



LEAP-RE Cofund Call 2021

**Europe-Africa Research and Innovation call on
Renewable Energy**

CALL TEXT

Link to [«LEAP-RE Call»](#)

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uProjet.aspx?idAAP=1633)

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1. About LEAP-RE

The Long term Europe Africa Partnership on Renewable Energy (LEAP RE) is a 5 years program co-funded by the European Commission under Horizon 2020. It will aim at developing long term partnership between Europe and Africa on Research and Innovation (R&I) in renewable energy. The program is conducted by a consortium of 96 partners from European and African countries. The total budget of the program is around 32 Million Euros, including 15 Million Euros from the European Commission. The program is focused on research and innovation projects proposed by public and private stakeholders. Within the consortium there are 18 African and European funding agencies who will launch a first joint Call for Proposals in early 2021 and possibly another one in 2022.

LEAP RE is structured in three Pillars, Pillar 1 : implementation of transnational open calls for proposals for research, innovation and capacity building, funded by national/regional funding agencies and by the European Commission; Pillar 2 : a cluster of individual R&I and capacity building projects implemented by members of the consortium; Pillar 3 : program management and strategic issues to build the future AU – EU long term partnership on renewable energy.

The selected projects through Pillar 1 will focus on achieving goals of mutual benefit for Member States, Associated Countries and African countries, based on a balanced and cooperative approach. Particular attention will be given to strengthening the impact of R&I supported activities for the benefit of the society, in Europe and in Africa.

The LEAP-RE group of funding organisations gathered among the consortium members in Pillar 1 consists of 8 funding organisations from Africa (Ministère de l'Enseignement Supérieur et de la Recherche Scientifique - MESRS – Algeria; Academy of Scientific Research and Technology -ASRT – Egypt; Institut de Recherche en Energie Solaire et Energies Nouvelles -IRESEN – Morocco; Ministère de l'Education Nationale, de la Formation Professionnelle, de l'Enseignement Supérieur et de la Recherche Scientifique -MENFPESRS – Morocco; Department of Science and Innovation -DSI- South Africa; National Research Foundation-NRF – South Africa; University of Lomé- Togo) and 10 funding organisations from Europe (Fonds de la Recherche Scientifique-FRS-FNRS – Belgium; Suomen Akatemia -AKA – Finland; Agence Nationale de la Recherche-ANR – France; Agence Régionale de Développement Investissement et Innovation -NEXA – France; Forschungszentrum Jülich GmbH- FZJ-PtJ – Germany; Fundação para a Ciência e a Tecnologia-FCT – Portugal; Executive Agency for Higher Education, R&D&I Funding -UEFISCDI – Romania; Centre for the Development and Industrial Technology -CDTI – Spain; Loughborough University-LU – UK).

Implementing a joint call between European and African funders (in Pillar 1) LEAP RE will promote a better mutual understanding and a convergence of views on the strategic priorities of common interest for both continents. Results of the projects selected by the first joint transnational call in 2021 will allow to decide if a second call is needed under LEAP RE implementation in 2022.

The calls will also reflect the European and African funders preferred approaches and their understanding that achieving energy solutions in African countries is a complex challenge crossing many sectors, disciplines and policy areas as well as being exposed to profound dynamics at national, regional and global level. 840 Million people in the world have no-access to energy of which 570 Million live in Sub Saharan countries. Furthermore 2.9 Billion people don't have access to sustainable non-polluting cooking devices. Systemic change and transformation are needed, which requires a more holistic and integrated approach.



The thematic priorities addressed by the call will be in accordance with the 6 Multi-Annual Roadmaps developed during the preparation of LEAP-RE (see 4., below). These Multi-Annual Roadmaps is part of the Roadmap for a jointly funded AU-EU research & innovation partnership on climate change and sustainable energy (CCSE) of the UE-AU High Level Policy Dialogue on Science, Technology and Innovation, such as:

- Development and integration of renewable energy in the energy system
- Planning and modeling future sustainable energy systems
- Including society as an important stakeholder
- Market, pricing and business models for future sustainable energy systems
- Strengthening basic research and technology development

The Transnational Joint Call 2021 is the first joint call of the LEAP-RE.

The EU Call “[Building a low-carbon, climate resilient future: Research and innovation in support of the European Green Deal \(H2020-LC-GD-2020\)](#)” launched in September 2020 encourages collaborations with LEAP RE activities. The present LEAP RE transnational Call welcome the potential partnerships between projects submitted to both Calls.

2. Participating Funding Organisations and Budgets

18 Funding Organisations have agreed to allocate national/regional budgets for the LEAP-RE Call 2021, see table 1 below. The total indicative call budget is € 13,6 million provided by funding organisations + 6 million € from the EC’s contribution.

Table 1. Participating Funding Organisations.

Country /Region	Funding Organisation	Contact person (s)	E-mail (s)	Budget (Euro)
Algeria	MESRS	Mokhtar SELLAMI Merabet HAMZA	sellami.leapre@gmail.com h.merabet@mesrs.dz	1 000 000
Egypt	ASRT	Salma ESSAWI Amr RADWAN	esalma2010@gmail.com , Radwan.amro@gmail.com ,	100 000
Morocco	MENFPESRS	Abdelouahid EZZARFI Saadi HAJAR Anas CHOKAIRI	a.ezzarfi@yahoo.fr chokairi.anas@gmail.com saadihajar95enssup@gmail.com	1 000 000
Morocco	IRESN	Sarah DIOURI Ghita FIKRI	diouri@iresen.org fikri@iresen.org	500 000



South Africa	DSI	Refilwe MASHIGO	refilwe.mashigo@dst.gov.za tinyiko.ntshongwana@dst.gov.za	1 000 000
South Africa	SANEDI	Smith NEVILLE	NevilleS@sanedi.org.za	300 000
Togo	University of Lomé	Edem KOLEDZI	edemledzi@yahoo.fr	200 000
Belgium	FRS-FNRS	Florence QUIST Joël GROENEVELD	florence.quist@frs-fnrs.be joel.groeneveld@frs-fnrs.be	200 000
Finland	AKA	Päivi LINDFORS	paivi.lindfors@aka.fi	500 000
France	ANR	François MOISAN Marie-Laure TAROT	Francois.moisan@anr.fr Marie-Laure.tarot@anr.fr	1 000 000
France	NEXA	Evelyne TARNUS Gaston BIGEY	evelyne.tarnus@nexa.re gaston.bigey@nexa.re Cellule.europe@nexa.re	100 000
Germany	FZJ-PtJ	Johanna OHNESORG Kerstin ANNASSI Marius Koelbel	j.ohnesorg@fz-juelich.de k.annassi@fz-juelich.de m.koelbel@fz-juelich.de	2 000 000
Portugal	FCT	Maria MAIA	Maria.Maia@fct.pt	300 000
Romania	UEFISCDI	Elena SIMION	elena.simion@uefiscdi.ro	500 000
Spain	CDTI	Hector GONZALEZ Marina SOPENA Milvia SOUMBOUNOU	hector.gonzalez@cdti.es marina.sopena@cdti.es milvia.soumbounou@cdti.es	800 000
UK	Loughborough University	Ed BROWN Jane SPENCER	E.D.Brown@lboro.ac.uk J.E.Spencer@lboro.ac.uk	1 500 000

3. Call calendar: Important dates

The following dates apply for this Call for R&I proposal:

Call pre-announcement	November 2020
Publication of the Call	15 January 2021
Deadline for Pre-proposal submission (mandatory)	1st April 2021
Communication of pre-proposal assessment	15 June 2021
Deadline for Full Proposal submission	15 September 2021
Communication of full-proposal assessment	30 November 2021



4. Scope and topics of the Call

The **scope** of the Joint Call is based on the ecosystem analysis highlighting that REs are of vital importance in tackling the global challenge posed by climate change and in providing reliable energy access to millions of people worldwide. The Call aims at responding to the following expectations:

1) **Technological development** needs to be deepened at all points along the energy supply chain, including conversion technologies and end use devices. Resource assessment is still crucial for some sources while distribution is an important area for research and innovation when dealing with integration of renewables via smart hybrid mini grid, either in their offgrid configuration, or when considering their long-term integration within the national grid. This is one of the most attractive areas of research where leapfrogging can be done by leveraging innovation with the digital revolution that is currently taking place in Africa and allowing integration of sources and additional storage opportunities.

2) Technological development cannot stand alone. A **comprehensive methodological approach** is needed, able to address the different phases of the energy supply chain by taking into account societal needs, market evaluation, business models for long-term sustainability, and solution deployment as well as the long-term impact on society. As underlined by the roadmap of the AU-EU High Level Policy Dialogue (HLPD) on climate change and sustainable energies (CCSE) for R&I in the renewable sector, such an approach is essential for guaranteeing the long-term social, economic and environmental sustainability of technology.

3) Renewed attention to **energy scenarios and policy** is vital for understanding the contexts in which technologies and energy solutions will be developed, helping to minimize unforeseeable consequences. There is a clear need for supporting further research and capacity building on energy scenario analysis, including modelling approaches and tools that support policy and decision makers to build a long-term plan at country and regional level.

Such a multidisciplinary approach encourages the development of scenarios that are appropriate to local contexts and can be further utilized to support policy makers. Moreover this approach requires the development of capacity building activities to increase local empowerment and ownership.

The multidisciplinary framework for R&I agenda derived from the ecosystem analysis, brought together with suggestions from the European Commission (EC), led to a list of 6 multiannual roadmaps (MAR), representing the main topics related to REs development and described in term of societal challenges, research scope and expected output, outcome and impact.

The **objectives and expected impacts** of the main topics supported by LEAP RE Joint Call 2021 are listed here below:

1: Mapping joint research and innovation actions for next-step development of RES and integration of RES in sustainable energy scenarios

Specific Challenges

Energy is a key driver of national development and energy access is crucial to the delivery of fundamental services such as healthcare and education. African countries need energy to improve the quality of life and income levels of their citizen. Within the energy transition, African countries need to adopt low carbon energy sources to meet their international commitments. This is feasible since the continent has a lot of renewable energy potential which can serve different development



needs. This transition will also require research and innovation actions to support the rethinking of energy infrastructure, energy access and energy uses, taking into consideration different political, cultural and social contexts on the continent. Deployments of renewable energy systems (RES) in Africa have been achieved for centralized and grid connected systems as in high income countries but recent development of renewable energy systems demonstrate they can also be used in decentralized and off grid contexts.

Technological development must be included in a more general framework directly related to the capacity of policymakers understanding and designing energy scenarios at the local, country, and global levels. Middle and long-term sustainability of energy scenarios, as well as the assessment of needs and potential resources at country or regional levels is also needed in order to be able to understand the potential implication of technology or energy solutions with the local conditions (economic, environmental and even cultural). There is a strong need for supporting further research and capacity building on Energy Scenario Analysis, which include all modelling approaches and tools aimed to support policy and decision makers to build a long-term plan for energy systems development at the country level.

Mapping research and innovation actions will aim at developing a common data base from which lesson and direction can be taken for driving R&I for RES. The potential pathways for the next steps in the development of RES in Africa will benefit of LEAP-RE projects and the evidence emerging from the scientific community. This process will provide a detailed map of updated research and innovation initiatives in Europe and Africa by technology and application with the aim of assisting the RE industry and policymakers to prioritize and contextualize target areas of RES deployment. This mapping exercise should be designed to meet the following criteria alongside the desirable outputs, outcomes and impacts of the LEAP RE programme: (i) compliance with national policies for RE development; (ii) essential compliance with the needs of local population; (iii) focus on efficiency and reliability; (iv) compliance with decarbonization and a replacement of conventional energy solutions; and (v) a focus on achieving universal access for all.

Expected outputs, outcomes and impacts of the MAR 1:

The mapping exercise and modelling approaches in this MAR will allow:

Outputs

- The establishment of a global reference point for the **huge amount of scientific literature and collaborative projects** that have been undertaken in the last decade as far as R&I on RES in Africa
- **KPIs, Categorisations and prioritization of reviewed publications and initiatives** will be set in a consistent way with the literature (scientific and grey) in order to align our work to that of the international community
- A better **integration of RES'** contribution to medium and long term **sustainable energy scenarios** at different levels (national, regional, continental).
- **A precise map** of RES components and systems specifically devoted to be developed, localised and deployed in EU and AU
- **Identification of key R&I actors** and stakeholders for joint Europe/Africa future initiatives;
- **Identification of key parameters** for feasibility of RE projects and the mapping of RE resources;
- Identification of areas of profitability in specific context according to the RE availability.

Outcomes

- Updated **knowledge** and base data on the scenario and progress of EU-AU R&I cooperation on RES
- Increased **awareness** of existing networks in RE in AU -EU by researchers on both continents
- robust and confident scenarios supporting energy public policies in countries

Impact

- Closer long-term oriented collaboration between African and European funders of R&I and H&ICB;
- Closer collaboration between researchers, innovators and funders of innovations;



References to results of existing research and innovation projects in this field will be positively valued in the selection process.

. # 2: End-of-life and second-life management and environmental impact of RE components

Specific Challenges

End-of-life (EoL) components (batteries from electric cars, solar panels from large PV plants, etc.) used in **renewable energy (RE) production or storage** present a new environmental challenge, but also an unprecedented opportunity to create value and pursue new economic avenues. More energy systems will get decommissioned at the end of life, or when out of specification (OoS) for their initial purpose as RE technology is mainstreamed. To contextualize this, the volume of decommissioned solar PV panels will increase as the global solar PV market increases thus large amounts of EoL PV components are anticipated. The International Renewable Energy Agency (IRENA) estimates that there will be a surge in solar panel disposal in the early 2030s, and that by 2050, there will be 60 to 78 million cumulative tons of **photovoltaic panel waste** globally. The rise of electric vehicles and the increase in adoption of storage systems will also lead to a large amount of **EoL/OoS batteries**. There will also be a yearly increase in decommissioned wind turbine blades. In some cases, these components may still have enough performances to be used in 'second life' applications. At the same time, new energy paradigms are emerging in both Africa and Europe where 'second life' components could be an appropriate solution applications, for example the **substitution of lead-acid batteries by second-life Li-ion batteries**. In this regard, RE EoL/OoS components and their supply chains require research, development, innovation and capacity support. Materials that enable RE should be recycled or reused to prevent a scenario where the envisaged clean energy future becomes anything but clean. In Africa, off-grid solar products are revolutionizing the quality of life. Current EoL component volumes from this sector are small in proportion to the quantity and environmental impact of the total e-waste stream. However, due to rapid sector growth, there is a need to develop the **end-of-life management of off-grid solar and storage products** without delay. In Africa, and in most developing countries, collection of EoL components is done very effectively by informal collectors who purchase the components from consumers. Informal collectors then re-sell components to other informal sector players such as local repair shops. Informal sector EoL component streams do not usually incur the costs associated with proper treatment and disposal of hazardous e-waste due to their use of rudimentary methods. These rudimentary methods however tend to be unsafe and environmentally unfriendly. There is need to regularize this sector, ensuring that the informal collection and re-purposing of **EoL RE components becomes part of formal, regulated systems** (including waste collection, disposal, reuse and recycling process such as extraction of reusable materials), whilst paying attention to the needs of the informal workers whose livelihoods will be lost.

Moreover, where there are new products developed then innovation needs to take questions of lifecycle analysis into account right from the start.

Capacity Building Focus

Across all the areas of second life components, and for their successful uptake, further **technical and managerial competences** and capacities need to be developed.

At individual level (academic and business):

Researchers and engineers need **technical competences** to successfully support additional value creation from RE end-of-life components. These should include market knowledge, business



saviness (including business models). Researchers and engineers should participate in the **definition of, and fully integrate in their research and development performing activities, management schemes for waste from RE components** to be adapted to the unique conditions of each country or region. Additionally, they should be capable to **design metrics for environmental impact** categories.

Innovations for reuse, business models, testing procedures that are compatible with industrial standards should be developed and shared among business actors.

At institutional level:

Research institutions should **promote international standards and rigorous testing protocols**. To achieve this, collaborative capacity building activities involving European and African research institutions are highly recommended. Within this transcontinental perspective, collaboration is also needed for research institutions to **provide input to policymakers** for them to create the international enabling regulatory framework for sustainable end-of-life management policies for RE components. This will naturally create awareness and capacity at the system level.

Expected outputs, outcomes and impacts of MAR 2:

The **research and capacity building activities** within this multi-annual roadmap will allow:

Output

- **Map of the EoL/OoS component value chain**, identification of key stakeholders & business models
- Creation of **categories of components found in EoL/OoS components** and proposed safe methods of handling
- Development of **comprehensive models and standard operating procedures including actual appliances/prototypes/demos** for EoL/OoS component management
- Proposal of **methods for EoL/OoS component recycling** which address local environmental impact through effective management;
- **Identification of second life components with a benefit for African countries:** lower cost; higher reliability, less environmental impact
- **Dissemination of acquired knowledge** among the African and European community to extend support for sustainable EoL/OoS component management

Outcome

- **Promotion of environmental and ecological sustainability** of renewable energy systems;
- Increase in innovation around the use and reuse of EoL/OoS components before disposal, limit dumping wastes.
- **Increased awareness among researchers** on the importance of accounting for EoL/OoS components in RE research work.

Impact

- **Creation of jobs** through use and reuse of EoL/OoS components management e.g. creation of jobs through repair of systems and proper collection of EoL/OoS components
- **Creation of policy incentives towards RE production**, including handling and disposal at EoL/OoS component stage e.g. financial incentives to encourage manufacturing of easily repairable systems
- **Reduced materials used for new products** and thus cost and environmental impact reduction.

References to results of existing research and innovation projects in this field will be positively valued in the selection process.

3: Smart stand-alone systems

Specific Challenges



Integrating renewable energies into the global energy mix through versatile, stand-alone systems can help to address the energy needs of off-grid areas in Africa. Despite the fact that urban population is growing rapidly, over **45% of the African population live in isolated rural communities**, which could benefit from the introduction of **RE technologies fitting their unique environment and availability of RE sources**. In addition, in the vast landscape of the Sahel, steppes and open areas, **population rarely have access to electricity**. Severe climate disasters and conflicts have resulted in **increased migration and 'climate refugees' in many African regions**. **RE and technology** can provide a **unique opportunity to equip communities with new facilities without interfering with their way of life** and preventing their being left behind. The utilization of renewable energies can also be a **good opportunity to fight climate changes**, such as **desertification and dryness in the Sahel**, and keep communities alive by encouraging young people to stay on their traditional lands.

Access to energy, especially electricity, is thus a **fundamental component to address rural or isolated communities** and support economic and social development. Specific needs include clean cooking (eg electric cooking), clothes washing, **studying**, walking safely (by night), connecting fridges and fans, phones charging, **refrigeration (store food and medication)**, **lighting**, communications, and **water pumping**. **RE stand-alone systems (RE-SAS) are mandatory to ease access to energy** in all its forms (electricity for lighting, domestic appliances and pumping, heat for cooking, potable water, etc.) from **local renewable sources** and for **local use of population and economy**. Research and innovation is expected not only on SAS itself but also on energy use equipment.

Capacity Building Focus

Across all these areas to be further researched, **technical and managerial competences** and capacities need to be developed.

At individual level (academic and business):

Researchers and innovative engineers should be involved in **improving the technology of stand-alone components and usability of the whole systems**.

Knowledge transfer should be ensured **regarding the final purpose of different devices and established standards for increasing the compatibility of systems and components**. Capacity building activities shall also aim at training of **local electrical technicians** regarding research outputs and the experimentation of innovative solutions through local initiatives in order to link **new technologies and new uses of existing technologies to the needs of the local communities** promoting the **behavioural changes** needed to achieve a **more reliable, efficient and safe energy access**.

At institutional level:

Concerning infrastructures, activities and programmes shall be organised to establish and provide **accreditation for public or private laboratories to test stand-alone systems** and provide **programs to inform policy makers** about the **potential of the RE-SAS systems in specific social and geographic contexts**.

Expected outputs, outcomes and impacts of MAR 3:

The **research and capacity building activities** within this multi-annual roadmap will allow:

Output

- To **provide avenues** for the development of RE-SAS technologies and **testing new products in real-life contexts** eg running trials of **new battery designs with existing SHS or mini-grid companies**, considering the diversity of potential local RE sources and the local effective environment;
- To **develop tools for RE-SAS design**.

Outcome

- The development of **reliable stand-alone system architecture** that can be easily and widely



deployed in off-grid African rural and remote areas;

- **Sharing acquired knowledge** to develop a sustainable RE-SAS systems deployment.
- Validation of **business models for SAS deployment**
- To increase the **share of renewables responding to energy needs and reliability of systems**;
- To **promote environmental sustainability** of renewable energy systems;

Impact

- The creation of **jobs in RE production** and uses through RE-SAS systems installation, management and maintenance
- To give access to **affordable energies** to the largest number of beneficiaries and to maximise the socio-economic impact.
- To promote **income generating activities** in different socio-economic context through demonstrators results

References to results of existing research and innovation projects in this field will be positively valued in the selection process.

4: Smart grid (different scales) for off grid application

Specific Challenges

Currently, more than **600 Million people** in Africa do not have access to electricity, 80% of which live in rural areas. In addition to small stand-alone systems for individual households and extensions of the national grid, **there is a growing need for small- to medium-scale Distributed Generation (DG) solutions** capable of integrating a diverse mix of Renewable Energy Sources (RES) for supply to small- and medium sized communities. Increasing the attention of governments to **regulated penetration of REs** into the national grid will help overcome the dichotomy between centralized and decentralized electrification. Moreover, using hybrid solutions **coupling different RES with conventional sources** combines a bottom-up and top-down approach. Such solutions may contribute to an increase in the **reliability of the power** supply and reduced dependence on storage and fossil backup systems, thus also mitigating energy poverty. Hybrid and Smart RES Grids have a role in addressing the many technological challenges that may arise from the integration of different RE technologies, distribution, and storage systems.

Different energy storage systems options should be developed taking into account the analysis done by **World Bank's Energy Storage Partnership** (such as batteries, Hydrogen, thermal storage...).

These systems must **be optimised and integrated** to be able to respond to rapidly evolving energy needs. They can play a role addressing **environmental challenges** since they contribute to reducing local air pollution and GHGs emissions. If properly designed, they can also decrease energy-**water-food competition** by reducing reliance on traditional biomass and contributing to wise water management.

Furthermore, Smart and Hybrid Grids can respond to local **socio-economic challenges**. They can be scaled-up to meet growing demand, tailored to **match productive uses** in either agriculture or rural industries, collective cooking at the community level and support community service delivery in education and health. With the deployment of **appropriate business models**, improved energy affordability may be achieved for local people and job opportunities may be created associated with manufacturing, installation and maintenance.

Capacity Building Focus

Across all these areas to be further researched, **technical and managerial competences** and capacities need to be developed.

At individual level (academic and business):



Researchers and engineers should be involved in improving smart grid components, connections and management and all activities should be programmed to ensure **knowledge transfer and established standards for the smart grid system and components**. Capacity building activities should also aim at training of **local electrical technicians** taking into account **existing interventions of this type within the industry itself** such as those implemented by companies or associations involved in minigrid development: these trainings should be updated according to research and innovation outputs so **technicians' competences address the needs of the communities with respect to the new technologies and uses** provided by research and innovative solutions. Likewise, capacity building activities should also target the triggering of **behavioural changes in technology design and utilization** in order to have energy access with reliable systems.

At institutional level:

Concerning infrastructures, activities and programmes should be organized to establish and provide **accreditation for public or private laboratories to test smart grid systems**.

Demonstration projects should also enhance the administrative capacity of rural electrification policies designed and implemented at national governments and local authority level (legislation for electrification through public-private concessions, pricing of the electricity produced, involvement of local communities in the governance of minigrids...).

Expected outputs, outcomes and impacts of MAR 4:

The **research and capacity building activities** within this multi-annual roadmap will allow:

Output

- Development of **new technologies, systems and optimization tools** based on people's needs;
- Reduction of energy dependence on fossil fuels and increase in the share of RES;
- New **open-source code access** for researchers worldwide.
- New business models will be experimented with and validated;

Outcome

- **Researcher capacity** will be strengthened with **holistic and multidisciplinary thinking and needed technical competences** through capacity building. Increased awareness of people's needs will support **longer-term behaviour change**;
- **New business models will uptake** rural electrification sustainable solutions with easier access to finance ;
- Research and related capacity building will be valorised as instrumental to the **creation of local innovation and behavioural change**;
- Technologies design will be increasingly people-driven, increasing **efficiency**;
- **Local people and civil society** will feel more **engaged in the research-innovation process**;

Impact

- **Increased energy access in rural areas** and use of REs;
- **Improved living conditions and socially inclusive growth** in the local context;
- **Improved economic development** and job creation in the local context.
- **Behavioural change** in relation to energy usages

References to results of existing research and innovation projects in this field will be positively valued in the selection process.

5: Processes and appliances for productive uses (agriculture and industry)

Specific Challenges

According to a 2017 State of Food and Agriculture report by the UN's Food and Agriculture



Organisation, the key to achieving the Sustainable Development Goals in Africa is transforming rural communities and promoting agriculture. This is because approximately **60% of Africans derive their income from agriculture and agricultural processes**. It is therefore important to prioritize boosting small-scale farmers' productivity and incomes in the agricultural production stage and creating off-farm employment in expanding segments of the food supply and value chains. Food supply and value chain segments involve processes such as harvesting, grain milling, drying, cooking, cooling, transportation and retail. These processes require variations of cold chain technologies, and electrical power. The demand is met differently by different industries and countries in Africa. An example of such is industries where thermal power demand is met through biomass while cold chain energy needs are met through grid supply supplemented by diesel generators in cases of blackouts. Changing eating and food retail processes in Africa should also be noted. Across urban Africa there has been a significant transformation in how people consume food incorporating a growing trend towards commercial pre-cooking of foods which are then retailed to consumers either as hot food or food which can be quickly finished (eg part-cooked beans) or re-heated, thereby reducing the energy expended in the household. There is a considerable opportunity to develop food processing, part and full-cooking). Clean cooking beyond domestic context as productive use of energy should also be considered strongly.

Technologies like combined heat and power systems (cogeneration) can help improve fuel use efficiency while improving pollution control. In order to **transform rural communities**, access to lighting systems alone is not enough for economic empowerment.

Craft and small industrial activities at local level should also be addressed in programmes supporting local economic development such as sewing workshops, welding works and craft manufacturing.

The facilitation of productive use activities will increase the demand for energy from off-grid suppliers amongst poorer communities and in so doing contribute to a more commercially viable electric loading charge demand curve regarding solar electricity production, avoiding too expensive storage options and optimizing RE investments.

To do this, it is important to support technological innovations and solutions such as **productive use (PRODUSE) appliances in agriculture and other activities** as a way of improving rural livelihoods. These appliances can be used to **increase productivity and/or efficiency in agriculture** and other Income Generating Activities (IGAs), such as **rural industrial processes**, and to **improve healthcare systems delivery**. PRODUSE appliances are relatively new to bottom of the pyramid markets, which are mostly found in rural communities, since system costs are as sensitive as the need for the appliances. The uptake and utilization of emerging RE can easily be slowed or curtailed by quality assurance concerns, energy efficiency gaps, lack of consumer financing and policy interventions. To avoid this, the following challenges should be addressed as part of innovation efforts in this area : **the cost of energy should be low for bottom of the pyramid consumers; the power provided should be reliable to prevent loss of trust in technology; technologies used should account for cultural interactions; utilised appliances should be of good quality; system operation and maintenance capacity should exist locally.**

Capacity Building Focus

Across all these areas to be further researched, **technical and managerial competences** and capacities need to be developed.

At individual level (academic and business):

Researchers and engineers shall be involved in improving the adaptability of existing PRODUSE systems in order to match the identified needs and development of in-depth training on productive systems that can use renewable energy sources.



Capacity building activities shall also aim at the training of **local technicians** to develop competences and skills to **install or maintain PRODUSE equipment/system** in order to address the needs of the communities **introducing the new technologies and use cases** provided by research and innovation.

At institutional level:

Concerning infrastructures, activities and programmes should be organised in such a way that the results generated by the research and innovation are integrated effectively into outreach to **policy makers and donors**.

Expected outputs, outcomes and impacts of the MAR 5:

The **research and capacity building activities** within this multi-annual roadmap will allow:

Output

- Understanding of the categories of **IGAs performed by off grid communities**, existing PRODUSE appliances supporting these IGAs and IGA categories and the existing gaps that RE PRODUSE appliances can fill
- **Existing PRODUSE appliances** in small and large scale agriculture (livestock, fisheries and farming) and in local industrial processes to be adapted to decentralized RE equipment that can be improved or developed
- **Cold chain and thermal PRODUSE appliances** in different sectors such as healthcare, agriculture, cooking.
- **PRODUSE appliances used by industries**, alternative appliances that can be used and energy efficiency measures that can be taken to improve the energy consumption of existing ones
- **PRODUSE appliances available to on-grid consumers** vs off grid consumers to assist with assessment of levels of service expected from RE PRODUSE appliances by off grid consumers
- **Existing business models** used to sell PRODUSE appliances and quality issues related to PRODUSE appliances in on grid and off grid markets

Outcome

- **Understanding** of opportunities for PRODUSE appliances to address IGA related challenges by researchers and innovators
- **Reduction of post-harvest losses** in the agricultural sector
- Adoption of **energy efficiency measures by industries**
- Improved partnerships and joint research opportunities between European and African researchers and engineers

Impact

- Increase in **productivity of the informal sector** such rural industries
- Improved **socio-economic development of off-grid communities** due to support of their IGAs
- **Creation of jobs** and improved energy access through support of IGAs in off grid communities
- **Reduced GHGs, local pollution and deforestation** due to improvement in energy efficiency in Industries

References to results of existing research and innovation projects in this field will be positively valued in the selection process.

6: Innovative solutions for priority domestic uses (clean cooking and cold chain)

Specific Challenges

Today, there are **4 billion people worldwide** who lack access to modern energy cooking services (SDG 7 definition)– more than half of the world’s population. Fifty percent of these people are living in developing countries. In Africa alone, **700 million people lack access to clean cooking**. Currently, traditional devices used are typically fuelled with **firewood**, or with **charcoal**, and have **very low efficiency**.



The utilization of traditional biomass poses numerous environmental challenges:

- Traditional biomass utilization is a recognized contributor to **deforestation & land degradation**;
- Biomass burning in traditional cook-stoves has been found to be responsible for about **20% of global black carbon emissions**;
- Indoor cooking with traditional devices causes respiratory illness, which contribute to the **premature death of millions of people** from associated diseases. In addition, the utilization of traditional biomass also poses social challenges, including:
 - The **time spent by women and children** in gathering fuel;
 - **Absenteeism from school** caused by illness due to respiratory infections, common in some countries of sub-Saharan Africa.

Actions necessary to overcome the challenges associated with the use of traditional cooking systems represent technological challenges:

- **Improving the design of existing stoves has been attempted** for the past twenty to thirty years and has made few in-roads into the total numbers lacking access to modern cooking or effectively addressing the health and environmental impacts of cooking with biomass. **The LEAP-RE programme focuses on innovations that relate to the grasping of opportunities for the substantial deployment of highly efficient cooking appliances (eg the rapidly emerging potential for electric cooking)**, new or improved approaches to LPG retail, and delivery such as PAYG, new larger-scale approaches to biogas via municipal scale developments or the development of other innovative new fuels such as ethanol;

Complementary to clean cooking is **food and drug preservation**, a second common issue at the domestic and community levels in Africa. In sub-Saharan Africa nearly **40% of food perishes before it reaches the consumer**, while the lack of effective refrigeration limits the possibilities for vaccine distribution in rural, and in remote areas : a factor taking on greater significance in the current covid era. Here the cold chain can play a crucial role in reducing food waste, improving public health, and enabling African communities, especially in rural areas, to participate in national and international trade as producers and consumers. The technological challenges are mainly based on the energy vector, with the use of heat in place of electricity to generate low temperatures in domestic and community systems, or the use of static and compact technologies with higher reliability compared to traditional systems, and the coupling of refrigeration units with off-grid electric power systems. The development of movable autonomous systems is another important element. Finally, the need for compact and fully reliable systems that avoid breaking the cold chain for medicine, and for food preservation with reasonable costs represents a significant socio-economic challenge.

Capacity Building Focus

Across all these areas to be further researched, **technical and managerial competences** and capacities need to be developed:

At the individual level:

Researchers and engineers need to be involved in **improving, managing and maintaining solar photovoltaic systems, cooking appliances and cold chain** components. They also need to be capacitated to be involved in **establishing the standards for renewable energy components and supply chain**, and very importantly in knowledge transfer with local communities and value chain stakeholders. Additionally, capacity needs to be improved for researchers to **interact with policymaking to foster an appropriate, supporting, long-term and stable policy environment** to ensure **market and fast community uptake**. Specialised technicians need to be trained in the specific technologies and their different usages and applications, and updated regularly according to research results. Likewise, capacity building activities shall trigger behavioral changes to have



energy access with reliable systems relying on **robust supply chains and maintenance to ensure longevity for appliances.**

At institutional level:

For what concerns infrastructures, activities and programs shall be organised to establish and provide **accreditation for laboratories to test photovoltaics, cooking appliances and cold chain systems.**

Expected outputs, outcomes and impacts of MAR 6:

The **research and capacity building activities** within this multi-annual roadmap will allow:

Outputs

- **Innovative cooking device;**
- New and **appropriate modern cooking systems;**
- **Localized and low-cost materials and appliances** used for efficient cooking appliances construction;
- **Technical improvements in fuel processing or fuel production technologies**, and the technical and managerial capacities related to these improved processes and production technologies;
- **Improvements to existing technologies**, and **new technologies for cold chains**, including refrigeration units based on solar or biomass resources, as well as long-term sustainability and management capacities.

Outcomes

- Researchers provided with **capabilities for lab and field testing of cooking appliances;**
- Use of **modern fuels and appliances promoted** and its required skills;
- **Sustainable fuel supply chains** promoted:
- Effective and **low-cost food preservation** promoted;
- **Efficient air conditioning** promoted;
- **Greenhouse gas (GHG) emissions** due to lower power consumption from the grid or diesel generators **reduced.**

Impacts

- **GHGs, local pollution, land degradation and deforestation reduced;**
- **Medicines and vaccines in remote areas** better preserved;
- Social conditions of local stakeholders as well as **job creation** improved;
- **Drudgery for girls and women reduced** and their social power and health conditions (female empowerment) improved;
- **Food and nutrition security** strengthened;
- **Individual health, and public healthcare** improved.

References to results of existing research and innovation projects in this field will be positively valued in the selection process.



Please note that not all topics are supported by all Funding Organisations, see summary in Table 2.


 means that there are some related restrictions. Always check with the corresponding national/regional Funding Organisation for restrictions. As informed in Appendix IV.

Table 2: Summary of the main call topics supported by the Funding Organisations. (To be completed)

Country/region	Funding Organisation	MAR 1	MAR 2	MAR 3	MAR 4	MAR 5	MAR 6
Algeria	MESRS	Yes	Yes	Yes	Yes	Yes	Yes
Egypt	ASRT	Yes	Yes	Yes	Yes	Yes	Yes
Morocco	MENFPESRS	Yes	Yes	Yes	Yes	Yes	Yes
Morocco	IRESEN	Yes	Yes	Yes	Yes	Yes	Yes
South Africa	DSI	Yes	Yes	Yes	Yes	Yes	Yes
South Africa	SANEDI						
Togo	University of Lomé		Yes	Yes	Yes	Yes	Yes
Austria	FFG	tbc	Yes	Yes	Yes	Yes	Yes
Belgium	FRS-FNRS	Yes	Yes	Yes	Yes	No	No
Finland	AKA	Yes	Yes	Yes	Yes	Yes	Yes
France	ANR	Yes	Yes	Yes	Yes	Yes	Yes
France	NEXA						
Germany	FZJ-PtJ	Yes	Yes	Yes	Yes	Yes	No
Portugal	FCT	Yes	Yes	Yes	Yes	Yes	Yes
Romania	UEFISCDI	Yes	Yes	Yes	Yes	Yes	Yes
Spain	CDTI	No	No	Yes	Yes	Yes	Yes
UK	Loughborough University	(*)	(*)	(*)	(*)	(*)	(*)



(*) : Yes if in some relation with cooking issues

5. Who may apply

This call for proposals is aimed at all actors in the renewable energy value chain (including universities, research institutes, companies, NGOs and public authorities that can contribute to the objectives of LEAP-RE and who meet the eligibility criteria in section 7, as well as national/regional regulations (see Appendix IV).

Participating countries/regions are those who have at least one funding institution participating in Pillar 1 (see table 1).

A consortium applying to the Call must consist of at least four project partners (2 from Europe and 2 from Africa). At least one partner of the Consortium should be from an European country participating to the Call and one partner from an African country participating to the Call.

In general organizations from European countries/regions **not** participating in the Call can be partners of the consortium on the condition that they provide evidence of the availability of their own funds to cover their project activities.

African Organizations from countries/regions not participating in the Call are eligible to apply for funding, although the resources available for this are limited. Such organizations wishing to be a partner within a consortium can be funded through a limited number of the funding institutions involved in this joint Call (those that don't have any nationality restrictions (please check Appendix IV for details) on who they may fund and may therefore fund partners from African countries not participating in Pillar 1). The potential for funding these African partners will be examined by the funding institutions at the time of the pre-submission evaluation of all projects.

There is no limit to the maximum consortium size, but it should be suitable for the level and complexity of the project and each partner should have a significant contribution in order to demonstrate the transnational added value of collaboration.

Consortia involving both academic and industrial organisations or Non Governmental Organizations are particularly encouraged to apply although the appropriate national regulations governing eligibility must be consulted during the pre-proposal phase. (please check Appendix IV).

Consortia may include partners from the public and private sectors with different academic and sectoral backgrounds, e.g. physical scientists, engineers and technology developers, but also social scientists and policy advisors (in interdisciplinary consortia) working closely together and covering different parts of renewable energy value chain.

Project consortia covering the entire innovation chain from idea to end-user/market are considered positive as well as consortia with actors traditionally working in other industries, so that more ground-breaking innovations can be created through new approaches.

LEAP-RE Joint Call 2021 supports gender equality, therefore applicants should consider gender equality and gender issues wherever possible, including in, for example:

- The conceptual and methodological design of their project



- The social and economic impacts of their project
- Selection of project manager
- Composition of project group
- Division of work, power and influence in the project
- Involvement of target groups

6. What do we fund

LEAP-RE Joint Call 2021 addresses all aspects of renewable energy value chain, covering energy production as well as transformation, storage and utilization. It is encouraged to include cross-cutting issues.

Overall, LEAP-RE Joint Call 2021 can fund basic research, industrial research, applied research and experimental development projects (covering all innovation steps) that are 12-36 months long. However, **not all funding agencies can fund all types of research (or TRL) or the full 12-36 months**, see Table 3 and Appendix IV.

The maximum funding for each project is 1 Million € and the maximum funding per partner in one project is 600 k€. However not all funding agencies will apply these amounts (see Appendix IV). The funding maximum for one partner (600 k€) will apply for each project but does not accumulate for a partner present in several projects.



! means that there are some related restrictions. Always check with the corresponding national/regional Funding Organisation for any restrictions and 'State Aid Rules'.

Table 3: Type of research and entities eligible for funding by the participating Funding Organisations.
To be completed by Funding Organizations

Country/region	Funding Organisation	Fundamental/Basic research	Industrial/Applied research	Experimental research	TRL	Type of entities eligible for funding	Project duration
Algeria	MESRS	Yes	Yes	Yes	2-6	Universities, research centres, SMs	12-36 months
Egypt	ASRT						
Morocco	MENFPES RS	Yes	Yes	Yes	Any	Public Universities and other in partnership with Public	



						University	
Morocco	IRESEN	No	Yes	Yes	6 - 9	Universities research institutions Large, medium, small companies	
South Africa	DSI	Yes	Yes	Yes		Universities, Science Councils	Up to 36 months
South Africa	SANEDI	reques					
Togo	University of Lomé						
Belgium	FRS-FNRS	Yes	No	No		Public research organizations	36 months
Finland	AKA	Yes	Yes	Yes		Research organizations	Up to 36 months
France	ANR	Yes	Yes	Yes	2 - 6	All	Up to 36 months
France	NEXA						
Germany	FZJ-PtJ	Yes	Yes	No	2-6*	All*	Up to 36 months
Portugal	FCT	Yes	Yes	Yes	1-7	*	Up to 36 months
Romania	UEFIS CDI	Yes	Yes	Yes	Any	Research organizations, SMEs	36 months
Spain	CDTI	No	Yes	Yes	3-7	Companies	12-36 months
UK	Loughborough University	No	Yes	Yes	6+**	All	18 months ***

(*) : see national regulations for each funding agency (Appendix IV)

(**) : TRL >= 6 but will consider applications that make a strong business/policy case as to why more fundamental/earlier stage research is necessary for addressing key aspects of the identified challenges.

(***) : Projects must be contracted by November 2021 at the latest to qualify for 18 months

TRL – Technology Readiness Level (as defined in Appendix II).



7. Eligibility criteria

The pre-proposals and full-proposals have to meet the following eligibility criteria, as detailed further below, as well as the national/regional funding regulations (see the respective document at the LEAP-RE website):

Eligibility Criteria	
Pre-proposal submission deadline	➤ The pre-proposals must be submitted, only via electronic form through the LEAP-RE Electronic Submission System, by the consortium coordinator no later than 1st April 2021, at 17:00:00 CEST¹ ;
Full proposal submission deadline	➤ Upon invitation, the full-proposals must be submitted, only via electronic form through the LEAP-RE Electronic Submission System, by the coordinator of the consortium no later than 15 September 2021, at 17:00:00 CEST .
Consortium composition	<ul style="list-style-type: none"> ➤ A consortium applying to the Call must consist of at least four project partners (2 from Europe and 2 from Africa). At least one partner of the Consortium of each continent (Europe and Africa) should be from a country participating in the Call and request support from the relevant participating funder. ➤ At least half of the partners in a consortium must belong to countries participating in the Call and request support from the relevant participating funder;
Applicant/Coordinator	➤ The coordinator of the consortium must request funding from and be established in, a country or region participating in the Call.
Applicant/Lead researcher	➤ A Lead Researcher can only represent the coordinator in one proposal (i.e. if a Lead Researcher coordinates one proposal, he/she can only participate in other proposals as a researcher/key personnel of a consortium partner).
Applicant	➤ Researchers from the participating Funding Organisations or members of the IRP (international review Panel) cannot apply to this Call. ²

¹ 17.00 CEST/Central European Summer Time

² As an exception Forschungszentrum Jülich GmbH (FZJ) is eligible to apply since measures were already established to avoid any possible conflict of interest with Project Management Jülich as a beneficiary which is a largely independent unit within the research centre Forschungszentrum Jülich GmbH (FZJ). These measures include that Project Management Jülich will be excluded from all decisions concerning the evaluation, selection and funding of proposals submitted by Forschungszentrum Jülich within funding programmes managed by Project Management Jülich. This role will be taken over by the Federal Ministry of Education and Research as the responsible programme owner. To assure the quality of services, Project Management Jülich introduced a quality management system that was certified according to DIN EN ISO 9001.



Eligible consortium/ applicant	➤ Each partner requesting funding MUST comply with the national/regional funding rules and regulations of their respective Funding Organisation to ensure the eligibility of the consortium proposal (see Appendix IV). Please consult your National/Regional Contact Point. For African Organizations from countries/regions not participating in the Call and willing to be partner of a consortium there is a limited possibility to be funded through some of the funding institutions involved in this joint Call.
Consortium work effort balance	➤ The total efforts of partners from one country in a proposal cannot exceed 50% of the total project efforts (measured in person-months (PM)). PM per partner should be clearly stated in the respective table of Form A proposal.
Project duration	➤ The project duration should be a minimum of 12 months and should not exceed 36 months (national/regional regulations MUST be consulted on this respect. See APPENDIX IV).
Pre-proposal and Full proposal templates	➤ LEAP-RE Templates must be used, i.e. Forms A (Calibri, 11pt, single spaced; the pages' margins should be kept), Form C, Ethics issue table and CV's of lead researcher/key personnel. All fields of the pre-proposal and full-proposal technical descriptions must be filled in. A Guide for Proposal Submission, including all templates, is available at https://www.
Pre-proposal length	➤ The total proposal length (Form A) cannot exceed 6 pages, excluding the Gantt chart, the references, transnational and international collaboration and the Ethics, Gender balance, and other issues. The images and tables must be included in the maximum page length.
Full Proposal length	➤ The total proposal length (Form A) cannot exceed 30 pages, excluding the Gantt chart, the references, the CVs, the Budget table, the transnational and international collaboration and the Ethics, Gender balance, and other issues. All images and tables must be included in the maximum page length.
Applicant requesting funding	➤ All applicants requesting funding must provide a statement of commitment duly signed by the legal representative of the organisation or the Lead Researcher, in coherence with national/regional regulation (see Appendix IV), Form B .
Applicant not requesting funding	➤ Applicants not requesting funding , or not eligible for national/regional funding, can be partners of the consortium on the condition that they provide evidence of the availability of their own funds to cover their costs by providing a signed statement duly signed by the legal representative of the organisation or the Lead Researcher, Form C .
CV template	➤ A maximum of three CVs (of lead researcher and two key personnel) per consortium partner is allowed and the LEAP RE CV template must be used and which cannot exceed two pages per consortium person.
Language	➤ The language of the proposal is English.



A summary of some national/regional funding rules is provided in Table 2 and 3, as well as in the national/regional funding regulations (Appendix IV) but **applicants are obliged to check with their national/regional contact point (Table 1) for their national/regional funding regulations.**

All researchers involved in funded projects should follow fundamental ethical principles and adhere to the principles of good scientific practice and to The European Code of Conduct for Research Integrity by ALLEA.

8. Call procedures: submission, evaluation, selection, funding and reporting

There will be a two-stage submission procedure: pre-proposals and full proposals. All lawful steps will be taken to ensure confidentiality of information and documents obtained during the submission, evaluation and selection procedures of the Call.

8.1. How to apply

Registration

1. The coordinator (Partner 1), who will represent the consortium, will have to register at the LEAP-RE Electronic Submission System ([coordinator registration link](#)) before submitting a proposal.
2. Once registered, the coordinator will receive a registration email with the login link ([coordinator login link](#)).
3. The coordinator will need to register the partners of the consortium (name and e-mail).
4. After registration, all the partners will receive an email to activate their account.
5. With his/her account, each partner will enter his/her own profile ([partner login link](#)).

Pre-proposal form

A joint transnational pre-proposal shall be prepared in English by the consortium and submitted in pdf form via the LEAP-RE Electronic Proposal Submission System by the lead researcher representing the coordinator. The pre-proposal submission is mandatory and must be submitted no later than **1st April, 2021 at 17:00:00 CEST.**

If required by the national/regional regulations, submission forms or other documents must be submitted directly also to the participating Funding Organisations according with their deadlines. **Please consult your regional/national contact point (Table 1) for further details.**

The pre-proposal form must be filled in by the coordinator, except for the partner's profiles and respective CVs. LEAP-RE templates for the technical description of the proposal (6 pages, Calibri, 11pt, single spaced; the template's margins of the page should be kept) and annexes are available at <https://www.>

Signed Statement of Commitments from all partners requesting funding on the electronic submission system and Statements of Own Funding (Form C) from partners not requesting funding



must be included as annexes to the proposal. The coordinator has the duty to ensure that Form B and Form C are signed in due time. Resubmitting the proposal before the submission deadline is possible.

Full Proposal form

Full proposals must be submitted by the coordinator in pdf format no later than **15 September 2021, at 17:00:00 CEST**. Full proposals will be accepted only from those coordinators explicitly invited after communication of pre-proposal assessment.

LEAP-RE templates for the technical description of the full proposal (30 pages, Calibri, 11pt, single spaced; the template's margins of the page should be kept) and annexes are available at <https://www.>

After the pre-proposal selection no **major** changes are possible (main objective, consortium, and budget). Only under certain conditions after the pre-proposal selection a revision of the overall application is allowed to a certain extent, for example in case of withdrawal of a member of the consortium. In any case, all changes from pre- to full-proposal have to be coordinated with all involved Funding Organisations by the coordinator. As some Funding Organisations do not allow changes, partners should be advised to make sure that the major information given in the pre-proposal doesn't need any revision before submitting the full proposal.

8.2 Evaluation procedures

The evaluation procedures are designed to identify the best proposals in terms of scientific excellence, impact, quality and efficiency on the implementation, as thoroughly and accurately as possible; and to undertake the assessment in a fair, transparent and homogeneous way for all proposals submitted to the transnational Call.

The quality assessment of the submitted proposals will be performed by the International Review Panel (IRP) composed of international independent expert reviewers that sign Declarations of Confidentiality and Conflict of Interest.

The evaluation process will be monitored by an independent observer who will prepare a report on the assessment process for the European Commission.

Evaluation stage 1: Pre-Proposals

The submitted pre-proposals will be subject to an **eligibility check performed at a call level by the Joint Call Secretariat (JCS) and at a national/regional level by the Call Steering Committee (CSC) members** to confirm compliance with national/regional priorities, rules and regulations.

Each eligible pre-proposals will be allocated to three IRP experts designated according to their expertise relevant for the topic of the pre-proposal.

Pre-proposals will be assessed based on the three main evaluation criteria: 1) Scientific Excellence; 2) Impact and 3) Quality and Efficiency of the Implementation (see paragraph 9 below).

A ranked list of pre-proposals will be produced by IRP based on the final scores.



The selection of pre-proposals for the stage 2 will be decided at a CSC consensus meeting to finalise the stage 1 pre-proposal assessment. The Call Steering Committee may recommend to enlarge the Consortium composition of some selected projects. A list of eligible proposals of high quality will be invited to submit a full proposal for Stage 2.

Evaluation stage 2: Full-Proposals

The submitted full-proposals will be subject to an eligibility check performed by the JCS and by the CSC to confirm compliance with national/regional priorities, rules and regulations.

Each Full Proposal will be evaluated based on three main evaluation criteria (see Paragraph 9 below) by at least, three independent experts preferably members of the IRP.

At the IRP meeting, a ranking list will be established for eligible full proposals with overall rating at, or above, 10 and with all the main evaluation criterion scores at, or above, 3. Proposals not meeting the thresholds will not be recommended for funding by the IRP.

8.3. Selection procedures and feedback to applicants

The CSC will strive to ensure that the top-ranked full-proposals are funded to the maximum extent possible. The selection of full-proposals will be based on the ranking list of eligible full-proposals provided by the IRP meeting as recommendation and the available national/regional budgets until exhaustion of public funds (EU contribution included). A CSC consensus meeting will be organised to finalise Stage 2 and to elaborate the “joint selection list” of projects recommended for funding.

All coordinators will receive feedback on the results of the evaluation process after both Stage 1 and Stage 2, including the Evaluation Summary Reports. The coordinators will be instructed to communicate the decisions to the consortium partners.

9. Evaluation criteria

Pre-proposals and Full proposals will be evaluated based on three main evaluation criteria: 1) Scientific Excellence, 2) Impact and 3) Quality and Efficiency of the Implementation:

1. SCIENTIFIC EXCELLENCE

- Clarity and pertinence of the objectives;
- Soundness of the concept, and credibility of the proposed methodology;
- Extent that the proposed work is beyond the state of the art, and demonstrates innovation potential (e.g. ground-breaking objectives, novel concepts and approaches, new products, services or business and organisational models);
- Appropriate consideration of interdisciplinary approaches and, where relevant, use of stakeholder knowledge (**only for stage 2**)

2. IMPACT

- The extent to which the outputs of the project would contribute at the European and African level to expected impacts in line with the integrated strategy proposed in the Roadmap for a jointly funded AU-EU research & innovation partnership on climate change and sustainable energy (CCSE);



- Any substantial impacts that would enhance innovation capacity, create new market opportunities, strengthen competitiveness and growth of companies, address issues related to barriers/obstacles, and any framework conditions such as regulation, standards, public acceptance, workforce considerations, financing of follow-up steps, cooperation of other links in the value chain, or bring other important benefits for society;
- Quality of the proposed measures to exploit and disseminate the project results (including management of IPR), and to manage research data where relevant (**only for stage 2**);
- Quality of the proposed measures to communicate the project activities to different target audiences (**only for stage 2**);
- Supporting the development of non-technological solutions to address environmental, social impact and health safety issues, within, if convenient, a life cycle analysis approach, or the development/deployment of tools, applications, and services enabling to respond population needs;
- Where relevant, to what extent the project will contribute to a gender equal societal development.

3. QUALITY AND EFFICIENCY OF THE IMPLEMENTATION

- Quality and effectiveness of the work plan, including extent to which the resources assigned to work packages are in line with their objectives and deliverables (**only for stage 2**);
- Appropriateness of the management structures and procedures, including risk and innovation management (**only for stage 2**);
- Quality and complementarity of transnational activities by the participants and extent to which the consortium as whole brings together the necessary expertise;
- Gender perspective of research and development content;
- Appropriateness of the allocation of tasks, ensuring that all participants have a valid role and adequate resources in the project to fulfil that role (**only for stage 2**).

Evaluation scores will be awarded to the three main evaluation criteria and not for the different sub-criteria. Each main evaluation criterion is rated using the 0-5 scale (half-points are not allowed):

0 — The proposal fails to address the criterion or cannot be assessed due to missing or incomplete information (unless the result of an ‘obvious clerical error’).

1— Poor: the criterion is inadequately addressed or there are serious inherent weaknesses.

2—Fair: the proposal broadly addresses the criterion but there are significant weaknesses.

3—Good: the proposal addresses the criterion well but with a number of shortcomings.

4—Very good: the proposal addresses the criterion very well but with a small number of shortcomings.

5—Excellent: the proposal successfully addresses all relevant aspects of the criterion; any shortcomings are minor.

The threshold for individual criterion is 3. The overall rating is the sum of the individual criterion scores (0-15).



For the evaluation of pre-proposals the three main evaluation criteria will apply but with fewer sub-criteria (those indicated as “only for stage 2” will NOT be considered).

The overall threshold for pre-proposals will be 9.

The coordinators will receive the results of the pre-proposal assessment including the peer-review reports and will be able to address the evaluators’ questions in the full-proposals.

For the evaluation of full proposals, the overall threshold for full-proposals, applying to the sum of the three individual scores, will be 10. Proposals not meeting the thresholds will not be recommended for funding by the IRP.

10. Terms and conditions for grant agreement

10.1 Funding decisions

The list of funded projects will be published on the LEAP-RE website.

For proposals recommended for funding, the partners will be asked to contact the respective Funding Organisation for further instructions regarding national/regional internal procedures. The grant preparation phase is carried out following the usual rules of each Funding Organisation. The final decision of funding is formally taken by each funding organization.

Each beneficiary will have a separate funding contract/ grant agreement according to national/regional regulations with the appropriate national/regional Funding Organisation. Changes to the composition of research consortia or to the budget cannot occur during the contract/letter of grant. The beneficiaries shall inform the JCS and the Funding Organisations of that project of any event that might affect the implementation of the project.

The partners of the projects selected for funding must fix a common project start date, which will be the reference date for annual and final project reports. It is expected that grant preparation may take up to 3-4 months after the notification of results. The latest starting date is **1st May 2022** (some funding bodies require earlier start times or a reduced project duration. See APPENDIX IV). All funded projects must be completed and reported back at least 6 months before the end of LEAP-RE (February 2026).

10.2 Consortium Agreement

The beneficiaries of a project selected for funding must sign a **Consortium Agreement (CA)** for cooperation, preferably before the official project start date but no later than six months after the official project start date, considering that some Funding Organisations cannot conclude the grant agreements without a signed CA. Each Funding Organisation will indicate when they expect the CA and how to submit it. A copy of the duly signed CA should be sent to the JCS and the Funding Organisations if required by national/regional regulations (see Appendix IV).

The purpose of the CA is to ensure a well-functioning research collaboration and protection of partners’ rights and obligations. Moreover, the CA should provide for a decision making process to



deal with all relevant issues during the project lifetime. Models of CA are available (<http://www.desca-2020.eu/>). Nevertheless, the consortium is free to define its own CA subject to applicable legal and regulatory provisions. For guidance, the following items are usually addressed in a CA:

- Purpose of and definitions used in the CA;
- Common start date of the research project;
- Project structure and project management;
- Detailed identification of partners' contributions (financial contributions, Intellectual Property Rights' constitutions, personnel, etc.);
- Role and responsibilities of the project coordinator and the partners among themselves (e.g.; a proper communication and transmission of information within the project consortium) and towards the Funding Organisations and the European Commission, if applicable;
- Decision making process within the consortium properly reflecting the weight of each partner in the consortium (i.e., at proportion of partners' respective contributions);
- Resources and funding (e.g., each partner is responsible of the use of its own funding and must inform officially the whole consortium of resources difficulties in driving the work);
- Confidentiality and the rules for publishing (e.g., priority to patents as a first option and then requirement of a consortium decision before publication; mandatory information of all the partners before any kind of external communication. Decision to take by the consortium regarding the list of names as authors of the publication (all the names or solely the direct contributors);
- Management of Intellectual Property Rights (IPR): identification of pre-existing IPR/Background; allocation of IPR and access to IPR among partners at proportion of their respective contributions;
- Handling of internal disputes;
- The liabilities of the project partners.

The national/regional Funding Organisations shall have the right to use documents, information and results submitted by the research partners and/or to use the information and results according to their national/regional rules on IPR.

10.3 Monitoring and reporting procedures

Beneficiaries must ensure that all project publications etc. include a proper acknowledgement to LEAP-RE co-funded by the Horizon2020 programme of the European Union, and the respective Funding Organisation.

On behalf of the consortium, the coordinators of the funded projects will submit **annual and final reports** in English via an Electronic Monitoring System to the JCS that contain information on scientific and administrative aspects. In addition, each beneficiary in a selected funded project



must report to their respective national/regional Funding Organisation, according to their administrative funding rules. The beneficiaries are instructed to immediately contact the coordinator, the Funding Organisations involved and the JCS with any contingency that may arise.

This data base respects appropriate and secure use of material and data according to the application of common standards, following the guidelines on data management in Horizon 2020. The collected data will require a prior informed consent, will be protected and secured, in order to avoid a malevolent use of it.

The mid-term scientific evaluation exercise of funded projects will be based on the annual project reports and presentations made by the coordinators at the mid-term Seminar with the participation of the CSC members and invited stakeholders. As a result, the CSC may propose the continuation, the re-organisation or the suspension of the research project activities. Accordingly, travel expenses to attend this Seminar and the final Seminar should be included in the proposal budget plans, if eligible for the Funding Organisations.

The final scientific evaluation of funded projects will be organised under the LEAP-RE Final Conference based on the final project reports and presentations made by the coordinators.

The final assessment of results will be made available on the LEAP RE website and a wider dissemination through other relevant means will be carried out.

The representative of the coordinator should attend a minimum of two meetings organised by LEAP-RE (mid-term and final seminars). In addition, the beneficiaries are expected to participate and contribute to any communication activity initiated by LEAP-RE in the funding period and beyond.

11. Open Access and Open Data

The optimisation of the impact of publicly-funded scientific research is of fundamental importance to improve conditions to i) minimise the time spent searching for information and accessing it, ii) be able to speed up scientific progress, and iii) make it easier to cooperate across and beyond the European Union.

Open Access recommendations for all scientific publications produced by the funded projects will support Green Open Access (immediate or delayed open access provided through self-archiving), and/or Gold Open Access (immediate open access provided by a publisher) only depending on cost eligibility. In the case of Green Open Access, partners will (as soon as possible and at the latest on publication) deposit a machine-readable electronic copy of the published version or final peer-reviewed manuscript accepted for publication in a repository for scientific publications. In addition, partners will ensure open access to the deposited publication and bibliographic metadata.

In relation to Open Data we encourage the researchers to register online at “The Green Best Practice Community” of JRC (<https://greenbestpractice.jrc.ec.europa.eu/>) and propose case studies and best practices. Metadata and additional information will be made publicly available via the LEAP-RE website. LEAP-RE will comply with the Protection of Personal Data Requirements by following the ethical standards and guidelines of Horizon 2020 and applicable EU and national law.



APPENDIX I Areas for research

Multiannual Roadmaps (MARs) Summary

- 1. Mapping joint research and innovation actions for future RES development** – Consolidation of detailed map of R&I initiatives in Europe and Africa per technology, application etc. type with the aim to support the RE industry to prioritize and contextualize target areas of RES deployment
- 2. End-of-life and second-life management and environmental impact of RE components** - Map the component value chain, identification of key stakeholders & successful business models promote replicability scenarios of operational models and standard operating procedures in concerned regions
- 3. Smart stand-alone systems (SAS)** - Promote the development of RE-SAS demonstrator(s) considering the diversity of potential local RE sources and the local effective environment
- 4. Smart grid (different scale) for off grid application** - Development of new tools for optimizing capacity in planning and dispatching strategies based on people's needs with the aim to reduce the energy dependence on fossil fuel and increasing the share of RES use including electricity storage solutions such as batteries, hydrogen...
- 5. Processes and appliances for productive uses (PRODUSE)** – Improvement and Promotion of wider use of PRODUSE appliances for Cold chain and thermal tools and equipment's (healthcare and agriculture - livestock, fisheries and farming)
- 6. Innovative solutions for priority domestic uses (clean cooking and cold chain)** - Improving, managing and maintaining solar photovoltaic systems, cookstoves and cold chain components for clean cooking and food storage. Supporting interactions with policymaking to foster fast market uptake considering the macro socio-economic and gender impacts



APPENDIX II Technology Readiness Level (H2020 definition)

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment

TRL 6 – technology demonstrated in relevant environment

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment



APPENDIX III Definitions

Applicant: is a legal entity, represented by a Lead Researcher that forms a consortium at the stage of proposal submission.

Beneficiary: is a legal entity, represented by a Lead Researcher, member of a consortium selected for funding that receive financial support from the respective national/regional Funding Organisation.

Call: Refers to the LEAP RE Joint Call 2021 opening on January 15th, 2021.

Call Steering Committee (CSC): Comprises representatives of the Funding Organisations that have committed national/regional funds to support the selected R&I projects. It supervises the whole Call procedure and agrees on the final list of proposals recommended for funding. It supervises the activities of the Joint Call Secretariat.

Consortium: Group of legal entities, each represented by a Lead Researcher, that are part of a joint collaborative transnational R&I project proposal submitted to the Call or a project selected for funding.

Coordinator: One partner of the consortium represented by a Lead Researcher, who will be responsible for the internal scientific management of the project, intellectual property rights management, project reporting towards the JCS and CSC and will represent the consortium externally.

Funding Organisations: are responsible for providing funding under relevant rules and regulations to the beneficiaries from the respective country/region.

International Review Panel (IRP) : Panel of internationally independent recognised scientific experts responsible for the quality assessment of the submitted proposals. IRP members will not submit or participate in proposals within this Call and must sign declarations of confidentiality and of conflict of interest.

Joint Call Secretariat (JCS): Is responsible for the implementation of the Call and the follow-up phase until the funded projects and all reporting requirements have ended. All submitted proposals are collected by the JCS, which makes them available to the CSC and the reviewers of the International Review Panel. The JCS handles the communication with the applicants, reviewers, CSC and beneficiaries. ANR and MESRS are JCS co-leaders with the support of LU, DSI, IRESEN, UEFISCDI,

Key Personnel: is a team member person of an applicant or a beneficiary.

Lead Researcher: is the main responsible person of a legal entity and is the contact point with the corresponding national/regional Funding Organisation and the JCS.

Partners: legal entities, each represented by a Lead Researcher within a department or institute from universities, research organisations, companies etc., forming a consortium.



APPENDIX IV : National/Regional funding regulations



Algeria



MESRS :

a) National eligibility criteria

National Point	Contact	Name: Sellami Mokhtar Chargé des programmes de développement technologique et d'innovation Tel : +213661580024 E-mail: m.sellami@mesrs.dz
Eligible entities		Universities and research organizations Large, medium and small enterprises Public institutions in charge of Energy
Eligible topics		Projects concerning the following MARs: MAR 1, 2 (tbc), 3, 4, 5, 6 : all sub-topics
Eligible type of research and TRL		Fundamental/Basic Research, Industrial/Applied Research TRL 2-6
Additional eligibility criteria		Algerian legislation for funding research under conditions defined in the use of the national fund research
Eligible costs		To a max of 200.000 Euro by project for consortium including research centres and universities, To a max of 100.000 Euro for small project including less than 5 researchers

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research			50%	100%
Basic research			50%	100%
Industrial/Applied Research	20%	20%	50%	100%
Experimental development	20%	20%	50%	100%



Egypt



ASRT



NATIONAL REGULATIONS & NATIONAL CONTACT POINTS

Country:	Egypt	
Funding Organisation:	Academy of Scientific Research and Technology (ASRT)	
National Contact Point (NCP)	Dr. Amr Radwan and Ms.Salma Essawi	Email and Phone: Innov@sti.sci.eg sme@sti.sci.eg +20227920126
Eligible Institutions	This call is open to Egyptian legal entities established and based in Egypt. The Egyptian partner could be: research institutes, academic, non-academic organizations including NGOs and innovation agencies, industry, with special attention to small-medium size enterprises (SMEs).	
Eligible Applicants	Egyptian legal entities established and based in Egypt. Egyptian PI must not have more than two ongoing projects funded by the Academy. The Egyptian Team must follow the National regulation for the Academy of scientific research and technology Bylaws.	
Eligible Costs	a- Incentives up to 25% of the total requested contribution (per Egyptian applicant) b- Costs that are necessary for fulfilling the objectives of the project and include, but not restricted to, manufacturing of specimens & prototypes, IP protection and publication, acquiring access to specialized reference source databases or computer software, fees for use of facilities in other national institutions, etc. c- Materials, kits and consumables d- Equipment (shall be fully justified and must not exceed 25% of the total budget per Egyptian partner) e- Travel and subsistence costs. Daily subsistence costs are calculated according to the current governing rules of the Mission Directorate, Ministry of Higher Education, and depending on the visited country. Sometimes are limited by the host institution's internal regulations. The most economical means of transport consistent with effective	



	<p>pursuit of the project should be used. Upgrades to business class are to be done at one's own expense.</p> <p>f- Organisational costs of events and projects' meetings. g- Overhead cannot exceed 5% of the total requested fund</p> <p>The budget of the following activities shouldn't exceed 15% of the Egyptian Applicant's requested funding: Activities that are supporting academic teaching programs, websites launch, design and development of original teaching tools.</p>
MAXIMUM fund for the call 100000 Euro	Maximum Amount Per Proposal €100000.
Other Funding Criteria	<p>Conditions of funding of companies and Private Sector This call is also open for private sector including SMEs. Terms of funding companies are based on the local regulations of the Academy of Scientific Research and Technology, in Egypt where beneficiaries are required to either submit a Letter of Guarantee against the fund amount, or follow a post-activity milestone payment schedule.</p>
Relevant documents	National Regulations (http://www.asrt.sci.eg)
Additional Info	<p>The conditions of execution and financing of the projects upon the completion of the selection process shall be defined in the grant award agreements, where the body selected for financing will sign an agreement with the Academy of Scientific Research and Technology. For more information, please contact Egypt NCP</p>
Useful Links	<p>www.asrt.sci.eg www.stip.eg.net</p>



Morocco



MENFPESRS : Ministère de l'Éducation Nationale, de la Formation Professionnelle, de l'Enseignement Supérieur et de la Recherche Scientifique

a) National eligibility criteria

Contact Point	<p>Ahmed HAMMOUCH E-mail: hammouch_a@yahoo.fr / ah.hammouch@gmail.com Tel: +212 5 37 21 76 49</p> <p>Abdelouahid EZZARFI E-mail: a.ezzarfi@yahoo.fr Tel: +212 6 72 21 03 27</p> <p>Anas CHOKAIRI E-mail: chokairi.anas@gmail.com Tel: +212 5 37 21 76 53 / 212 6 72 21 03 57</p> <p>Hajar SAADI E-mail: saadihajar95enssup@gmail.com Tel: +212 7 67 39 39 01</p>
Eligible entities	<ul style="list-style-type: none"> ✓ Public universities; ✓ Universities from the Public-private partnership in collaboration with public universities; ✓ Non-university institutions in partnership with public universities; ✓ Public research institutions in partnership with public universities.
Eligible topics	MAR : 1, 2, 3, 4, 5 and 6
Eligible type of research and TRL	Type of research : Fundamental / Basic research, Industrial /Applied research, Experimental research. TRL-
Additional eligibility criteria	<ul style="list-style-type: none"> ✓ The maximum budget granted for each Moroccan partner is 65.000 € with a ceiling of 130.000 € per project; ✓ No levy by research institutions is allowed from the budget allocated to the research projects; ✓ Permanent staff can not receive research allowances. The remuneration of the non-statutory staff (PhD students, post-docs and CDD) participating in the project can be financed (Comply with the joint decision of 14 January 2016 concerning the management of the own resources of public institutions of higher education and scientific research); ✓ Costs requested for Research allowances, travel and mission expenses can not exceed 60% of the total budget allocated to the Moroccan team; ✓ The budget requested for the first payment can not exceed 60% of the total



	<p>budget allocated to the Moroccan team;</p> <p>✓ The second payment will be made only after validation of the mid-term report.</p>
Eligible costs	(See below the eligible expenses table in French)
Maximum amount of requested funding	<p>✓ The maximum budget granted for each Moroccan partner is 65.000 € with a ceiling of 130.000 € per project.</p>
Additional information	



Morocco



IRESEN



a) National/Regional eligibility criteria

Contact Point	Name: Sarah DIOURI E-mail: diouri@iresen.org Tel: +212 6 57 89 49 77 Name: Ghita FIKRI E-mail: fikri@iresen.org Tel: +212 6 64 39 01 41
Eligible entities	Universities and research institutions Large, medium and small companies
Eligible topics	MAR : 1, 2, 3, 4, 5 and 6
Eligible type of research and TRL	TRL 6 to 9 TRL 6 – technology demonstrated in relevant environment TRL 7 – system prototype demonstration in operational environment TRL 8 – system complete and qualified TRL 9 – actual system proven in operational environment
Additional eligibility criteria	Project consortium must include at least one business partner (private company, national agency) and one scientific partner (research institute, university...) Project thematics should be in line with the Moroccan National Energy strategy
Eligible costs	<ul style="list-style-type: none">○ Technical Personnel costs○ Equipment costs○ Professional trips○ Other costs (indirect costs, ...)
Maximum amount of requested funding	Maximum of 150 000 euros per project
Additional information	Detailed financial guide will be shared on IRESEN's website



b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	0	0	0	0
Basic research	0	0	0	0
Industrial/Applied Research	67%	67%	100%	100%
Experimental development	67%	67%	100%	100%



South Africa



Department of Science and Innovation (DSI)

a) National/Regional eligibility criteria

Contact Point	Name: Refilwe Mashigo / Tinyiko Ntshongwana E-mail: refilwe.mashigo@dst.gov.za / tinyiko.ntshongwana@dst.gov.za
Eligible entities	<p>South African higher education or research institution such as a university, university of technology or science council. A multi-institutional approach is encouraged. Therefore, applicants are allowed to collaborate with other partners such as NGOs or private sector. However, the NGO and/or industry/ SME participants are expected to meet their own participation costs in the joint project.</p> <p>In terms of South Africa's transformation agenda, South African Principal Investigators (PIs) based at historically advantaged institutions should include, as part of the research team, a research partner from any of the historically disadvantaged institutions. Proposals submitted by an applicant based at a historically advantaged institution without a research partner from a historically disadvantaged institution will be ineligible (and will not be submitted for review). Applicants based at historically disadvantaged institutions can act as PIs and submit proposals without the involvement of and or partnering with researchers based at historically advantaged institutions if they so wish.</p> <p>Please note that only the following eight universities will be recognised as historically disadvantaged in line with the Department of Higher Education and Training November 2015 Ministerial Statement on university funding: University of Limpopo (UL), University of Fort Hare (UFH), University of Venda (Univen), Walter Sisulu University (WSU), University of the Western Cape (UWC), University of Zululand (UniZulu), Mangosuthu University of Technology (MUT), and Sefako Makgatho Health Sciences University (SMU).</p>
Eligible topics	MAR 1, 2, 3, 4, 5 and 6 – all sub-topics.
Eligible type of research and TRL	Fundamental/ Basic Research, Industrial/ Applied Research, Experimental research
Additional eligibility criteria	The South African applicant (i.e. the main Principal Investigator) must be in possession of a PhD. Joint projects that involve young, emerging and/or early-career researchers (through exchange programmes or short placements) and pay attention to a balanced involvement of female and black researchers are highly encouraged. Applicants/Researchers from previously disadvantaged institutions are encouraged to apply. South African researchers are not allowed to submit more than 1 application.



<p>Eligible costs</p>	<ul style="list-style-type: none"> - Research related costs: Activities to be supported may include expenses relating to sabbaticals, materials and supplies, research, technical, or <i>ad hoc</i> assistants for field work (such as conducting interviews/ surveys/ laboratory experiments), research-related trips and small research equipment). - Exchange programmes: To support short term mobility or travel expenses (i.e. transport and accommodation costs) of the research team between the partnering countries. - Doctoral and postdoctoral research placements: The placements should enable young researchers to (1) learn valuable new skills or techniques; (2) access facilities or resources not readily available at home; (3) build relationships with potential new collaborators; and (4) advance complementary collaborative research. The duration of each placement is expected to be 3-6 months; with flexibility to split the placement into several shorter visits. Placements must enhance, not replace, the standard training and study support that both the doctoral and postdoctoral researchers receive. - Knowledge sharing costs: In support of activities organised by the consortium, such as joint workshops, seminars, conferences, symposia, lecture presentations, capacity building sessions, meetings, local/regional dissemination of results aimed at involving stakeholders, and/or end users from outside the consortium. <p>The following will NOT be funded from this grant: salaries, temporary staff fees and consultant's fees, educational expenses (i.e. scholarships and/or bursaries, etc.), large equipment, and project management fees.</p>
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Maximum amount of requested funding	- The total amount requested from the NRF should not exceed R2.4 mil per project. Funding will be made available for a maximum of 3-years, to be paid in annual instalments (R 800 000 per project per annum) and exclusively for research activities commencing in 2022.
Additional information	<p>Submission to NRF All South African researchers who have been approved to proceed to the full proposal stage will be expected to also submit their full proposals through the NRF online submission system. The NRF will open a closed call for full proposals at a later stage.</p> <p>Postgraduate scholarships Please note that the funds indicated above cannot be used for educational expenses such as grant-holder linked scholarships. However, South African applicants (main PIs) interested in incorporating postgraduate students within their LEAP-RE projects should encourage their students to submit scholarship applications through the NRF Online Submission System: https://nrfsubmission.nrf.ac.za/. Further instructions on the Student Support application process can be accessed through the Application and Funding Guide for the Masters and Doctoral Scholarships.</p> <p>Ethical Clearance It is the responsibility of the grant holder, in conjunction with the institution, to ensure that all research activities carried out in or outside South Africa comply with the laws and regulations of South Africa and/or the foreign country in which the research activities are conducted. These include all human and animal subjects, copyright and intellectual property protection, and other regulations or laws, as appropriate. A research ethics committee must review and approve the ethical and academic rigor of all research prior to the commencement of the research and acceptance of the grant. The awarded amount will not be released for payment if a copy of the required ethical clearance certificate, as indicated in the application, is not attached to the Conditions of Grant. Please also refer to the “Statement on Ethical Research and Scholarly Publishing Practices” on the NRF website at https://www.nrf.ac.za/media-room/news/statement-ethical-research-and-scholarly-publishing-practices.</p>

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	No	No	No	100%
Basic research	No	No	No	100%
Industrial/Applied Research	No	No	No	100%
Experimental development	No	No	No	100%





a) National/Regional eligibility criteria

Contact Point	Name: Joël Groeneveld E-mail: joel.groeneveld@frs-fnrs.be Tel: +32 2504 9270
Eligible entities	All eligibility rules and criteria can be found in the PINT-MULTI regulations . This call is co-funded by the European Commission (see article III.6).
Eligible topics	The F.R.S.-FNRS will only finance basic (fundamental) research performed in MAR's 1, 2, 3 and 4
Eligible type of research and TRL	Please note that the F.R.S.-FNRS only funds Basic research (low Technology Readiness Level) carried out in a research institution from the "Fédération Wallonie-Bruxelles". The F.R.S.-FNRS will not fund industrial partners or any activity related to the private sector. Nevertheless, partners funded by the F.R.S.-FNRS can be in a consortium where there are also partners from the private sector.-
Additional eligibility criteria	Applicants to F.R.S.-FNRS funding must provide basic administrative data by submitting an administrative application on E-SPACE within 5 working days after the general deadline of the LEAP RE call to be eligible. Please select the "PINT-MULTI" funding instrument when creating the administrative application. Proposals invited to the second stage will be able to complete the pre-proposal form and provide information for the full proposal upon validation by the F.R.S.-FNRS.
Eligible costs	All eligibility rules and criteria can be found in the PINT-MULTI regulations . This call is co-funded by the European Commission (see article III.6). "Overhead" is not an eligible cost. If the project is selected for funding, these costs will be subject to a separate agreement between the institution of the beneficiary and the F.R.S.-FNRS.
Maximum amount of requested funding	The maximum amount of requested funding per project is 200.000 EUR for a total period of three years.
Additional information	https://www.ncp.frs-fnrs.be/appels/era-nets

b) Funding rates

Maximum funding percentages:



Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	N/A	N/A	N/A	100 %
Basic research	N/A	N/A	N/A	100 %
Industrial/Applied Research	N/A	N/A	N/A	N/A
Experimental development	N/A	N/A	N/A	N/A



Finland



Suomen Akatemia



a) National/Regional eligibility criteria

Contact Point	Name: Päivi Lindfors E-mail: paivi.lindfors@aka.fi Tel: +358 29 533 5028
Eligible entities	Academy research funding is granted to Finnish sites of research (usually universities or research institutes), unless there are special reasons for not doing so. Specifications : As a rule, Academy funding is not granted to support economic activity. Funding may be granted for economic activity only if it can be granted in keeping with the EU's state aid rules in the form of de minimis aid.
Eligible topics	MARS Numbers 1, 2, 3, 4, 5 and 6
Eligible type of research and TRL	fundamental/basic research, industrial/applied research, experimental development
Additional eligibility criteria	Principal Investigator must be a researcher with a doctoral degree.
Eligible costs	Academy funding can be used to cover both direct and indirect research costs of the research team arising from, for example, the following: <ul style="list-style-type: none">○ working hours (salary)○ materials○ travel expenses○ national and international collaboration and mobility○ preparation of international projects○ open-access publishing costs. Academy funding is primarily intended for the salaries of full-time researchers working on the projects and for other research costs. The salary costs of the PI can, with certain limitations, be incorporated into the total project costs.



Maximum amount of requested funding	Academy of Finland's total earmarked national budget is 500 000 € and we anticipate funding 2 projects.
Additional information	Academy of Finland is using full cost model for cost calculation. The Academy will provide a maximum of 70% funding for a project, out of the total costs of the project. Draft the LEAP RE online application so that only funding requested from the Academy (max 70 % of total costs) is included.

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	N/A	N/A	N/A	70%
Basic research	N/A	N/A	N/A	70%
Industrial/Applied Research	N/A	N/A	N/A	70%
Experimental development	N/A	N/A	N/A	70%



France



ANR

a) National eligibility criteria

National Point	Contact	Name: Marie-Laure Tarot Chargé de mission scientifique ANR Tel : +33 1 73 54 81 96 E-mail: marie-laure.tarot@anr.fr
Eligible entities		Higher education and research organizations Large, medium and small enterprises Local collectivities Private non-profit organisations: see ANR funding regulations
Eligible topics		Projects concerning the following MARs: MAR 1, 2, 3, 4, 5, 6 : all sub-topics
Eligible type of research and TRL		Fundamental/Basic Research, Industrial/Applied Research/experimental development TRL 2-6
Additional eligibility criteria		Please consult the ANR Funding regulations for detailed information (“Règlement relatif aux attributions des aides de l’ANR”, in the table below shortly indicated as RF) https://anr.fr/fr/rf/ Within this framework, public research organisations such as Universities, EPST, EPIC, as well as private entities such as companies, NGO’s and foundations may be eligible (if companies or NGO are in a consortium with at least one public research organisation).
Eligible costs		ANR funds basic, industrial research projects and experimental development. The eligibility of costs and rates of funding depend on types of partners, consortia composition and types of research. See ANR funding regulations for more details: https://anr.fr/fr/rf/

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *



Fundamental research	30%	30%	45%	See ANR funding regulations https://anr.fr/fr/rf/
Basic research	30%	30%	45%	See ANR funding regulations https://anr.fr/fr/rf/
Industrial/Applied Research	30%	30%	45%	See ANR funding regulations https://anr.fr/fr/rf/



Germany



FZJ-PtJ



a) National/Regional eligibility criteria

Contact Point	Name: Johanna Ohnesorg E-mail: j.ohnesorg@fz-juelich.de Tel: +49 2461 61-85871
Eligible entities	Universities, research institutes, SME's and Large companies as well as NGOs. Specifications : none
Eligible topics	We support MARs number 1 to 5 and regarding MAR 4 we concentrate on a technical focus on open-access tools.
Eligible type of research and TRL	Types of research: basic research and applied research TRL: 2 to 6
Additional eligibility criteria	<p>7. Energieforschungsprogramm der Bundesregierung (7. EFP) The regulations of the BMBF Call within the 7.EFP apply: https://www.bmbf.de/foerderungen/bekanntmachung-2337.html .</p> <p>The FZJ-PtJ is committed to avoid double funding. We take into account all projects (finished and running) funded by German Ministries.</p> <p>The German partners of the emerging consortia are required to obtain information from the funding institution in advance.</p> <p>Professional Focus:</p> <ul style="list-style-type: none">- Multilateral joint projects between African, European and German research institutions and companies to develop successful business cases for energy supply services as well as (where applicable) green hydrogen value chains.
Eligible costs	<ul style="list-style-type: none">○ Personnel costs○ Operational costs○ Investment costs○ Indirect costs (10% of personnel +operational costs)○ Subcontracting○ Travel costs



Maximum amount of requested funding	Maximum of 400.000 € per German consortium. (Included within the funding amount is an overhead of 20% for universities and overhead costs for small and medium-sized enterprises of up to 100% on the personnel costs. The German participants need to include these overheads into their budget planning before their application.)
Additional information	Additional Information for applicants: <ul style="list-style-type: none"> ○ With regard to the emerging consortia, we welcome the involvement of partners from sub-Saharan Africa. ○ Under the following link you'll find the "Formularschrank" of the BMBF. It contains all necessary documents related to the preparation of the full proposals. This information is provided in German. https://foerderportal.bund.de/easy/easy_index.php?auswahl=formularschrank_foerderportal&formularschrank=bmbf ○ Under the following link you'll be send to a website of the PtJ, which depicts most if not all of the necessary information's for applicants. This information is provided in German. www.ptj.de/projektfoerderung/anwendungsorientierte-grundlagenforschung-energie/leap-re

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	No	No	No	No
Basic research	50	60	70	100
Industrial/Applied Research	50	60	70	100
Experimental development	No	No	No	No



Portugal



Fundação para a Ciência e a Tecnologia

a) National/Regional eligibility criteria

Contact Point	Name: Maria Maia E-mail: Maria.Maia@fct.pt Tel: ++351 213 911543
Eligible entities	(Universities, research institutes, SME's and Large companies, NGOs...) Specifications : Please consult "Regulamento de projetos financiados exclusivamente por fundos nacionais"
Eligible topics	MARS Numbers: all
Eligible type of research and TRL	Type of research (fundamental, basic research, industrial research, applied research, experimental development...) TRL-1-7
Additional eligibility criteria	Please consult "Regulamento de projetos financiados exclusivamente por fundos nacionais"
Eligible costs	<ul style="list-style-type: none"> ○ Personnel costs ○ Operational costs ○ Investment costs ○ Indirect costs (10% of personnel +operational costs) ○ Subcontracting Please consult "Regulamento de projetos financiados exclusivamente por fundos nacionais"
Maximum amount of requested funding	Still not decided

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research	50%	50%	50%	100%
Basic research	50%	50%	50%	100%
Industrial/Applied Research	50%	50%	50%	100%
Experimental development	50%	50%	50%	100%



Romania



**Executive Agency for Higher Education, Research,
Development and Innovation Funding (UEFISCDI)**

a) National/Regional eligibility criteria

Contact Point	Name: Elena Simion E-mail: elena.simion@uefiscdi.ro Tel: +4021.307.19.93
Eligible entities	UEFISCDI will fund mainly applied research projects implemented by research organisations and/or SMEs, according to the European State Aid legislation. The projects will be funded through the National Plan for Research, Development and Innovation III (PNIII), Programme 3 – European and Interantional Cooperation, Subprogramme 3.2 – Horizon 2020, ERA-NET / ERA-NET Cofund.
Eligible topics	MARS Numbers - all
Eligible type of research and TRL	UEFISCDI will fund mainly applied research projects implemented by research organisations and/or SMEs, according to the European State Aid legislation. The projects will be funded through the National Plan for Research, Development and Innovation III (PNIII), Programme 3 – European and Interantional Cooperation, Subprogramme 3.2 – Horizon 2020, ERA-NET / ERA-NET Cofund.
Additional eligibility criteria	For the Romanian partners, more information about the eligibility criteria: https://uefiscdi.gov.ro/p3-cooperare-europeana-si-internationala
Eligible costs	<ul style="list-style-type: none"> ○ Personnel costs ○ Operational costs ○ Investment costs ○ Indirect costs (10% of personnel +operational costs) ○ Subcontracting
Maximum amount of requested funding	200.000 EUR maximum total budget for a Romanian consortium participating as partners in a transnational project; 250.000 EUR maximum total budget for a Romanian consortium participating as a coordinator of a transnational project.
Additional information	https://uefiscdi.gov.ro/p3-cooperare-europeana-si-internationala

b) Funding rates



b) Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *
Fundamental research				
Basic research				
Industrial/Applied Research				
Experimental development				



Spain



CDTI



a) National/Regional eligibility criteria

Contact Point	Name: Héctor González E-mail: hgm@cdti.es Tel: +34 91 581 04 89
Eligible entities	The eligible institutions must be for-profit enterprises (being Large companies or SME), established and carrying out RTDI activities in Spain
Eligible topics	MARS Numbers 3,4,5,6
Eligible type of research and TRL	Eligible activities: technology-based activities within industrial research and/or experimental development projects (in accordance with the definitions of the General Block Exemption Regulation, EC Regulation nº651/2014) representing outstanding scientific technical quality and high innovative potential. The Spanish part of the proposed work plan must be developed in Spain. Please note that non-technological activities, particularly those related to business models/processes, are excluded for CDTI funding. TRL 3-7
Additional eligibility criteria	<p>Additionally to the international application process, those applicants requesting funding from CDTI must submit a formal application by way of CDTI electronic submission system (https://sede.cdti.gob.es).</p> <p>The application must include a detailed description, in Spanish Language, of the activities to be undertaken by the company and the respective budget.</p> <p>CDTI funding will be based on grants, which will be calculated as a percentage of the eligible costs, up to a maximum aid intensity of 60 % for small enterprises, 50 % for medium enterprises and 40% for large enterprises, according to the General Block Exemption Regulation (EC Regulation nº651/2014).</p> <p>CDTI will avoid double funding, and will not finance projects, or parts of projects, which have been already, funded through other national, transnational or EU calls.</p> <p>Applicants are strongly advised to check the detailed information available on CDTI website and to contact the NCP for getting advice about national funding rules before submitting a proposal.</p>



Eligible costs	<ul style="list-style-type: none">• Personnel costs, to the extent employed on the research project.• Instrument and equipment costs, to the extent and during the period in which they are used for the project.• Contractual research costs, technical knowledge and patents bought or licensed from outside sources at market prices, as



UK



Loughborough University (MECS)

a) National/Regional eligibility criteria

Contact Point	Name: Jane Spencer E-mail: j.e.spencer@lboro.ac.uk Skype: j.e.spencer_3
Eligible entities	HEIs and other research organizations, NGOs, international organizations, government institutions, companies of all sizes businesses including micro, small and medium sized enterprises Specifications : Research projects must lead to enabling a safe and efficient modern energy cooking services/systems.
Eligible topics	Predominantly MAR 6 but applications under all other MARS that incorporate significant addressing of modern energy cooking (e.g. via supporting electric cooking on mini-grids) will be considered.
Eligible type of research and TRL	industrial and applied research TRL- 6+. We will consider applications that make a strong business/policy case as to why more fundamental/earlier stage research is necessary for addressing key aspects of the identified challenges.
Additional eligibility criteria	MECS will only fund projects based in countries from FDCO supported countries: Afghanistan, Angola, Azerbaijan, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Comoros, Congo (Democratic Republic of the), Côte d'Ivoire, Djibouti, Egypt (Arab Republic of), Eritrea, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Iraq, Kenya, Kyrgyz Republic, Lao People's Democratic Republic, Lebanon, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Swaziland, Tajikistan, Tanzania (United Republic of), The Occupied Palestinian Territories, Togo, Turkmenistan, Uganda, Uzbekistan, Venezuela (República Bolivariana de), Yemen, Zambia and Zimbabwe. <ul style="list-style-type: none"> • Only modern energy cooking projects will be funded (this precludes biomass cooking but includes LPG, electric, biogas, ethanol, solar thermal etc.) • In these consortia a minimum of 50% of the funding must go to the African consortium members (with the UK partners taking a smaller share).



	<ul style="list-style-type: none"> • Applicants from outside Pillar 1 organisations and countries are strongly encouraged to apply. • MECS will avoid double funding, and will not finance projects, or parts of projects, which have already (received funded through other calls. • Projects MUST complete by June 2023, therefore a maximum of 18 months is anticipated for a December 2021 contract signing. • The budget requested for the final payment can not exceed 30% of the total budget. • All payments will be made on the validation of a 6-monthly progress and final report. • It is the sole responsibility of the applicant to ensure their project complies with European Union State Aid law. We are unable to provide any advice on State Aid to applicants. Should any awarded project be found to have contravened State Aid Legislation that project will be terminated immediately and we may be obliged to recover some or all of the grant funding.' • Applicants progressing to the full proposal stage will need to submit full Due Diligence documentation.
Eligible costs	<ul style="list-style-type: none"> ○ Personnel costs – these should include overhead rates ○ Operational costs for the project duration only ○ Materials costs ○ Investment costs – If your project is likely to need these kind of costs, they must be preapproved by our team. ○ Subcontracting ○ Travel costs – must not exceed one third of the grant application and any flights must be standard economy class. ○ We consider grants funded under this call to be outside the scope of VAT and therefore sales VAT should not be included within any funding request.
Maximum amount of requested funding	Euro 500,000
Additional information	Link to the standard Grant Disbursement Agreement and UKAid Accountable Grant Agreement will be provided (if applicants sign directly with LEAP-RE partners).

b) Funding rates

Maximum funding percentages:

Type of research	Large Enterprises	Medium Enterprises	Small Enterprises	Academia, associations without economic activities, public authorities *



Fundamental research	No	No	No	No
Basic research	No	No	No	No
Industrial/Applied Research	20%	30%	70%	100%
Experimental development	20%	30%	70%	100%

