

**Search for a Spanish Partner for a
Bilateral R&D Project (this document will be shared with potential Spanish
companies)**

Organization	
Date of Request:	16/10/2026
Company name:	Egyptian Petroleum Research Institute (EPRI)
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SECTION 1: Your Company Profile

(Please give brief / to the point explanations. For more explanation on any point below, you may add a short paragraph as an annexure, with this document.)

Business Sector	Develop innovative technologies and solutions to improve petroleum exploration, production, and processing efficiency
Company mission or core functions	To conduct cutting-edge research in petroleum science and technology, providing innovative solutions that contribute to Egypt's energy security and economic development while maintaining the highest standards of scientific excellence and environmental responsibility
Date of establishment	EPRI has been established by the Presidential Decree no. 541 for the year 1974, as one of the research institutes following the Ministry of Scientific Research, headed by his Excellency Minister of Higher Education and Scientific Research
Ownership (if public and traded, add stock exchange and ticker symbol)	Public
Total number of employees	Approximately 1500 employees
Number of employees in R&D	Approximately 1400
Key products sold or services provided	The Egyptian Petroleum Research Institute (EPRI) serves as both an applied scientific research institute and a commercial/technical

	service provider for the oil, gas, and energy sectors in Egypt and the Middle East. Its offerings are divided into manufactured chemical products, technical lab & field services, and consultancy/training offerings: <u>1. Manufactured Chemical Products</u> EPRI formulates and commercializes specialized chemical compounds used across field operations, refineries, and pipelines: • Production Chemicals & Oilfield Additives: ○ Demulsifiers: Emulsion-breakers to separate water from crude oil during field production. ○ Pour-Point Depressants (PPDs) & Flow Improvers: Additives that lower wax formation temperatures and reduce drag in long-distance pipelines. ○ Surfactants & Biocides: Formulations used for Enhanced Oil Recovery (EOR) and sulfur-reducing bacterial control in wells. • Corrosion & Scale Inhibitors: ○ Green and synthetic corrosion inhibitors tailored for high-salinity, high-acid (H₂S/CO₂), and high-temperature environments. ○ Scale-prevention chemicals for wellbores, heat exchangers, and cooling towers. • Drilling & Well Additives: ○ Specialty drilling mud additives, cement retarders/accelerators, and fluid-loss control polymers. • Petrochemical Products & Coatings: ○ Anti-fouling, marine anti-corrosion, and smart surface coatings for tanks, rigs, and pipelines. ○ Specialty lubricants, industrial greases, and custom asphalt/bitumen modifiers. <u>2. Specialized Technical & Analytical Services</u> EPRI operates ISO-certified core and testing laboratories that provide third-party verification, quality control, and field diagnostic services: • Hydrocarbon & Material Testing (ASTM / IP / ISO Standards): ○ Full characterization of crude oil, natural gas, refined petroleum products, and condensates. ○ Water quality analysis (produced water,
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	industrial wastewater, cooling tower water). • Geological & Reservoir Diagnostics: ○ Core sample analysis, fluid PVT (Pressure-Volume-Temperature) tests, and reservoir fluid modeling. ○ Seismic data interpretation and geochemical basin analysis. • Asset Integrity & Failure Diagnostics: ○ Non-destructive testing (NDT), metallurgical evaluations, and structural failure investigations for pipelines, pressure vessels, and refinery units. ○ Soil resistivity and cathodic protection system measurements. • Environmental & Wastewater Management: ○ Oil-spill response protocols, bio-remediation treatments, and industrial oil-water separation testing. ○ Air and environmental impact monitoring for onshore and offshore installations.
Company core technical competences	• Advanced geological studies including sedimentology, paleontology, and reservoir characterization. • Seismic interpretation, well logging, and subsurface imaging technologies. • Advanced analytical chemistry for petroleum products and environmental samples. • Enhanced oil recovery, reservoir engineering, and production optimization. • Environmental impact assessment and sustainable petroleum practices. • Research and development of new technologies for petroleum exploration and production.
Key R&D programs and activities	The Egyptian Petroleum Research Institute (EPRI) structures its key R&D programs and research activities across seven main technical divisions. Its research roadmap targets field performance, process efficiency, asset protection, and sustainable energy transitions. 1. Upstream & Reservoir Engineering Programs 2. Refining, Petrochemicals & Downstream Processing 3. Corrosion Control & Asset Integrity 4. Environmental Remediation & Green Energy Transition

	5. Standardized Testing, Analysis & Field Diagnostics 6. Academic Publishing & Knowledge Transfer
Examples of accomplishments	The Egyptian Petroleum Research Institute (EPRI) has a strong history of translating laboratory research into industrial solutions for Egypt's petroleum and energy sectors. Key accomplishments across research, industry implementation, environmental sustainability, and regional leadership include: 1. Industrial Products & Import Substitution. 2. Upstream & Field Operational Successes. 3. Environmental Remediation & Green Energy Initiatives. 4. The <i>Egyptian Journal of Petroleum</i> (EJP): Published and maintained the <i>Egyptian Journal of Petroleum</i> since 1991, elevating it into a recognized international academic journal indexed in top global research databases (such as Scopus and Web of Science)
Company strategic orientation	The Egyptian Petroleum Research Institute (EPRI) aligns its strategic orientation closely with the National Strategy for Higher Education and Scientific Research, Egypt's Vision 2030, and the strategic targets of the Ministry of Petroleum and Mineral Resources. Its overarching strategic direction centers on bridging the gap between scientific innovation and industrial application, transitioning the domestic petroleum sector toward sustainability, and maximizing local economic value.

SECTION 2: Partner of Interest

(Please provide a brief summary of the prospective partner company or organization. This summary may address some or all of the points below)

Profile of ideal technology partner	Spanish Industrial Partner or Technology-driven Company (e.g., in Bioenergy, CleanTech, Environmental Biotechnology, or Renewable Energy). The partner specializes in Microbial Electrochemical Systems (MES), specifically Microbial Fuel Cells (MFCs) for continuous bio-electricity generation, organic waste/wastewater treatment, and bio-energy harvesting. Our goal is to combine EPRI's expertise in
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	petroleum wastewater characterization, electrogenic bacteria isolation, and advanced material synthesis with the Spanish partner's industrial reactor engineering, scale-up capabilities, and expertise in treating complex industrial effluents.
Core technological competencies and expertise	Microbial Fuel Cell (MFC) Design & Engineering: Design of bio-electrochemical reactors (single-chamber, dual-chamber, or stacked systems) for electricity generation. • Bio-Electrochemistry & Anodic Materials: Synthesis and optimization of bio-anodes, biocathodes, conductive membranes, and novel nano-catalysts to optimize electron transfer efficiency. • Organic Waste-to-Energy Conversion: Experience in utilizing industrial wastewater, petroleum-produced water, or agro-industrial sludge as substrates for microbial power generation. • Electronics & Power Management Systems: Expertise in energy harvesting circuits, low-power energy storage systems, and step-up converters to stabilize power generated from bacterial oxidation.
Other essential qualifications (e.g.: ownership, track records etc.)	• Company Type & Structure: Innovative SME, Industrial Biotech Firm, or Engineering Enterprise headquartered in Spain. • Track Record: Demonstrated experience in pilot-scale bio-reactors, bio-energy generation, or environmental biotechnology solutions. • EU Regulatory & Grant Experience: Proven track record in participating in joint research programs (such as Horizon Europe, Eurostars, or CDTI-STDF Spain-Egypt bilateral funding calls).
If you have a list of companies with whom you are in contact or interested in contacting, please provide contact details	-
If you are interested in collaboration: please specify details and other important information you want to share with a potential company	The collaboration aims to combine EPRI's capabilities (in bio-catalysis, petroleum wastewater characterization, customized material synthesis, and lab scaling) with the

	Spanish partner's expertise (in bio-reactor prototyping, scaling up treatment systems, and electronic power management). Together, both partners will validate a pilot-scale Microbial Fuel Cell system that simultaneously treats industrial/petroleum wastewater and generates usable direct electric current (electricity) for local sensors or power storage units.
Interested areas of collaboration	Bio-Electrochemical Treatment of Wastewater: Pilot-scale validation of MFCs for degrading wastewater while generating continuous electric current. Resistant Bio-Anode Development: Co-developing specialized, anti-fouling electrode materials capable of withstanding toxic hydrocarbon and high-salinity environments. Power Electronics & System Integration: Designing energy harvesting electronics to regulate and utilize the electrical output from petroleum or other wastes-fed microbial cells.
Specific R&D contribution you are seeking/offering	Project under title: " Nanocomposites-Enhanced Microbial Fuel Cells for Simultaneous Wastewater Bioremediation and Bioelectricity Generation" Summary for the project Microbial fuel cells (MFCs) have been demonstrated as a challenging and promising technology towards management of various environmental problems. Bioremediation has been accepted widely as viable option utilizing the naturally inhabited microorganisms, but sometimes the severe low efficiency of the microorganisms and poor controllability limits its application. In this project, MFC technology can be used as a potential means to stimulate bioremediation for effective removal of various pollutants. The objective of this project is to develop a sustainable and efficient microbial fuel cell system for electricity generation from petroleum pollutants using nanocomposites to enhance microbial film formation and

	electron transfer. Spanish Partner Offers (Seeks) 1. Bio-reactor stack engineering, scaling expertise, and continuous-flow pilot design. 2. Energy harvesting circuits, power electronics, and electrical storage integration. EPRI Offers (Provides) 1. Real contaminated wastewater samples and characterization data. 2. Isolation, adaptation, and optimization of local hydrocarbon-degrading electrogenic bacteria. 3. laboratory testing, material synthesis (electrodes/membranes), and analytical evaluation.
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Signature

Name:

Hudaesheshtawy

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