

HEAT  
PUMPS  
IN  
SPAIN

# NATIONAL WORKSHOP

11<sup>TH</sup> NOVEMBER 2024

📍 CIEMAT / Madrid

## HEAT PUMPS IN THE SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

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SPAIN  
NATIONAL  
TEAM



**Ciemat**  
Centro de Investigaciones  
Energéticas, Medioambientales  
y Tecnológicas



## Outline

- ✓ The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)
  - Main novelties of the PEICTI 2024-27
  - Objectives and programmes
  - Strategic Lines related to Heat Pumping Technologies
  - Planned budget of the PEICTI 2024-2027
- ✓ HEAT PUMPS RELATED PROJECTS FUNDED BY PEICTI IN THE PERIOD 2020-2023

## The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

The State Plan is the main instrument of the General State Administration for the development and achievement of the objectives of the Spanish Strategy for Science and Technology and Innovation (EECTI).

- The Plan includes grants for R&D&I activities
- A significant part of these grants is implemented through calls on a competitive basis.
- The Spanish Strategy EECTI 2021-2027, includes
  - the State Plan 2021-2023, currently being implemented
  - the State Plan 2024-2027, recently approved



# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## MAIN NOVELTIES OF THE PEICTI 2024-2027



It is structured in a matrix with **Vertical Programs and Transversal Programs**



**Internationalization, collaboration regional and strategic lines constitute the programmes cross-sections** that interact with vertical programs



Includes **framework conditions** that must be present in all programmes



It aligns with the **EU** around the stages of the **R1-R4** research career



For the first time, a **subprogramme for training and incorporation of technical staff and management to R&D&I**



For the first time it is incorporated a **Transfer and Collaboration programme**



**Comprehensive vision of the Infrastructures of R+D+I** that are incorporated into an Infrastructure Program



All the activities are integrated in the programmes of the **Spanish Research Agency**

# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## GENERAL OBJECTIF

Strengthening the Spanish System of Science, Technology and Innovation as a driving force for the transformation of the country,

- enhancing Spain's ability to attract and retain talent,
- increasing the quality of R&D,
- consolidating the transfer of knowledge &
- increasing the innovative activity of all public and private actors.

## SPECIFIC OBJECTIVES

12

vertical targets  
associated to  
vertical  
programmes and  
subprogrammes

7

horizontal targets

3

associated with  
cross-cutting  
programmes

4

linked to the  
framework  
conditions

# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## Vertical Programmes



### Human resources

- 1 Enhance the Spanish System of Science, Technology and Innovation capacity to train, attract and retain talent.
- 2 Encourage and recognize the development of scientific, technical, and technological careers.



### Research & experimental development

- 3 Promote the generation of scientific and technical knowledge, scientific quality and experimental development in public and private entities.
- 4 Strengthen research institutions, centers, and units in the public and private spheres.



### Transfer and Collaboration

- 5 Promote knowledge transfer.
- 6 Promote collaboration between institutions and agents, with special attention to public-private collaboration.
- 7 Intensify the social communication of science, promoting scientific culture and citizen participation.



### Innovation

- 8 Promote innovation in the private sector.
- 9 Strengthen knowledge-based entities.
- 10 Promote innovation in the public sector.
- 11 Support the creation of innovative start-ups.



### Infrastructure

- 12 Develop and strengthen scientific-technical infrastructures at the national and international level.

# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## Horizontal Programmes



### Cross-cutting programs

- 13** Support and strengthen the internationalization of SECTI.
- 14** Promote regional and local cooperation by taking advantage of territorial synergies.
- 15** Support priority areas of intervention.



### Framework conditions

- 16** Ensure compliance with the principles of open science.
- 17** Promote real and effective equality between men and women and diversity in all areas of SECTI.
- 18** Promote administrative simplification and reduce bureaucracy.
- 19** Promote eco-responsibility to contribute to the ecological transition.

# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## Basic structure of the PEICTI 2024-27

5

### Vertical Programs

- Human Resources
- R&D
- Transfer and Collaboration
- Innovation
- Infrastructure

3

### Cross-Cutting Programs

- International
- Regional and local cooperation
- Strategic Actions (e.g. PNIEC)

4

### Framework conditions

- Open Science
- Equality and diversity
- Administrative Simplification
- Eco-responsibility



## Strategic Lines related to Heat Pumping Technologies

Field	Strategic Lines
Industry	Industrial transition
Energy and mobility	<ul style="list-style-type: none"><li>• Energy transition and decarbonisation</li><li>• Smart and sustainable mobility</li><li>• Smart and sustainable cities and ecosystems</li></ul>

# The SPANISH PLAN FOR SCIENTIFIC AND TECHNICAL RESEARCH AND INNOVATION (PEICTI)

## Planned budget of the PEICTI 2024-2027

<b>Total PEICTI 2024-2027</b>	<b>18,399 M€</b>
Human Resources	2,218 M€
R&D	6,824 M€
Transfer and Collaboration	2,761 M€
Innovation	3,562 M€
Infrastructures	3,032 M€

Import in millions of Euros

Research Projects related to Heat Pumps funded in the period 2020-2023 (1)						
	year	Program	Project Reference	Thematic Field	Import (€)	Organisation
1	2020	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2020-119004RB-C21	Energy and Transport	131,668.00	UNIVERSITAT ROVIRA VIRGILI
2	2020	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2020-115665RB-I00	Energy and Transport	164,585.36	UNIVERSITAT POLITÈCNICA DE VALÈNCIA
3	2020	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2020-114218RA-I00	Environmental science and technology	199,650.00	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS (CSIC)
4	2021	Public-Private Partnership Projects	TED2021-129652B-C21	Energy and Transport	161,000.00	UNIVERSIDAD MIGUEL HERNANDEZ DE ELCHE
5	2021	Strategic Projects Oriented to Ecological Transition and Digital Transition	TED2021-129982B-I00	Energy and Transport	92,000.00	UNIVERSIDAD DE VIGO
6	2021	Strategic Projects Oriented to Ecological Transition and Digital	TED2021-130071A-I00	Energy and Transport	97,750.00	UNIVERSIDAD PUBLICA DE NAVARRA
7	2021	Public-Private Partnership Projects	CPP2021-008981	Industrial production, civil engineering and	242,516.68	MAXAMCORP INTERNATIONAL, S.L.

Source: <https://www.aei.gov.es/en/awarded-grants/awarded-grants-finder>

## Research Projects related to Heat Pumps funded in the period 2020-2023 (2)

	year	Program	Project Reference	Thematic Field	Import (€)	Organisation
8	2021	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2021-124232OB-I00	Energy and Transport	151,250.00	MONDRAGON GOTESKOLA POLITEKNIKOA JOSE MARIA ARIZMENDIARRIETA S. COOP
9	2021	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2021-124734OB-C21	Materials science and technology	229,900.00	AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES
10	2021	Strategic Projects Oriented to Ecological Transition and Digital Transition	TED2021-131173B-I00	Energy and Transport	149.500,00	UNIVERSIDAD POLITÉCNICA DE CARTAGENA
11	2022	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2022-139566OA-I00	Industrial production, civil engineering and	104,375.00	UNIVERSIDAD POLITÉCNICA DE CARTAGENA
12	2022	R&D+I Projects (Knowledge Generation and Research Challenges)	PID2022-137739OB-I00	Energy and Transport	162,500.00	UNIVERSIDAD DE VIGO
13	2023	Research Consolidation Projects	CNS2023-143721	Industrial production, civil engineering and engineering for society	191,792.00	UNIVERSITAT JAUME I DE CASTELLO
14	2023	Torres Quevedo	PTQ2023-013157	Energy and Transport	111,720.00	SOLATOM CSP S.L
15	2023	Juan de la Cierva	JDC2023-052575-I	Industrial production, civil engineering and	72,000.00	UNIVERSIDAD MIGUEL HERNANDEZ DE ELCHE
<b>Total Import</b>					<b>2,112,707.04</b>	



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IEA HPT TCP  
Technology Collaboration Programme

SPAIN  
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Thank you very much for your attention

Any questions?



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