



CERTH
CENTRE FOR
RESEARCH & TECHNOLOGY
HELLAS

Information & Matchmaking Event: EU Calls for Proposals 2023 on Battery and Hydrogen Technologies

Hydrogen-Hub project

Online Event, 14 February 2023,

Presented by Dr. Panagiotis Grammelis



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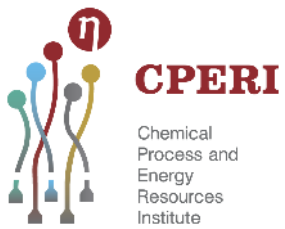
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CERTH at a glance

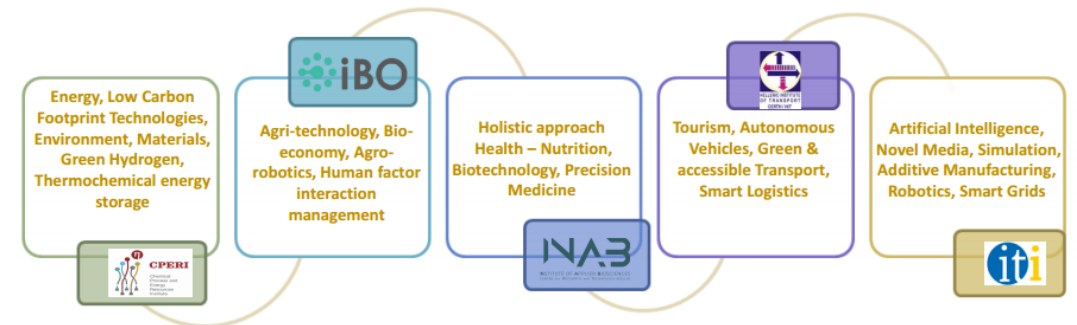
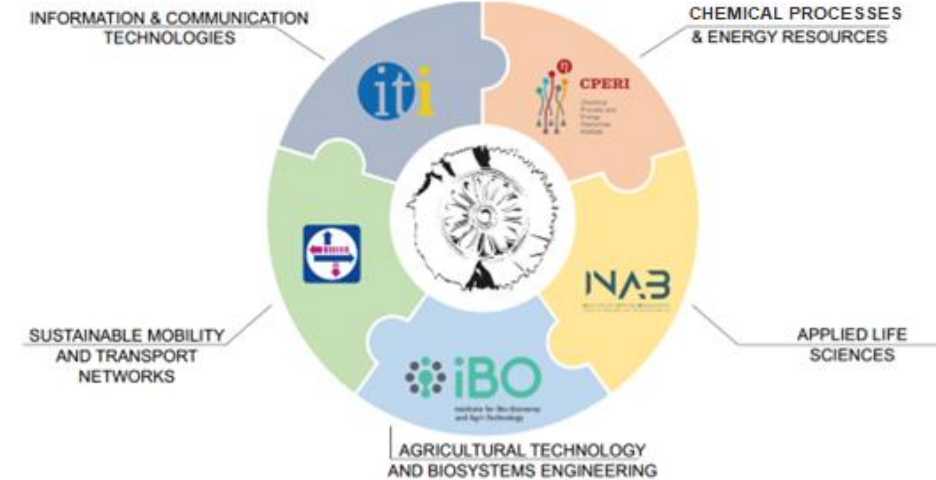
Five Institutes



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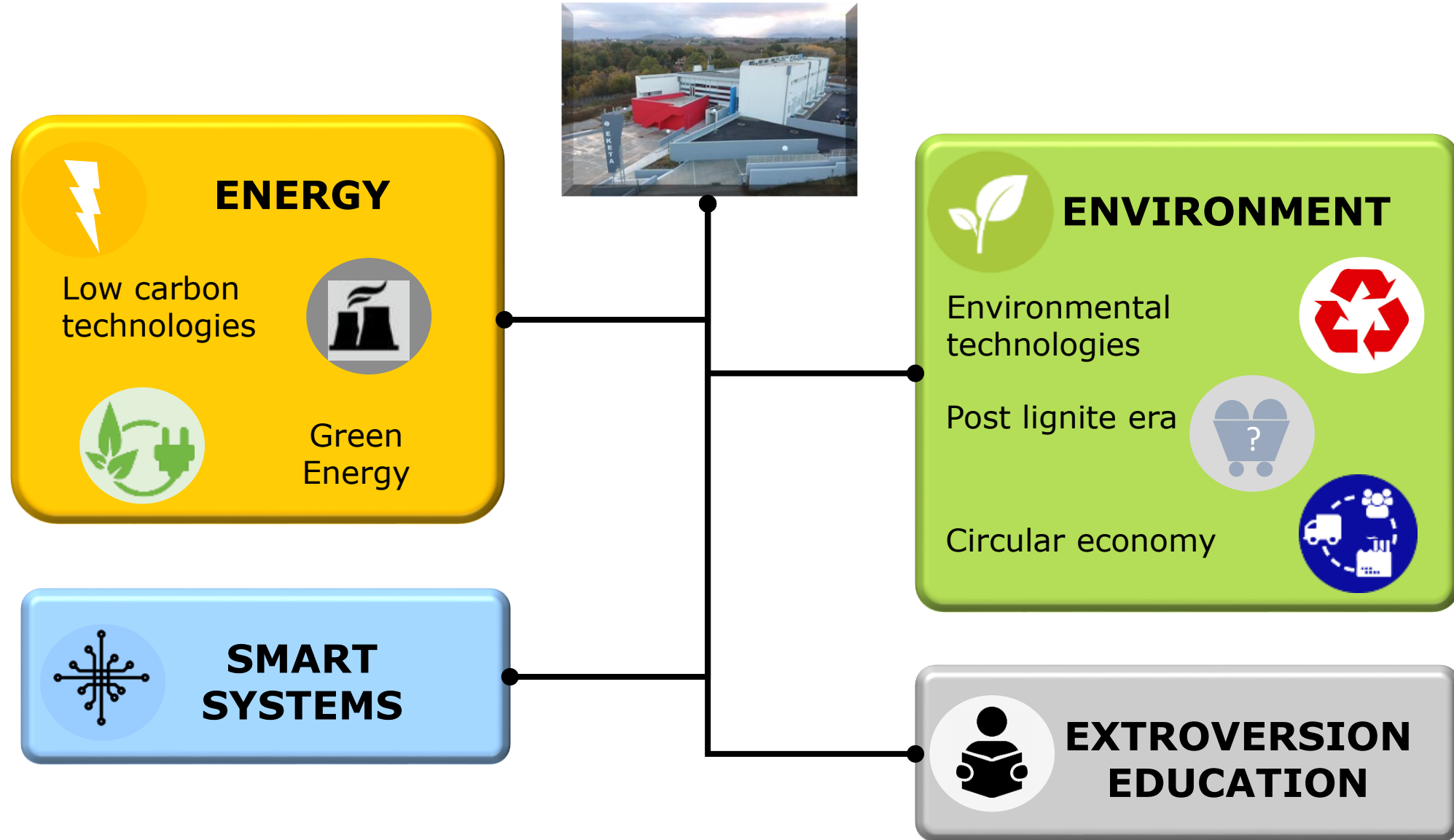
- Foundation: 2000
- Legal form: Legal entity governed by private law under the auspices of the General Secretariat for Research & Innovation of the Ministry of Development & Investment
- Personnel: > 1500
- Annual Revenues: > 50 M€ (3-year average)
 - 77% from competitive research projects through open call for proposals
 - 13% from bilateral industrial research contracts
 - 10% from government institutional funding
- Numerous distinctions & awards (Descartes Prize, ERC Advanced Grant, Trading Agent Competition Award, etc.)



Our mission:

- Promotion of the threefold framework: Research-Development Innovation;
- High Quality Scientific Research;
- Development of Innovative Products and Services;
- Strong partnerships with the National and International Industry;
- Strong collaboration with Research Centers and Universities in Greece & Abroad

Main Thematic Areas





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Collaborations



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Research Centers and Universities

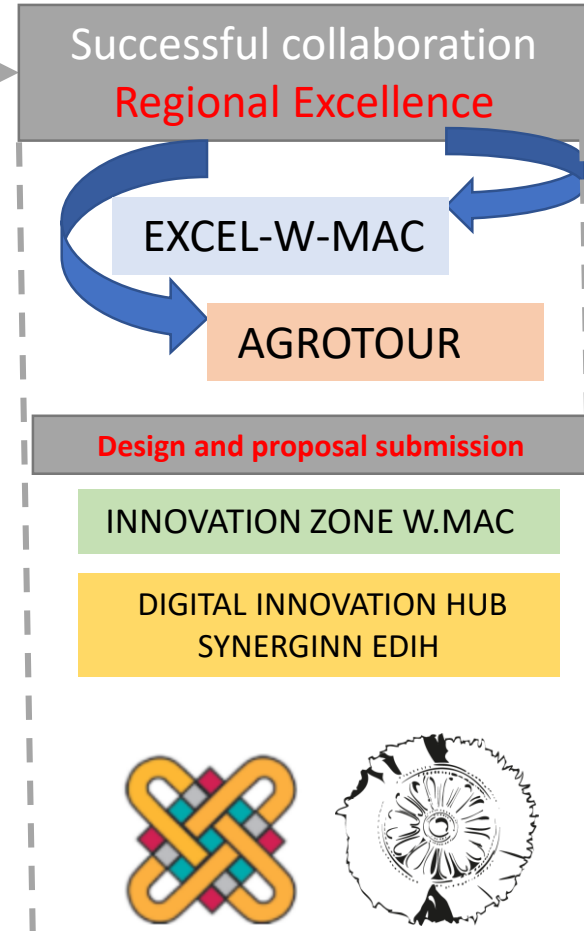
Industries & companies

Networks & Platforms

CERTH: An energy transition success story

Important collaborations in design-development-implementation of big projects with:

- Academic stakeholders (University of West Macedonia)
- Development company of Kozani (ANKO)
- Local companies (PPC & subcontractors, District Heating, DIADYMA, HELECTOR)



DESIGN

- Design of actions for metalignite era
- H2 Application/ energy storage & circular economy

DEVELOPMENT

- Innovation Zone- H2 Innovation Hub
- Smart Cities and Networks
- Technological Park in AEVAL

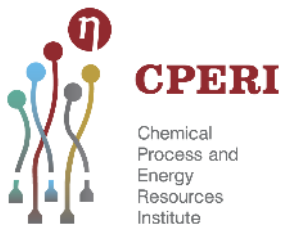
IMPLEMENTATION

- Upgrade of laboratory-building premises
- Upgrade of District heating systems in metalignite era
- Rehabilitation of soils and ecosystems
- Actions for climate mitigation (CCU/agriculture sector)
- Actions for reskilling/training



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Hydrogen In Greece and West Macedonia



Greece

- Hydrogen is included in the revised national development plan with the production of 1.2 GW electrolysis by 2030
 - Hydrogen included in the Just Transition Mechanism
 - A number of IPCEI projects are evolving in the area:
 - GreenHiPo (Advent)
 - H2Cat (B&T composites)
 - H2CEM (Titan)
- 2 small-scale H2 valleys in Crete and Corinthia co-funded under the Clean Hydrogen Partnership
- Missing legislative framework for green hydrogen characterization, large PJ development, commercial operation, market formation and green certificates

JTF -West Macedonia

- EU Press release 16/6/2022: First (JTF) Programme adopted by the Commission today, Greece will mobilise a total investment of €1.63 billion (grants amounting to €1.38 billion) to alleviate the impact of the energy and climate transition on the local economy and society. Regional efforts on Transition Planning initiated in 2017 with EU Coal Regions Transition Platform, while in 2019 World Bank conducted a study under EU-SRSS project
- JTF envisions the 'H2 Innovation Hub' of Western Macedonia, an emblematic project for the promotion of RES and innovative entrepreneurship

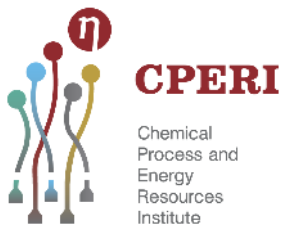


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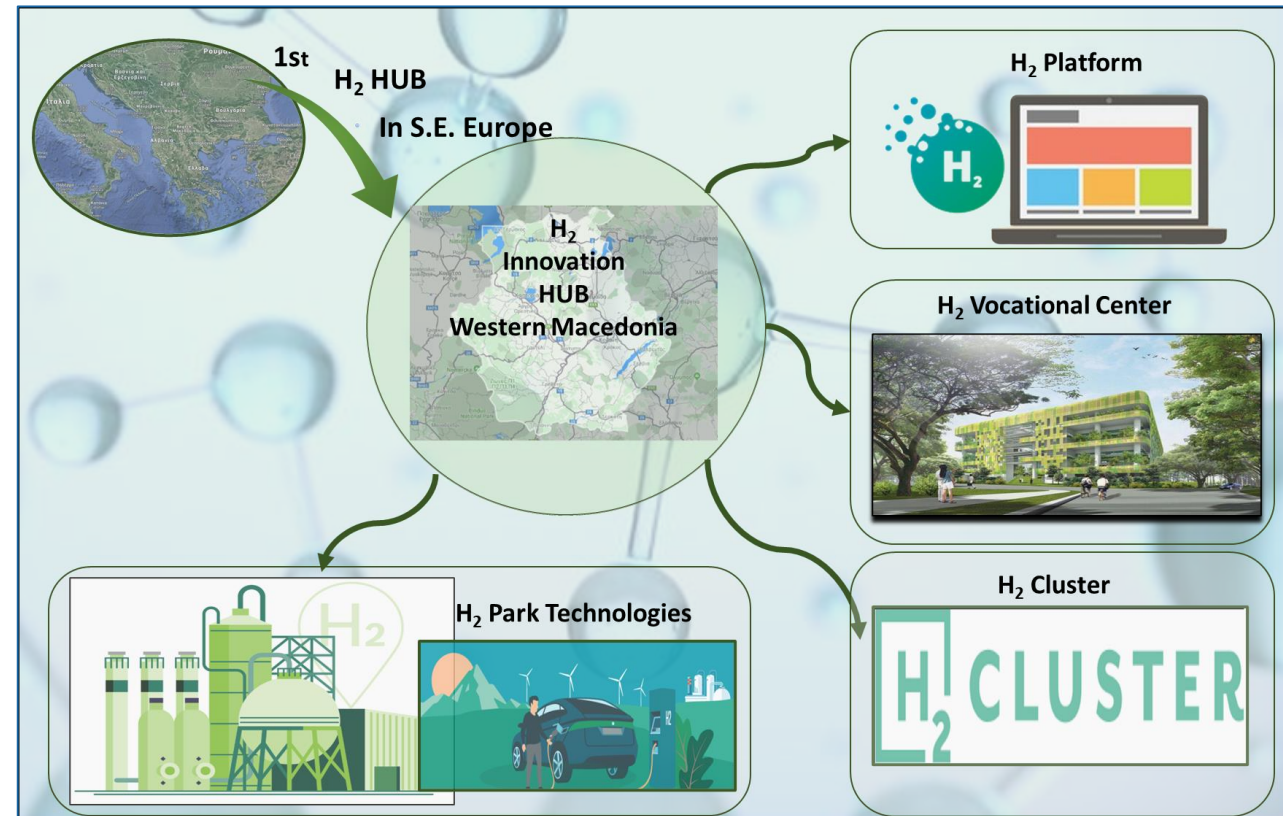


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Emblematic Project H₂-HUB

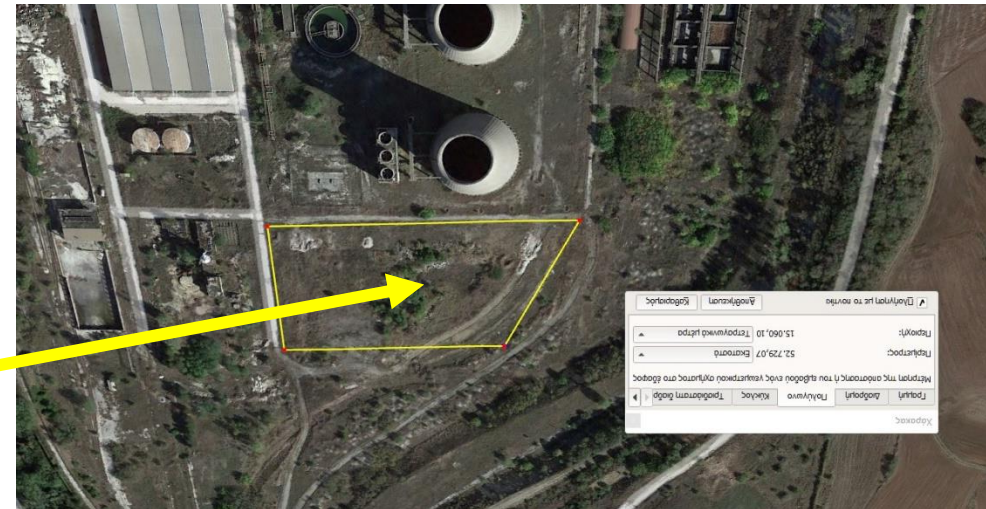


VISION: “Become the number one hub connecting science, industry, politics, and other partners in the Greek hydrogen economy by 2025 and onwards, establishing a green hydrogen technology park, offering top-quality services, promoting innovation and know-how transfer”



Location of H₂ Technology Park

Old AEVAL industrial area



- Advantages of old industrial site:
- power and water provision feasible
 - simplified permitting process
 - easy access

<https://e-ptolemeos.gr/i-p-aeval-entyposiaka-plana-apo-drone-video/>

✓ Demonstration of the full Green H₂ value chain



Energy Management System for energy storage & regulation

RES & Hydrogen Production

- PV with Li-on battery
- Alkaline electrolyzers
- PEM electrolyzers

Hydrogen Storage

- Innovative solutions for high pressure storage tanks & H₂ handling
- H₂ injection in Nat. Gas grid

Hydrogen Use

- Pilot fuel cell rig for combined heat & power
- Green H₂ fueling station for Heavy Duty vehicles

✓ Testing facilities, sizing, certifying and supporting services



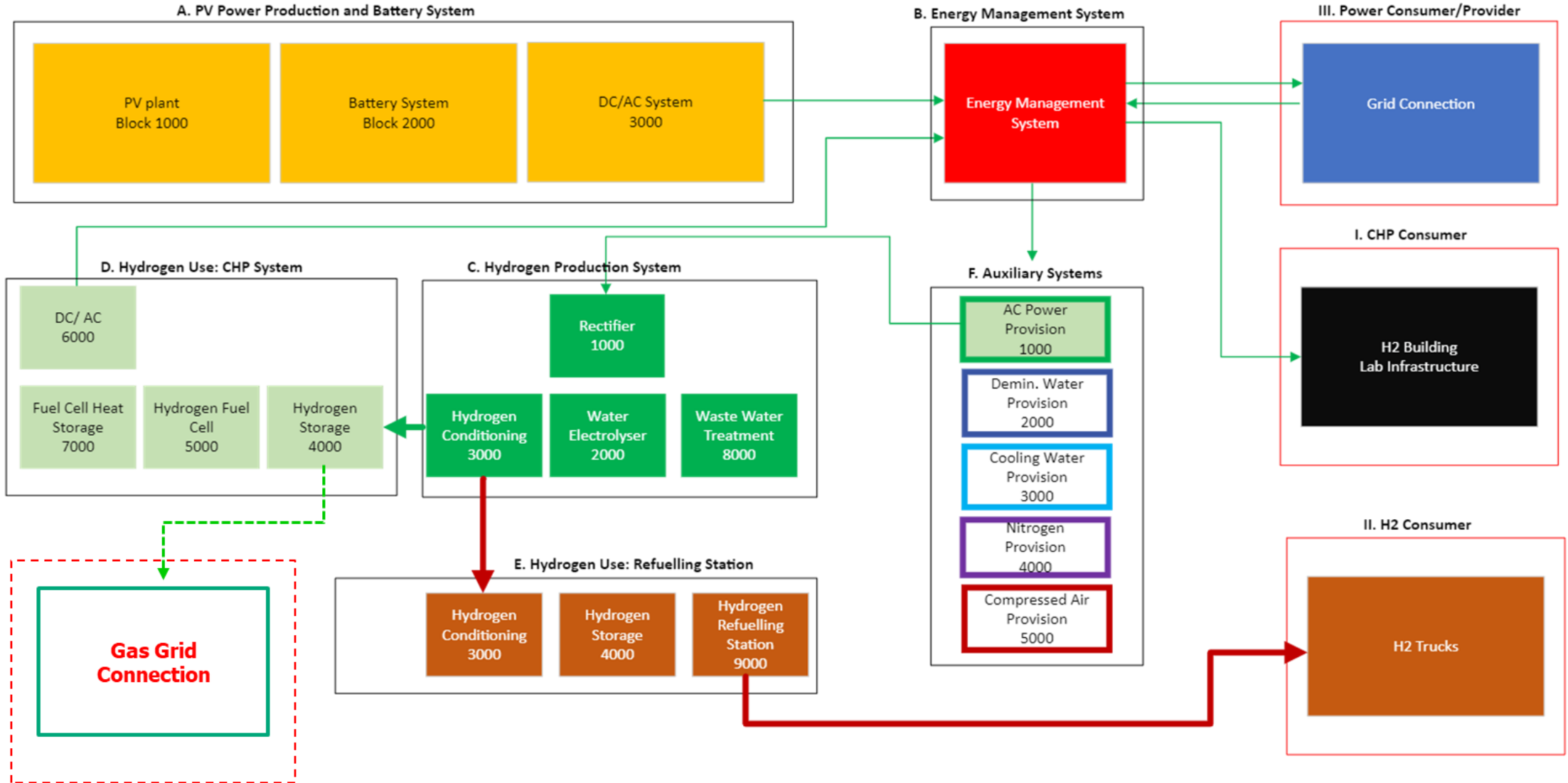
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H₂ Technology Park: Main Technology Blocks

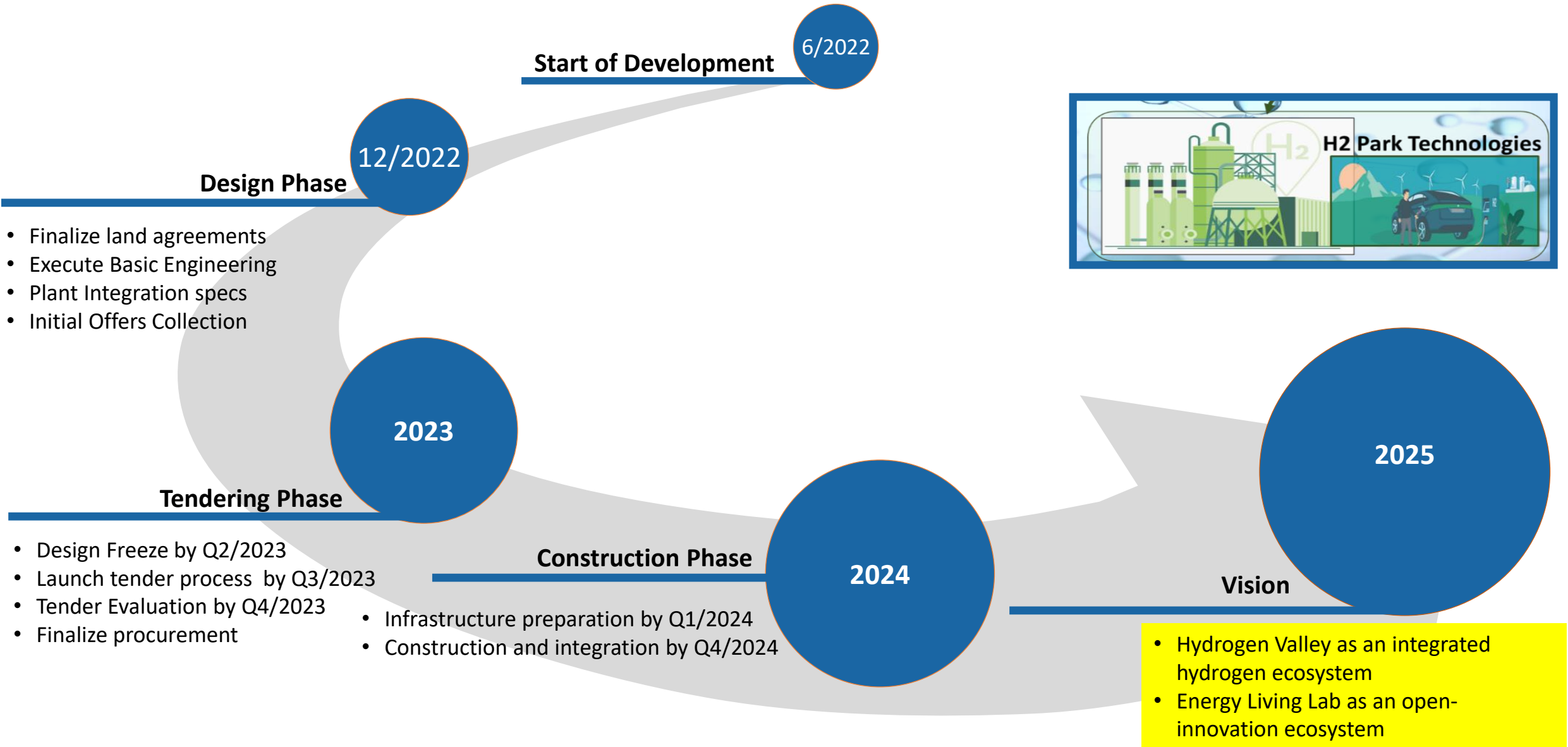


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H₂ Innovation Hub: The Timeline of H₂ Technology Park



Contact information

Ptolemais

4th km Ptolemais-Mpodosakeio Hospital (Region of Kouri)

P.O. Box 95

GR 50200 Ptolemais, Greece

Tel: +30 24630 55300, +30 24630 54679

Fax: +30 24630 55301

Email: isfta@certh.gr

Athens Branch

52 Egialias str.

GR 15125 Marousi, Greece

Tel: + 30 211 1069500

Fax: +30 211 1069501

Email: grammelis@certh.gr





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