrate and not just cost to generate) is properly reflected in the evaluation. Equivalently, relative to variable PV and wind, CST has higher cost to generate but also higher value”.

On the other hand, most of the participants (14; 50% of all) found the technology-neutral approach unsuitable for CST Technologies. One of the reasons behind that is the difference between CST and other technologies:

*“CST is there to generate and store energy while the others either generate or store”.*

Also, it is explicitly stated that the specific added values of CST, dispatchability, and energy storage, are normally not included in the calls due to the technology-neutral approach, but should be included. Technology neutrality is mentioned to be implicitly picking the winner (although it is defined as quite opposite), since it relies on market conditions, and does not give chances to different kinds of technologies and R&D efforts. Rather than technology neutrality, it is recommended to focus on achieving better technology and hence a stronger technology leadership. Also it is proposed that during the call design, the cost and size of the technology and the system integration should be taken into account, rather than approaching all technologies as they are treated under same conditions and context. Moreover, it is stated that by this approach, there is a disproportionate number of Calls addressing established technologies (such as wind, PV, and batteries) rather than manageable RES, but it should be taken into account that this sector is still at an early stage of technological development and therefore needs specific calls. Another important aspect is the evaluators’ approach. One of the participants commented that even if the call was neutral towards CST technologies, the evaluators would not be well informed and neutral about CST, and their vision of solar technologies was mainly shaped by photovoltaic technologies. Hence, by the analysis of the answers to this question, ***we can infer that the technology-neutral approach for CST Technologies is not suitable.***

The survey ends with the recommendations to improve the national and international funding programs for CST R&I. These recommendations are grouped and reported under 6 themes as follows:



## FUNDING FRAMEWORK and STRATEGIES

- ✓ CST-Specific Funding
- ✓ Better synchronization among the national and the European programs
- ✓ Creating pilot project
- ✓ Even distribution of funding
- ✓ Focus on products for the next generation technology
- ✓ Move to the third Generation of CST
- ✓ Fund "closer to market" ideas
- ✓ Improving industry-led projects
- ✓ More intensity of the funding to TRL6-7
- ✓ New Strategic targets including the added values of dispatchability and build-in energy storage
- ✓ Special budget for pilot projects
- ✓ The first-of-a-kind let financing

## IMPROVE CALL DESIGN:

- Allow higher TRL
- ✓ More topics per year,
- ✓ Common management rules
- ✓ Lower number of EU partners
- ✓ Lower TRL applications to be acceptable for developing countries.
- ✓ New methodology section that includes the strategies to pursue and impacts to evaluate
- ✓ Reduce accounting complexity
- ✓ Reduce paper-work

## INCREASE FUNDING and MORE FUNDING OPPORTUNITIES

- ✓ Higher industry funding,
- ✓ More coordination and support actions
- ✓ More financial resources/budgets
- ✓ Provide and maintain stable funding



- ✓ More budget for calls

#### EVALUATION

- ✓ Improving evaluation process
- ✓ Well-informed evaluators

#### IMPACT ASSESSMENT

- ✓ Technology Specific Impact Assessment

#### POLICY DEVELOPMENT

- ✓ CST Specific Policy Design



### 3. CONCLUSIONS AND RECOMMENDATIONS

To analyse the current situation of CST RDTI Efforts at EU level and to improve these activities, two main outreach activities were performed at the end of H-STE project: a) a European webinar on Concentrating Solar Thermal (CST) Technologies, and b) a CST Funding Programmes Survey.

CIEMAT organized a European webinar on September 20<sup>th</sup>, 2022, with the objectives of analysing the position of concentrating solar thermal (CST) technologies in the Horizon Europe framework programme, presenting the results of HORIZON-STE study on European Joint Funding Programme for CST technologies and presenting EU-SOLARIS ERIC to the CST stakeholders. 45 participants, on average, participated to the webinar from the stakeholders of Industry, R&I sector, and Spanish Authorities/Administration.

About the EU FPs and CST Topics, it is found that the main action that CST stakeholders can take to increase the weight of CST topics in the framework programmes is the submission of comments to the draft documents via the EERA CSP JP working group. Moreover, an effort must be put within each country to translate to the national authorities the benefits of CST technologies for the decarbonization of the energy sector. The results of HORIZON-STE study on European Joint Funding Programme first recommended to further harmonize the EERA-JP-CSP, EU-SOLARIS ERIC, CETPartnership, and EU Framework Programs (FPs) within the following context. Second, outreach should be performed to the other European renewable energy sectors that would benefit from technology-specific joint funding programmes (like the forthcoming Horizon Europe *CST4ALL* project). Third, key decision makers need to be convinced of the value of adapting the existing CETPartnership structures to create technology specific European Joint Funding Programmes, including for the CST Sector.

“The CST Funding Programmes Survey” was prepared and distributed by consortium members to all stakeholders relevant for CST sector at national and EU levels in September 2022 to gather stakeholders' opinions and ideas about the suitability of current funding programmes to support the development of CST technologies and the interest on these technologies in the future calls for proposals. 29 participants filled the survey and the participants are key experts on the CST topics who have experience on RDTI research project in CST topics. Therefore the analysis is based on expert opinions. The most striking finding is the lack of funding in CST RTD/RTDI, and there is an increasing need for tailor-made funding programmes and calls which are initiated, built, and established in close collaboration between the funding authorities and all relevant stakeholders in CST. Moreover, the technology-neutral approach (so to say “neither to impose nor to discriminate in favour of the use of a particular type of technology”) is not suitable for CST Technologies, since these technologies are emerging and developing technologies, and the funding for CST RTDI efforts cannot be solely determined by market conditions. The survey ended with recommendations to improve the national and international funding programmes for CST RDTI. There are 28 specific recommendations



given under 6 themes of “Funding Framework and Strategies”, “Improve Call Design”, “Increase Funding and More Funding Opportunities”, “Evaluation (of the proposals)”, “Impact Assessment” and “Policy Development”.

CST-Specific Funding, by better synchronization among the national and the European programs, is highly recommended by most of the participants. Also, call designs should be improved by taking into account specific features of technology in focus, such as CSP. Providing and maintaining stable funding sources are emphasized to increase funding and create more funding opportunities. Evaluation and impact assessment of the proposals are other important topics to be improved during CST R&D funding by taking into account “Technology Specific Impact Assessment”. Recommendations also points out the policy aspects of development and diffusion of the technology and proposes “CST Specific Policy Design”.

Both the webinar proceedings and survey results show that active participation to FP call design by taking into account the needs and peculiarities specific to CST Technology is a must. The technology-specific funding, call design, proposal evaluation, impact assessment and policy development must be integrated to CST Funding Activities.