

## ANNEX XVII: ENERGY SYSTEMS, SOCIO-TECHNICAL SYSTEMS AND STRUCTURAL CHANGE

## SUMMARY

The main strategic directions of the ETSAP TCP for the next 5 year period that are underpinning this Annex XVII Work Programme align with the IEA Medium Term Strategy for Energy Research and Technology 2023-2027 and comprise:

(a) *Collaborative Analysis Informing and Underpinning Energy Policy*

The focus here is to guide policymakers with evidence-based analyses of energy security and energy transition pathways to underpin global transition to zero-carbon energy systems, to collaborate with TCP Coordinating Groups, the IEA, other IEA Technology Collaboration Programmes, Clean Energy Ministerial Initiative on Long Term Energy Scenarios, IRENA, etc.

(b) *Collaborative Research and Innovation*

The ETSAP TCP will support research and development activities in order to extend capabilities in TIMES tools in infrastructure, investment, critical minerals, socio-economics and low energy demand scenarios and explore interactions between energy system and social systems, structural change, circular economy and the United Nations Sustainable Development Goals.

(c) *Build Capacity and Engagement*

The ETSAP TCP will provide basic, advanced and competency training in ETSAP tools. In addition, ETSAP will improve the transparency, openness, documentation, results visualisation and educational materials associated with TIMES energy systems modelling.

This Work Programme also provides details the:

- a) means by which these objectives will be met over the three year period of Annex XVII;
- b) targeted outputs and deliverables arising from Annex XVII;
- c) specific obligations, responsibilities and rights of Annex XVII participants;
- d) specific obligations and responsibilities of Operating Agent and Project Head;
- e) time schedule
- f) intellectual property

The budget for ETSAP TCP to carry out the collaborative activities during Annex XVII comprised of annual fees from Contracting Parties and Sponsors and income from the ETSAP training sessions. Each Contracting Party will contribute an annual fee of €20,000 in the first year and not more than that in the following years. Sponsors will contribute with an annual fee of €30,000 for the first year and not more than that in the following years. The Executive Committee will then decide the annual budget, and the participation fee for subsequent years taking into accounts the activities planned and the number of participants

Operating Agent: Global Energy Modelling Agency (GEMA), Canada

Project Head: Dr. George Giannakidis, Greece

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### 1. Introduction

The IEA Technology Collaboration Programme on Energy Technology Systems Analysis (ETSAP TCP) is one of the longest running Technology Collaboration Programmes operating under the aegis of the IEA and represents over 49 years of international collaboration on energy systems analysis since 1976. Given the global challenges in meeting significant greenhouse gas emissions as countries seek to deliver on the Paris Agreement, coupled with the requirement to ensure energy security, a joint international programme of energy systems analysis is now even more necessary than it was 49 years ago when the ETSAP TCP was established in response to the pressures arising from the first oil crisis.

Policy makers need robust evidence and policy analyses that encompass the relevant global, regional national and local factors with increasing detail. In order to assess the contribution of new technological options, the role of key technologies and infrastructure systems to achieve policy goals need to be identified to support and underpin the policies that can bring them to the market. Therefore, analytical tools that examine the integrated energy system operation, including environmental impacts and economic considerations, are essential in increasing the evidence base underpinning these policies. The ETSAP TCP is well equipped to provide the expertise, tools and capacity building for these analyses.

### 2. Objectives

The main strategic directions of the ETSAP TCP for the next 5 year period that are underpinning this Annex XVII Work Programme align with the IEA Medium Term Strategy for Energy Research and Technology 2023-2027 and comprise:

*(a) Collaborative Analysis Informing and Underpinning Energy Policy*

The focus here is to guide policymakers with evidence-based analyses of energy security and energy transition pathways to underpin global transition to zero-carbon energy systems, to collaborate with TCP Coordinating Groups such as the existing ones on critical minerals, hydrogen, energy system flexibility, thermal networks, carbon management and heat pumps and to collaborate with the IEA, other IEA Technology Collaboration Programmes, Clean Energy Ministerial Initiative on Long Term Energy Scenarios, IRENA, etc. This aligns directly with objective 1 of the IEA Medium Term Strategy for Energy Research and Technology 2023-2027, namely *providing world leading technology and innovation advice to governments in designing policies that help to achieve their energy sector transformation to net-zero emissions by mid-century.*

*(b) Collaborative Research and Innovation*

The ETSAP TCP will support research and development activities in order to extend capabilities in TIMES tools in infrastructure, investment, critical minerals and low energy demand scenarios and explore interactions between energy system and social systems, structural change, circular economy and the United Nations Sustainable Development Goals. This aligns directly with the IEA Medium Term Strategy objective 2, namely *advancing global dialogue and collaboration on key technologies and sectors in close coordination with other multilateral platforms.*

*(c) Build Capacity and Engagement*

The ETSAP TCP will provide basic, advanced and competency training in ETSAP tools. In addition, ETSAP will improve the transparency, openness, documentation, results visualisation and educational materials associated with TIMES energy systems modelling. This contributes to the IEA MTS objective 3, *strengthening the TCPs' operations, increasing their relevance & nimbleness.*

### 3. Collaborative Activities under Annex XVII

Acknowledging that ETSAP tool users independently offer their capabilities to national and international organizations, thereby contributing to climate change mitigation analysis, building energy models, compiling scenarios, and conducting analyses, the Contracting Parties to this Implementing Agreement participating in this Annex aim to carrying out the following complementary and enabling range of cooperative activities for their mutual benefit and to support their independent activities.

**(a) Tools Maintenance, Improving and Capacity Building** - Maintaining and improving ETSAP Tools and methodologies and capacity building on the use of these tools, is the minimum objective of this Annex. This activity includes:

- i. Maintenance, update and improvement of TIMES model generator. TIMES will be improved from the methodological point in order to include the specific aspects that are needed in the analysis of the future energy system.
- ii. Increasing the transparency, openness and affordability of the TIMES model generator, associated software and data sets and advancing innovation in the modelling framework. TIMES is already available under a GPL v.3.0 license.
- iii. Exploring design development for new features and methodological enhancements that include near optimal solutions that better reflect the diversity and heterogeneity observed in real energy systems.
- iv. A TIMES-MIRO interface has been developed and the xl2times model reader has been developed as part of an ETSAP funded project and can be used as open-source simple interfaces with TIMES models.
- v. Currently only VEDA2.0 is actively developed as a model interface used for:
  - data input to the TIMES models, and
  - analysis of the model results.Therefore, VEDA2.0 is extremely important in facilitating the work of energy modellers. It will be continuously enhanced to follow the updates of TIMES and the related documentation will be revisited frequently in order to assist new users to get acquainted with them.
- vi. Capacity building aims to maintaining, extend and improve international and national capabilities, across higher-income and emerging economies, for

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- The proper use of ETSAP Tools (TIMES, VEDA), through the improvement of the users' and "getting started" manuals as well as demo models and "getting started" models;
  - Enhanced capabilities for energy systems analysis incorporating technological and market issues by building consistent energy scenarios;
  - Regular provision of training courses (at least two per year together with the semi-annual workshops) including online training options as required. The training material will be adapted to include online video tutorials, and self-paced training material with exercises and demo models. Advanced training courses on the use of VEDA/TIMES will also be planned. The Tosato grant, which covers the travel and subsistence expenses of trainees from low- and middle-income countries will continue in the next term, to enable these trainees participate in the training sessions and in the semi-annual workshops.
  - Modelling a range of possible long term development paths with ETSAP tools, and
  - Under-pinning and evaluating energy related policies focusing on the future transition of the energy system.
  - Leverage AI to support TIMES development and capacity building on TIMES, including tools like helpdesks or chatbots.
  - Collaborate with non-OECD countries for the development of NDCs focussing in the post-Paris targets and commitments.
- vii. The documentation is important for new and existing users, so one of the main priorities will be the continuous update and enhancement of the existing documentation material to include new features and to be more user friendly (especially for new users). The manuals have been transferred to *read.the.docs* and this platform will be used to update them continuously as soon as new model features are included.
- viii. Availability of online web support systems will be further developed with online user's support systems including tutorials, user's forums, manuals and reference material.

**(b) Collaborative Analysis Informing and Underpinning Energy Policy**

The ETSAP TCP will engage with the decision makers on energy and environmental policy issues and deepen our collaboration on issues of common interest. This will involve participation in collaborative analysis both within the ETSAP community and together with external partners to guide policymakers with evidence-based analyses of energy security and energy transition pathways to underpin global transition to zero-carbon energy systems. This will include, but is not limited to, collaborating with:

- i. TCP Coordinating Groups such as the existing ones on critical minerals, hydrogen, energy system flexibility, thermal networks, carbon management and heat pumps;
- ii. the IEA and with other IEA Technology Collaboration Programmes;
- iii. the International Renewable Energy Agency (IRENA) and the Clean Energy Ministerial Initiative on Long Term Energy Scenarios;
- iv. the Integrated Assessment Modelling Consortium (IAMC).

### **(c) Collaborative Research and Innovation**

The ETSAP TCP will support and undertake collaborative research and development activities in methods and topics that continually advance the state-of-the-art of energy systems analyses and integrated energy / economic / environmental / engineering modelling, to the extent that available common funds allow. The following is non-exhaustive list of topics that can be explored:

- i. extend the capabilities in TIMES modelling tools and scenario analysis in the areas of infrastructure, investment, critical minerals, socio-economics, low-demand, energy sufficiency, social license and energy justice scenarios and
- ii. explore interactions between energy system and socio-technical systems, structural change, circular economy and the United Nations Sustainable Development Goals,
- iii. include overshoot and net-negative emission pathways, integrate modelling of carbon markets, financial flows, and water-energy-food linkages.

## **4. Means**

The Participants shall achieve the objectives through the following means:

- (a) *carrying out common analyses on key aspects of present energy technology systems and their possible future developments;*
- (b) *collecting, analysing and disseminating information and consistent data related to energy systems, energy technologies, energy and environment models and scenarios;*
- (c) *promoting common research on energy systems analysis, integrating existing tools in the present methodology and developing new tools, together with other groups active in the field;*
- (d) *enhancing existing ETSAP Tools and implementing new ones, also by linking ETSAP modelling frameworks to other approaches;*
- (e) *improving of ETSAP Tools documentation and disseminating representative analyses carried out with TIMES models;*
- (f) *organizing semi-annual meetings of experts, as appropriate, to exchange information and experience in the area of work covered by the Agreement;*
- (g) *participating in joint meetings with other IEA TCPs, IEA TCP Co-ordinating Groups, and related international projects, making a concerted effort to communicate with the wider professional community, and by otherwise involving decision-makers;*
- (h) *promoting of, and participating in, relevant common projects;*
- (i) *organizing training courses to inform new experts or to widen the analytic capabilities of existing experts domestically, locally and in outreach activities, including “in-reach” capability building for participants in the use of the global models;*
- (j) *exchange of specialists, experts and students active in the sector;*

- (k) *using national and multi-national reference groups for the development and analysis of the models and linkage to users;*
- (l) *twinning established ETSAP Contracting Parties with new countries, providing materials to guide new and recent users of ETSAP methodologies, as part of “Outreach” initiatives; and*
- (m) *carrying out such other activities as may be agreed in the Annual Programme of Work.*

## 5. Deliverables

The Participants shall achieve the objectives through the following deliverables:

- (a) *books, peer reviewed publications in journals and conference proceedings;*
- (b) *publications of independent analyses and background material resulting from the studies carried out towards the achievement of the above objectives; this could materialise in a common report / book as well as contributions to journals and other reports;*
- (c) *technical reports on the feasibility or actual extension of ETSAP tools in general to neighbouring fields;*
- (d) *updated common tools for energy systems analysis, including improved versions of users’ manuals and guides for the use of ETSAP tools;*
- (e) *an improved website to better support the global community of ETSAP Tool users, offering access to documentation, relevant studies, demo models and training material;*
- (f) *regular TIMES basic training courses and ETSAP webinars*
- (f) *periodic reports on workshops or seminars, and on analytical studies undertaken in connection with the Annex; and*
- (g) *annual reports on the activities and impacts carried out under this Annex.*

## 6. Specific Obligations, Responsibilities and Rights of the Participants

Participants shall carry out, to the extent possible, the following activities and communicate the results to the Operating Agent:

- (a) *developing and using global, multi-regional, national and local scenario studies using ETSAP Tools energy systems analyses in general;*
- (b) *participating in the development of ETSAP models and Tools, including testing of newly developed versions of software, as well as reviewing the deliverables of the projects which are funded by ETSAP, and*
- (c) *contributing to the efforts of disseminating the methodologies and their use in assessing local, national, regional or global systems, offering lessons and courses, carrying out “Outreach” activities.*

Participants have special rights to the results of the joint work, not available to non-participants, as may be decided by the Executive Committee, subject only to the limitations laid out in paragraph 11

below. This includes privileged access to ETSAP Tools, the support systems and related services contracted on behalf of ETSAP or made available to Participants by the Operating Agent acting on decisions taken by the Executive Committee.

This includes:

- i. small group (5-user) license to the ANSWER and VEDA model management systems for MARKAL and TIMES;
- ii. access to ETSAP models at no charge;
- iii. discounted fees for the GAMS language in which the MARKAL and TIMES model generators are written for own and Outreach purposes (if possible); and
- iv. participating free of charge in the training courses organised by ETSAP.

## 7. Specific Obligations and Responsibilities of Operating Agent and Project Head

In addition to the obligations and responsibilities enumerated in Article 4 of the Implementing Agreement, the Operating Agent shall perform or engage in the activities noted below.

### (a) *establishing the required project staff team*

For the purpose of carrying out the above objectives and to fulfil this program of work the Operating Agent shall establish a project staff team and such additional assistance as may be required, including external staff.

### (b) *preparing the Program of Work and Reports*

The common program of work will be proposed by the Operating Agent for approval by the Executive Committee. The common work may be performed by the Project Head, other Operating Agent staff, or organizations or professionals designated by the Operating Agent, according to the work plan(s) established by the Executive Committee.

The Operating Agent shall submit yearly to the Executive Committee a draft Programme of Work, with an accompanying task-level budget, for the following year. The Operating Agent shall report yearly to the Executive Committee on the progress of the activities under each task. The Project Head will assist the Operating Agent in following up on, and in planning, the work programme activities.

Upon completion of this Annex, the Operating Agent shall prepare and submit to the Executive Committee for approval a draft final report on the activities carried out during the period of this Annex. Following approval, the Operating Agent shall transmit the report to the IEA secretariat and to the members of the IEA Committee on Energy Research and Technology.

The Committee on Energy Research and Technology may, during this Annex, propose additions to the Programme of Work. The Executive Committee shall decide whether these proposals will be added to the Programme of Work, provided such additional work can be carried out within the resource levels set out in paragraph 10 below, or other sources of funding is secured.

### (c) *Coordinate the Task and Manage the Program of Work*

The Operating Agent shall bear the following main responsibilities:

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- i. managing the agreed upon common program of work;
- ii. supervising the maintenance of the ETSAP tools;
- iii. assuring appropriate communication among the Participants;
- iv. representing ETSAP TCP in various international conferences, bodies, and groups with the approval of the Executive Committee;
- v. preparing and distributing material on the work of ETSAP TCP through the Internet.
- vi. using its best efforts, In co-ordination with the Participants, to avoid duplication of activities with other related programmes and projects implemented by or under the auspices of the IEA or of other competent bodies;
- vii. providing the Participants with the necessary guidance for the work they carry out, assuring minimum duplication of effort;
- viii. organizing workshops and seminars at the request of the Executive Committee; and
- ix. co-ordinating, at the request of the Executive Committee, the work of a small group of experts charged with reviewing the consistency and accuracy of input data, national models, and the main findings.
- x. delegating any of the points above to the Project Head.

The Project Head shall bear the following responsibilities:

- i. encourage more participation of the existing Contracting Parties in ETSAP TCP activities.
- ii. contributing to the enlargement of the ETSAP TCP community by seeking new potential contracting parties and sponsors.
- iii. Contribute the execution of the work programme in collaboration with the Operating Agent as described above.

## 8. Operating Agent

GLOBAL ENERGY MODELING AGENCY (GEMA), Canada is designated as the Operating Agent for Annex XVII.

## 9. Time Schedule

This Annex XVII shall enter into force on January 1, 2026 and shall remain in force till December 31, 2028. Within the limits of the term of the Agreement, this Annex may be extended by two or more Participants, acting in the Executive Committee, and shall thereafter apply only to those Participants. Notwithstanding this provision, in the event that the Implementing Agreement expires or is terminated before this Annex is set to expire, this Annex will automatically terminate as of the date that the Implementing Agreement expires/terminates.

## 10. Funding

### (a) *Common Financial Obligations*

The Common Program will be funded by contributions by the Participants and managed by the Operating Agent. The actual costs of the Common Program during this Annex will be divided equally among all Participants. If the number of Participants changes, the Executive Committee will decide whether or not to adjust the budget and the annual fees.

The annual fee for 2026 is to be €20,000 per participant, and not more in the following years. The Executive Committee will decide the annual budget taking into account the number of participants. The Executive Committee will decide the annual budget for subsequent years, taking into account the actual number of Participants, inflation and any agreed changes in the Common Program.

### (b) *Individual Financial Obligations*

In addition to the contributions set out in subparagraph (a) above, each Participant shall bear all costs associated with carrying out this program of work, including the costs of its national team to carry out the program and their participation in workshops and seminars.

### (c) *Additional contribution*

Any fees collected for carrying out training programs, will be added to the ETSAP budget.

Voluntary contributions from participants and other possible sponsors, if any, are welcome and will be used to more actively pursue the objectives and goals for the program of work, as approved by the Executive Committee.

ETSAP may provide seed money for (large) capacity building and analysis projects, to be decided on a case-by-case by the Executive Committee. In addition, the Operating Agent and the Contracting Parties are urged to seek funding sponsors ready to co-finance projects for training and analysis based on ETSAP tools, similarly to what presently happens with competing modelling tools.

With the approval annually of the Executive Committee, ETSAP will continue to be a sponsor of the International Energy Workshop, where ETSAP partners have continually been contributors and participants.

## 11. Information and Intellectual Property

### (a) *Executive Committee Powers*

The publication, distribution, handling, protection and ownership of information and intellectual property arising from this Annex shall be determined by the Executive Committee, acting by unanimity, in conformity with this Agreement.

### (b) *Right to Publish*

Subject only to copyright restrictions, the Participants shall have the right to publish all information provided to or arising from this Annex except proprietary information, but they shall

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not publish it with a view to profit, except as agreed by the Executive Committee, acting by unanimity.

(c) *Proprietary Information*

The Operating Agent and the Participants shall take all necessary measures in accordance with this Annex, the laws of their respective countries, and international law to protect proprietary information. For the purposes of this Annex proprietary information shall mean information of a confidential nature such as trade secrets and know-how (for example, computer programmes, design procedures and techniques, chemical composition of materials, or manufacturing methods, processes, or treatments) that is appropriately marked, provided such information:

- i. Is not generally known or publicly available from other sources;
- ii. Has not previously been made available by the owners to others without obligation concerning its confidentiality; and
- iii. Is not already in the possession of the recipient Participant without obligation concerning its confidentiality.

It shall be the responsibility of each Participant supplying proprietary information to identify the information as such and to ensure that it is appropriately marked.

(d) *Production of Relevant Information by Governments*

The Operating Agent should encourage the governments of all IEA Participating Countries to make available or to identify to the Operating Agent all published or otherwise freely available information known to them that is relevant to the program of work. The Participants should notify the Operating Agent of all pre-existing information, and information developed independently of the program of work known to them which is relevant to the Annex and which can be made available to the Annex without contractual or legal limitations.

(e) *Production of Available Information by Participants*

Each Participant agrees to provide to the Operating Agent all previously existing information and information developed independently of the Annex which is needed by the Operating Agent to carry out its function in this Annex and which is freely at the disposal of the Participant and the transmission of which is not subject to any contractual and/or legal limitations:

- i. If no substantial cost is incurred by the Participant in making such information available, at no charge to the Annex, and
- ii. If substantial costs must be incurred by the Participant to make such information available, any such charges to be reimbursed from the Annex as shall be agreed between the Operating Agent and the Participant with the approval of the Executive Committee.

(f) *Use of Proprietary Information*

If a Participant or ETSAP collaborating institution has access to proprietary information which would be useful to the Operating Agent in conducting studies, assessments, analyses, or evaluations, such information may be communicated to the Operating Agent in accordance with an agreement between the Operating Agent and the specific Participant/collaborating institution setting forth the terms and conditions for such acceptance, but the proprietary information shall

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not become part of reports, handbooks, or other documentation, nor be communicated to others except as may be agreed in writing between the Operating Agent and the Participant/collaborating institution which supplied such information.

*(g) Acquisition of Information for the Annex*

Each Participant shall inform the Operating Agent of the existence of information known to the Participant that can be of value to the Annex, but which is not freely available, and the Participant shall endeavour to make the information available to the Annex under reasonable conditions, in which event the Executive Committee may, acting unanimously, decide to acquire such information.

*(h) Reports on Work Performed under the Task*

The Operating Agent shall provide reports to the Participants and to the Executive Committee on all work performed under the Annex and the results thereof, including studies, assessments, analyses, evaluations and other documentation, but excluding proprietary information.

*(i) Copyright*

The Operating Agent may take appropriate measures necessary to protect copyrightable material generated under this Annex. Copyrights obtained shall be the property of the Operating Agent in trust for and for the benefit of the Participants, provided, however, that Participants may reproduce and distribute such material, but shall not publish it with a view to profit, except as otherwise directed by the Executive Committee.

*(j) Authors*

Each Participant shall, without prejudice to any rights of authors under its national laws, take necessary steps to provide the co-operation with its authors required to carry out the provisions of this paragraph. Each Participant will assume the responsibility to pay awards or compensation required to be paid to its employees according to the laws of its country.

*(k) Intellectual Property Rights held by ETSAP*

The Operating Agent, in trust for and for the benefit of the Participants, as directed by the Executive Committee, holds the Intellectual Property Rights of:

- the MARKAL and TIMES model generators;
- the official version of ETSAP-TIAM;
- the Energy Technology Data Source, E-TechDS;
- the two web sites: [www.etsap.org](http://www.etsap.org) and [www.iea-etsap.org](http://www.iea-etsap.org); and
- the ETSAP final reports and Newsletters.

*(l) Assignment of ETSAP IPR to another organisation*

With a majority vote, the Executive Committee can assign such rights to another organisation based on future events.

*(m) New Intellectual Property Rights*

New IP created during this Annex will be held by the Operating Agent, in trust for and for the benefit of the Participants, as directed by the Executive Committee.

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(n) *Use of ETSAP logo and Disclaimer*

The following holds related to the ETSAP logo:

- i. Contracting parties presenting their work which has utilized ETSAP tools can use the ETSAP logo together with the disclaimer below.
- ii. When CPs are asked to present on behalf of ETSAP, they can use the ETSAP presentation layout and logo.
- iii. For all other cases the CPs should consult with the ETSAP Management Team

Note: The following disclaimer should be included in all publications/presentations which include the ETSAP logo.

*Disclaimer*

*The views opinions, findings, and conclusions or recommendations expressed in this report are strictly those of the author(s). They do not necessarily reflect the views of any single or all Contracting Parties of ETSAP. The Contracting Parties of ETSAP take no responsibility for any errors or omissions in, or for the correctness of, the information contained in this paper, article, report, or presentation.*

## 12. Participants

The current Contracting Parties that are participants in ETSAP are the following:

Country	IA Signature	Contracting Party	Participating until :
<b>IEA</b>			
<b>Australia</b>	13.11.80	CSIRO	<b>Current</b>
<b>Belgium</b>	08.09.81	VITO, SPW, Brussels	<b>Current</b>
<b>Canada</b>	07.07.82	NRCan/ CanmetENERGY	<b>Until Annex XII Current</b>
<b>Denmark</b>	04.12.80	DEA	<b>Current</b>
<b>European Commission</b>	11.01.82	European Commission	<b>Until Annex XIV</b>
<b>Finland</b>	09.01.02	Business Finland	<b>Current</b>
<b>France</b>	29.01.08	ADEME/EDMP	<b>Current</b>
<b>Germany</b>	13.11.80	IER/FZJ	<b>Current</b>
<b>Greece</b>	01.12.80	CRES	<b>Current</b>
<b>Ireland</b>	01.05.09	SEAI	<b>Current</b>
<b>Italy</b>	13.11.80	ENEA/RSI	<b>Current</b>
<b>Japan</b>	17.09.81	IIEJ	<b>Current</b>
<b>Kazakhstan</b>	2015	The Government	<b>Current</b>
<b>Korea</b>	15.05.96	KEA	<b>Current</b>
<b>The Netherlands</b>	02.04.82	TNO	<b>Current</b>
<b>New Zealand</b>	2021	EECA	<b>Current</b>
<b>Norway</b>	13.11.80	IFE	<b>Current</b>
<b>Russian Federation</b>	15.09.2010	ERIRAS	<b>Suspended</b>
<b>Singapore</b>	2023	SIMTECH	<b>Current</b>
<b>Spain</b>	01.07.2010	The Government /CIEMAT	<b>Current</b>
<b>Sweden</b>	18.11.80	The Government/STEM	<b>Current</b>
<b>Switzerland</b>	01.04.81	BfE/PSI	<b>Current</b>
<b>Turkey</b>	22.03.96	Kocaeli	<b>Until Annex X</b>
<b>United Kingdom</b>	09.06.81	The Government/BEIS	<b>Current</b>
<b>United States</b>	13.11.80	DOE	<b>Current</b>
<b>Sponsors</b>	2014	ENEL Foundation	<b>Until Annex XVI</b>
	2016	GE Global	<b>Until Annex XIV</b>

### Invited to join / re-join ETSAP:

52<sup>nd</sup> meeting, November 2007: Turkey, China, India, Mexico, South Africa, Brazil  
53<sup>rd</sup> meeting, July 2008: Australia, Austria, Indonesia, Kazakhstan, Portugal  
55<sup>th</sup> meeting, June 2009: Croatia  
62<sup>nd</sup> meeting, December 2012: China, Ukraine

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65 <sup>th</sup> meeting, June 2014	Turkey, China, Singapore, India, Mexico, South Africa, Brazil, Czech, Australia, Austria, Indonesia, Portugal, Croatia, Ukraine.
69 <sup>th</sup> meeting, May 2016	South Africa.
76 <sup>th</sup> meeting, May 2020	Australia New Zealand, Austria
80 <sup>th</sup> meeting, December 2020	Israel
85 <sup>th</sup> meeting, February 2022	Portugal
91 <sup>st</sup> meeting, September 2023	KAPSARC