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

Organization	
Date of Request:	5/2/2022
Company name:	Egyptian Petroleum Research Institute (EPRI), Nasr City, Cairo, Egypt.
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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	EPRI provides analytical service, technical consultation, training programs, and technical inspection solutions. Its services include assessments, investigations, field activities, remediation, evaluation, petrology, scanning electron microscopy, gas chromatography, inspection, and training, as well as routine and special core, liquid chromatography and water, routine, and black oil analysis. The institution also offers material and mechanical services. It provides its services for exploration, production, analysis and evaluation, refining, petroleum applications, petrochemicals, and processes design and development departments of the oil sector.
Company mission or core functions	Develop studies & applications within the Petroleum sector, and to find solutions, to both long and short runs technical problems. Providing practical, pioneering solutions to take up the challenges facing society in terms of energy and the industry, promoting the transition towards sustainable mobility and the emergence of a more diversified energy mix, we accomplish this mission through: • Our people: an extraordinary team of scientists, engineers, and support staff who work together across disciplines and, with our state-of-the-art facilities and capabilities, are the foundation of our organization.

	• Our partnerships: a rich history of trusted, dynamic working relationships with research entities throughout the world, and the clients we serve in industry and energy sector.
Date of establishment	EPRI was established in 1974 under the umbrella of the Ministry of Scientific Research.
Ownership (if public and traded, add stock exchange and ticker symbol)	EPRI is a public institute (governmental organization), under the umbrella of the Ministry of Scientific Research and Technology.
Total number of employees	1142 persons
Number of employees in R&D	250 employees
Key products sold or services provided	EPRI has 14 service units (www.epri.sci.eg/index.php/service-center) 1. Cathodic protection unit: Preserving the economic wealth of petroleum equipment, pipelines and reservoirs from erosion by exposing them to the surrounding environment. 2. Enhanced Oil Recovery by non-traditional ways: Establishment of a Semi-industrial compound for Enhanced Oil Recovery by non-traditional ways. 3. Quality control unit for coal analysis 4. Earth Sounding Unit 5. Core Analysis Lab 6. Fuel Research Unit (FRU) 7. Surfaces Protection center 8. Technical Support & technology center 9. Asphalt & polymers services center 10. Chemical Services and Development Center 11. Central Analytical labs 12. PVT Services Center 13. Tanks Services Center
Company core technical competences	• Supplying the petroleum and national industries with scientific studies, cutting edge research, consulting, analytical and technical services, and leadership in energy discoveries in various activities particularly in the oil and natural gas sectors and at the national and environmental levels. • The fast development of EPRI researches is related to Egypt rapid economic and technical development. • One of the most important objectives our Institute, is to assist in solving the problems related to the petroleum industries. This can be achieved through expanding cutting edge research: to increase the rate of oil recovery from oil fields, produce and develop field-chemicals - to facilitate crude oil production and transportation, gas sweetening or "H_2S scavenging" and maximize the utilization of Egyptian natural gas, in the field of petrochemicals industries, and, finally in the oil refining sectors.

	The institute researches aim at developing alternatives to petroleum products, using nanotechnology, especially in the production of biodiesel and mixing gasoline with alcohol to overcome lack in energy, serving the National industries.
Key R&D programs and activities	R & D Laboratories 1. Carbon nanomaterials (CNMs) lab: CNMs such as carbon nanotubes and graphene are prepared and tested for many applications. 2. Planetary ball mill lab: offers a high degree of operating convenience, safety and versatility through using the high energy input. 3. Electrospinning lab: synthesizes fibers of high specific surface area, small diameters (20-1000 nm) and large porosity that can be used in different applications, such as filtration, catalysis, sensors, Bio-pharmaceutical, and energy applications.
Examples of accomplishments	***Protocols & Cooperation*** **Internal Agreements** • The Egyptian Petrochemicals Holding Company (Echem) • The Universities; Al-Mansoura, Ain Shams, Suez Canal & Cairo University • Science & Technology Center of Excellence (Ministry of Military Production) • The General Authority of Petroleum in The Following Studies & Projects: - Innovative& Complementary Ways of Enhanced Oil Recovery with Production Companies - Bitumen Modification with Refinery Companies - Alkanolamines Production in Coop-eration with Petrochemicals Companies. • The Egyptian Petrochemicals Holding Company (Echem) for Technical Cooperation • The Engineering for the Petroleum and Process Industries (ENPPI) • IMEC Company for Oil and Gas Services. • Egyptian Universities; Al Mansoura Universit,Fayoum University, Menofeya Utilities Data Center (MUDC), • Menofeya Governate, City of Scientific Research and Technological Applications, Alex.. • Suez Canal Authority, Ministry of Supply &Foreign and Akpa Company in the field of collecting used cooking oil. **International Agreements** • Al-Thurya Technical Training Institute in Kuwait • IFP ENERGIES NOUVELLES in France • College of Petroleum Engineering and Technology, Sudan University of Science & Technology, SUST-CPENG, Khartoum, Sudan • The African Village, Sudan • New Mexico University in USA

	• The Central Oil Labs – The Sudanese Establishment for Petroleum (Sudan) • Clausthal University of Technology, Germany. • Asawer Company for Oil and Gas, Ministry of Petroleum, Sudan. • University of Aberdeen, Tesla Lab. • Biofuel National Project, Ministry of Sciences and Communications, Khartoum, The Sudan. • Korea Research Institute of Chemical Technology (KRICT), The Republic of Korea. • Indian Institute of Science (IISc), Bangalore, India. • Centre of Emerging Technologies, Jain Global Campus, Jain University Jakkasandra ,India • A O.U. between SINOPEC Corp. Research Institute of Petroleum Processing. • A M.O.U. between Kuwait Institute for Scientific Research. **EPRI Projects** EPRI projects come as a fruitful result of researches for on the scientific ground. 1-Oil Quality Control Project to link research, development, and production, which provides the hard currency necessary for importing these chemicals from abroad and preserves the intellectual property of scientists and researchers. 2-Nanocomposite Polymers Project; a project of 10 million Egyptian pounds that seeks to create a multidisciplinary infrastructure to allow the integration of research and applications, in advanced engineering materials. 3- Non-Conventional Oil Recovery Project to retrieve an amount of the total stored heavy oil from the Egyptian fields or the amounts left after primary and secondary oil recovery. EPRI also has an improved production unit and improved lifting of the oil yield coefficient. It is completed with an investment of 20 million Egyptian pounds to study the extraction of heavy oil, estimated at 3 billion barrels in Egypt alone. 4-Heat Exchangers Cleaning Project, which cleans the water and thermal exchangers using innovative chemical and mechanical methods to solve the problems of all types of salt deposits. 5-The Corrosion Control Project also provides corrosion control programs for various oil companies, monitors corrosion rates using modern technology and advanced equipment to measure corrosion in oil installations and predicts their life span. 6-Cathodic Protection Project aims at linking scientific and applied research in the field of industry, especially in the petroleum sector, due to the problems encountered by the cathodic protection systems such as lines, installations or tanks, and platforms, which may cause disaster and waste of huge sums of money estimated in billions. ***Innovative projects***

	7- Paints Development and Production Project, which aims to develop and produce different types of paints, for the establishments according to international standards and specifications using local raw materials. 8- Controlling the Quality of Petroleum Establishments to obtain the highest possible quality of the petroleum facilities required by international standards and specifications –using the latest technologies reached by scientific and applied research. 9- (NDT)Project; This project is designed to examine the safety of oil tankers and their distillates from the outside without stopping the service to identify the weaknesses and strength in the fuel transport tanks to carry out preventive maintenance before the occurrence of transport accidents which cause great losses in money and lives.
Company strategic orientation	**EPRI Strategic Plan:** 1. Commercializing traditional scientific researches; to twin scientific research with industry. 2. Purifying the scientific climate: a) Providing infrastructure for EPRI labs. b) Supplying the workforce with needed equipment for production. c) Insuring youth minds against intellectual suppression seeking for their creativity. 3. Twinning EPRI with equivalent international institutes i.e. (cooperation with IFP) 4. Modern research trends: a) Establishment of applied geophysics research unit. b) Synthesis of diesel from plastic wastes. c) Production & storage of hydrogen. d) Nano-technology applications in petroleum sector e) Production of Biofuels from algae. f) Production of highly porous materials for catalysis.

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	Applicants from the industry are companies or Economic Interest Groupings (EIG) or consortia made up of at least two independent companies. Eligible companies shall be operating and registered in Spain, and holding a valid Spanish company tax code (CIF). Furthermore, the partner should be interested in industrial waste management operations, particularly in plastic waste recycling or waste-to-energy. Also, the partner could have expertise in the production of solid waste-derived carbon nanomaterials for supercapacitor applications.
Core technological competencies and expertise	Preferably, the partner company has experience in converting waste plastics into clean H2 gas as a clean

	energy source and carbon nanomaterials as a valuable solid product, which can be used in supercapacitor applications.
Other essential qualifications (e.g.: ownership, track records etc.)	
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 working group on the Egyptian side has good experience in producing different types of carbon nanomaterials from different sources. Also, we are interested in catalysis field. We have previous work in the field of catalytic decomposition of various carbon sources to produce COx-free H_2 gas and/or carbon nanomaterials. The objectives of this project are: • Energy recovery from plastic waste by producing clean H_2 gas. • Production of carbon nanomaterials from plastic waste. • Application of carbon nanomaterials as electrodes in supercapacitors.
Interested areas of collaboration	We hope to cooperate in the area: **Environmental Sector / Waste Treatment** In this project, we hope to collaborate on the environmentally friendly conversion of plastic waste into H_2 and carbon nanomaterials, which will be tested for supercapacitor applications.
Specific R&D contribution you are seeking/offering	

Ateyya A. Aboulenein

Signature
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Date: 5/2/2022