



GERES AND ENERGY ACCESS



**UNIVERSAL
ENERGY
ACCESS,
THE KEY TO
THE ENERGY
TRANSITION**

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**OUR
AMBITION:
UNIVERSAL
ENERGY
ACCESS**

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UNIVERSAL ENERGY ACCESS, THE KEY TO THE ENERGY TRANSITION



Access to high-quality, affordable energy is a catalyst for living condition improvements

TAKING UP THE CHALLENGE

Access to high-quality, affordable energy is a catalyst for living condition improvements, especially for women, children and vulnerable people.

In 2020, more than one billion people had no such access. Three billion people lack access to modern cooking equipment and fuel. The quality and availability of electricity from some grids is either insufficient to meet essential energy needs, or can only do so at a prohibitive cost.

PERSISTENT BARRIERS

While universal energy access is a crucial component of sustainable development, vulnerability to climate change and demographic growth in developing countries make it complex to achieve. Nevertheless, we at Geres are convinced that the potential of locally available renewable energy, **the strengthening of specialist technical skills in rural areas** and employment support schemes can help to lift these barriers, make communities more resilient to disasters and economic shocks and make crises less likely to arise.

ENERGY ACCESS CORRELATES WITH AN AMBITIOUS ENERGY TRANSITION

The fight against climate change demands an ambitious energy transition. Well aware of the disastrous coming changes in climate and the unequal status of people confronted with their impacts, we stand by the principle that **improving people's quality of life, particularly through energy access, must not come at the expense of the environment**. Geres therefore facilitates the implementation of energy access solutions designed to limit greenhouse gas emissions and help vulnerable communities adapt to the changes imposed by climate disruption.

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83

**PROJECTS
IN 14 COUNTRIES**

OUR AMBITION: UNIVERSAL ENERGY ACCESS



UNIVERSAL ACCESS...

Our ambition is to contribute towards **universal access to appropriate, affordable, reliable energy services**, to improve well-being through inclusive, sustainable development. Geres considers it imperative that improved access to essential energy services (light, heat and power) should be part of the energy and climate transition, relying on energy

Our ambition is to contribute towards universal access to appropriate, affordable, reliable energy services.

supply from renewable and, wherever possible, local resources, coupled with energy efficiency and energy sobriety.

... GUARANTEE OF A SOCIAL FLOOR

Access to high-quality energy, based on renewable production and control of demand, ensures the achievement of a **social floor**¹. Although energy access is not an end in itself, it does offer a way to achieve several cross-cutting objectives: **access to electricity and reliable, affordable cooking appliances is key to increasing income in rural areas**, improving the supply of education and health services, reducing social and gender inequalities, limiting indoor pollution in homes and enhancing the comfort of housing and working conditions.

¹ The social floor relates to reaching a threshold above which people are deemed to be living under decent conditions

TARGETING HOUSEHOLDS AND BUSINESSES

Geres works in rural areas and small towns, supporting households and local economic operators (industrial and agricultural VSEs and SMEs) at the base of the pyramid (BoP)². The latter have either no, or inadequate or inappropriate, access to energy, hindering efforts to improve their living conditions and realize their potential.

² The expression "base of the pyramid" denotes the 4 billion or so humans living on less than \$4 - 5 per day

Geres sets up high-quality energy services.

A BROADER ANALYTICAL FRAMEWORK FOR ENERGY ACCESS

Geres sets up high-quality energy services. This reflects the need to move away from the traditional «binary measurement» of energy access and take account of a variety of situations so that a variety of access needs can be met. Measurement should take account, in particular, of available power output, the number of hours of daily access and the reliability and safety of the energy supply. The Multi-Tier Framework, developed by the World Bank, offers a relevant – although complex to implement – system for measuring different levels of energy access.

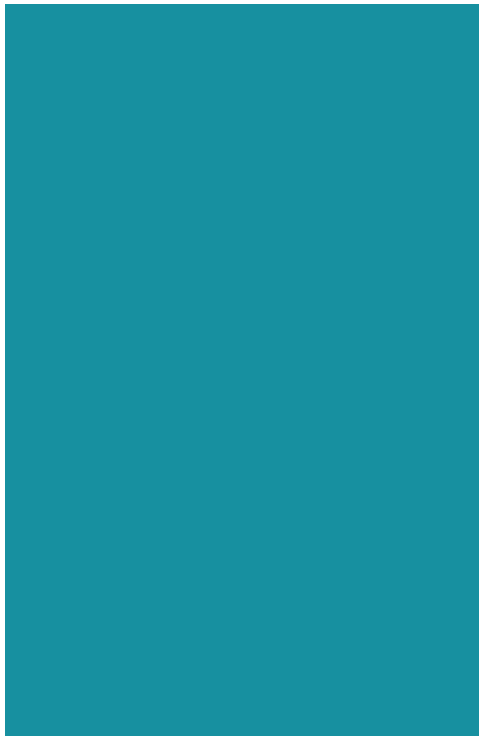
CAPACITY-BUILDING, THE KEY TO CONTINUITY

Supplying high-quality energy services on a long-term basis depends on the local availability of specific technical skills capable of ensuring the operation, maintenance and renewal of systems, whether individual or networked. Geres is keen to strengthen local skills and make sure that these remain available in the long run, with operators in the field working independently.

CONTRIBUTING TO THE SUSTAINABLE DEVELOPMENT GOALS (SDGS)

In 2015, energy access became the seventh Sustainable Development Goal (SDG) of the United Nations, confirming the importance of energy for human development. Geres work in the field of energy is primarily guided by SDG 7, which aims to **achieve access to affordable, sustainable energy for all by 2030**.

Energy access is, however, also a catalyst for most of the other SDGs. Amongst other things, it contributes to poverty eradication (SDG 1), good health and well-being (SDG 3), gender equality (SDG 5), decent work (SDG 8), sustainable cities and communities (SDG 11) and directly to climate action (SDG 13).



ECONOMIC DEVELOPMENT

Our projects foster local economic development and entrepreneurship, and we strive to improve the living conditions for everyone for whom and with whom we work. We support operators in sectors supplying or using energy, to create jobs and generate and share added value, most of which will stay at local level.

To roll out the most effective economic models of renewable energy access solutions, such as the Green Business Areas (GBA)³, Geres supports and relies on **local economic operators** (locally created and/or strengthened SMEs, mini-grid managers, solar power technicians, equipment suppliers, etc.). In this way, we contribute to the emergence and enhancement of entrepreneurship in the energy sector and the development of productive uses.

Our projects foster local economic development and entrepreneurship.

³ concept developed by Geres, which is an incubator for rural businesses grouped together in the same small-scale business area, powered by a mini-grid dedicated to productive energy users and backed by a comprehensive entrepreneurship support system.



- **8 GBAs** in operation
- **80 businesses** electrified and strengthened
- **1 MWh injected** for **€10,000** of turnover achieved by the VSEs
- **€1 invested** in the GBA for each **€1** invested by the VSEs in their production tool
- **more than 250 direct jobs** created
- **100% renewable** energy production
- **Objective: 18 GBAs in 2025** and an independent social business operating the GBAs

SOME EXAMPLES OF ACTIONS

ECONOMIC DEVELOPMENT

MALI



Support for the VSEs consists of drawing up business plans, basic management and entrepreneurship training, teaching sales methods and techniques, connecting entrepreneurs with existing markets, seeking out efficient production equipment and facilitating access to affordable credit.

In Mali, the GBAs provide SMEs and SMEs with enough high-quality energy to lift the energy barrier to their development. Although energy access like this is key in raising productivity and the quality of the entrepreneurs’ work, it is not sufficient to trigger genuine economic development. We have therefore implemented an entrepreneurship support programme to encourage the growth of SMEs in the sector of goods and services, ensuring the economic and organizational continuity of these businesses. Boosting the entrepreneurs’ human and physical capital, along with their capacity to adapt, means that goods or services previously either unavailable or rarely available to consumers can be produced, processed and offered for sale on local markets. With a view to enhancing and maintaining this dynamic process, we are working on the establishment of a private operator (social enterprise) dedicated to developing and managing a large number of GBAs in Mali and then in West Africa more widely.

MYANMAR



In Myanmar, we are working with rural women entrepreneurs and training them to market energy-efficient products. This energy access project aims to **set up a network of skilled women entrepreneurs** and a sustainable marketing structure, with training and empowerment of the women distributors ensuring improvements in living conditions along with continued access to the service.

Impacts REACH Myanmar:

20 women entrepreneurs trained and mentored

7500 households equipped with energy-efficient products since 2020

150 women entrepreneurs joining the network by 2021

MOROCCO



Impacts Morocco:

3 partner industrialists receiving support to produce and market FaranEco ovens

100 bakeries informed and supported

28,000 households equipped with energy-efficient products since 2017

In Morocco, we have joined forces with manufacturers of gas-fired ovens to market highly energy-efficient models produced in the country, which reduce gas consumption by 30 to 50%. Nevertheless, to ensure the profitability (and therefore the sustainability) of the supply chain and drive a considerable reduction in the associated CO₂ emissions, a significant market must be developed in both the domestic and professional oven production segments. Achieving the objective of disseminating these “FaranEco” labeled ovens to professionals and households requires raising their awareness and supporting them in changing their habits and equipment. A 100% female sales network has been created to support this change, as well as a financial scheme for professionals with partner micro-credit associations.

ENERGY POVERTY

11.7 %

**OF HOUSEHOLDS
ARE IN ENERGY
POVERTY
IN FRANCE**



Energy-poor households in both North and South have to deal with the same socio-economic factors, i.e. limited investment capacity, lack of knowledge of the issues connected with the various energy uses and mostly located in rural or peri-urban areas. Everywhere, this situation is responsible for the same problems: high energy expenditure, low levels of health, comfort and social life, reduced opportunities. At Geres, we are taking ambitious steps in all our project areas to lift households out of energy poverty and limit its impact. In France, due to lack of either resources or adequate infrastructure or as a result of inappropriate practices, **11.7% of households are in energy poverty**. We help them to get to understand and overcome the situation, through targeted awareness campaigns, technical recommendations, organization of discussions between landlords and tenants, or advocacy work with donors and public authorities.

In developing countries, a significant proportion of the population is currently moving from non-access to energy to a position of energy poverty. For instance, energy access for new owners of solar lamps and kits will be limited in terms of time, power output and diversification of uses, although the cost per kWh will still considerable. Mini-grids are also often restricted to a few hours'

operation each day, with no possibility of developing productive activities. Finally, access alone is not enough to optimize energy use. Even when energy is available in sufficient quantity, households are held back by a lack of financial resources, reliable electrical appliances and consumer goods.

In many rural areas, the energy accessibility, availability and reliability criteria are rarely met, leaving the vast majority of the population in a position of energy poverty. Moreover, population movements towards urban centres and densification of cities lead to settlement of families in peri-urban areas with poor or non-existent national grid coverage and under seriously degraded housing and energy access conditions.

**Some figures on our energy poverty
projects in France:**

**400 socio-energy
diagnostics**
carried out in homes

€200 - 400 annual savings
on household water/energy budgets

250 kg of CO₂
avoided per year per household involved

1 700 households
informed about energy poverty reduction

ENERGY SPARING & EFFICIENCY

Energy access is inseparable from the complementary notions of **energy sobriety and efficiency**. Against a background of sharply rising electricity consumption (100% over 10 years on the interconnected grid in Mali, for example), particularly related in urban areas to cooling equipment (air conditioning), it is vital to rationalize energy access in both urban and rural areas, by inducing domestic and productive users to make optimum use of available energy resources.



Energy efficiency, meaning optimization of energy consumption through the use of appliances offering better performance and fewer losses in energy production or consumption, is a key element in moving out of energy poverty. As a complementary approach to energy efficiency, we promote energy sparing in our operational areas. This means controlling energy consumption through appropriate, non-excessive use of powered equipment. Energy sobriety basically means sharing a resource which by nature is and will continue to be limited.

+100%

**OVER 10 YEARS ON
THE INTERCONNECTED GRID IN MALI**



We encourage the development and rollout of innovative locally based energy solutions. Our projects incorporate an action research dimension, relying on both technical and economic and social engineering. They draw on pilot projects developed directly in our operational areas and feedback obtained under real-life conditions. As a civil society organization, we feel that we have an important role to play in Research & Development in the energy access sector. Our R&D activities take a field-based approach and focus on the most isolated territories and most disadvantaged communities. The inclusive approach we adopt is built on the development of projects with the priority aim of maximizing social impacts. Our operations are multi-approach and may, within one project, involve not only technological, but also economic, social and territorial innovations.

3 CATEGORIES OF EXAMPLES:

TECHNICAL INNOVATIONS

- In partnership with CIRAD, Geres has developed a system known as vis Kalama for adapting the heat engines used in rural areas to make them compatible with a locally grown biofuel which does not compete with food crops: Jatropha pure vegetable oil (PVO). This technologically advanced tool means that part of the combustion chamber can be heated, allowing PVO to be used in place of diesel.
- Geres is at the cutting edge of decentralized hybrid mini-grids adapted to the needs of productive users. The power demand and operating methods of these mini-grids are still largely unknown to developers of off-grid solutions.

ECONOMIC INNOVATIONS

- With a view to the continuity of the essential services supplied, Geres creates and supports structuring of economically viable “missing actors” (social enterprises, co-operatives, quality labels, etc.), developed with local stakeholders to scale up pilot projects tested in the field. These structures benefit from a start-up phase funded by the project to fine-tune their economic model and raise capital, before going on to roll out sustainable energy solutions independently on a long-term basis.
- Geres has developed a lending facility for several projects, in partnership with local financial institutions, enabling businesses and users to access credit more easily on better terms:
 - In Mali, for example, most of the SMEs need external finance to purchase production equipment but, lacking guarantees and credit history, they do not have access to MFI loans. Geres not only supports a local micro-finance institution by providing a partial guarantee, but also supports borrowers by paying back a bonus at the end of the credit term to those who have complied with the repayment schedule.
 - In Tajikistan, Geres is working with two micro-finance institutions to facilitate access to credit for households planning to build low-energy individual houses. Geres backing helps to bring down the interest rates offered by the MFIs. Interest charges are partially covered if the building is constructed and the loan repaid in compliance with the previously established rules. Land title can also be used as security.

TERRITORIAL AND SOCIAL INNOVATIONS

- The development of Green Business Areas in West Africa is organized around an innovative governance model, including the participation of private and public stakeholders in rural areas. This kind of partnership between a private operator and a public institution is an especially novel development in the context of rural West Africa.
- In Myanmar, Geres is setting up a social enterprise to develop a network of entrepreneurs providing last-mile services to communities. This territorial approach to energy access helps to deliver high-quality energy equipment and service to the most isolated users.
- Presently, Geres is also innovating as regards its way of working with territories, particularly by putting in place territorial diagnostics, together with training and capacity-building tools based on these diagnostics for local authorities and civil society organizations.

Our operations are multi-approach and may include technological, economic, social and territorial innovations.

GENDER EQUALITY

When women have jobs and play a full part in the economic development of their regions, they tend to invest more of their money in improving the living conditions of their families and communities (education, health, well-being, etc.). Women may reinvest up to 90% of their income for the benefit of their families.

Furthermore, inclusive, sustainable access to energy reduces the arduousness of domestic chores and facilitates **women's economic empowerment**. Geres strives to provide affordable, reliable energy services to reduce the domestic burdens mainly borne by women. Time freed up in this way creates more economic and/or social opportunities. In addition, Geres promotes and supports women in the inclusive development of supply chains and/or territories. **If the contribution of energy to sustainable development is to be expanded**, it must be combined with the **equitable participation of women in projects** (from the design of the operation through to its evaluation, making sure that they are involved in discussions and decision-making, etc.). Action must be taken, with the communities, to tackle various aspects of women's empowerment: boosting women's access to information and training, developing their leadership abilities and thereby helping them to become full stakeholders in the development of their communities.

In this respect, Geres:

- Develops, with its local teams and partners, contextualized 'gender glasses' highlighting the differences in access to and control of resources and the multidimensional nature of the factors influencing gender relations;
- Implements participatory, inclusive planning, helping to define the relevant operational levers based on the specific needs and strategic interests of women and men;
- Sets itself objectives contributing to the reduction of gender inequality and regularly monitors progress through gender indicators, taking care to protect communities against the pre-identified risks.

90%

**OF WOMEN'S INCOME MAY
BE REINVESTED FOR THE
BENEFIT OF THEIR FAMILIES**



CLEAN, EFFICIENT COOKING

BIOMASS-ENERGY, A SUSTAINABLE, MODERN ENERGY SOURCE:

We support improved access to advanced fuels such as ethanol or LPG. Nevertheless, for the poorest people, these resources are often unavailable, inaccessible or too expensive. Exclusively supporting cooking solutions which meet the strictest criteria in terms of safety, cleanness and efficiency, as is often the case nowadays with badly gauged subsidies for LPG, leads to de facto exclusion of the poorest, deepening inequalities a little further. To reach the households «at the base of the pyramid», more efficient and cleaner use of biomass energy (firewood, charcoal, organic waste) is a vital complement to other measures facilitating energy access

REDUCING PRESSURE ON FOREST ECOSYSTEMS:

For reasons of accessibility, cost or cultural considerations, biomass energy will continue for several decades more to serve as the main fuel in developing countries. If managed and used sustainably, this resource is renewable but its use must be rationalized. Because they increase the energy efficiency of local cooking methods and reduce demand for wood energy, clean, efficient biomass stoves are part of the solution.

IMPROVING HUMAN HEALTH

Moreover, the WHO estimates that 4.3 million premature deaths per year can be attributed to inefficient use of biomass energy: if not properly burned, wood releases fine particles (PM2.5, PM10) causing various, especially respiratory, infections. As the main users of these inefficient stoves, women are disproportionately affected by this excess mortality. In the current context of the COVID19 pandemic, use of inefficient stoves is a significant potential co-morbidity factor. Access to clean cooking solutions is therefore essential if the health status of households and particularly their most vulnerable members is to be improved.

COOLING

The overall and localized rise in temperatures, densification of population in urban and peri-urban areas and explosion of consumption on interconnected grids are amongst the issues raised by **increased needs for “cooling” solutions**. In line with our activities in the field of energy sparing and efficiency, we promote the use of **passive cooling technologies** (using no energy: cool roofs, bioclimatism, etc.). We have been working for several years on bioclimatism, as well as the efficiency of electrical appliances. We are presently beginning to engage in cross-disciplinary thinking around the theme of cooling. According to the UN, cooling solutions (air conditioning, ventilation, refrigeration, etc.) accounts for 17% of electricity consumption in the world.



17 %

ACCORDING TO THE UN, ELECTRICITY FOR COOLING (AIR CONDITIONING, VENTILATION, REFRIGERATION, ETC.) ACCOUNTS FOR 17% OF ELECTRICITY CONSUMPTION IN THE WORLD.

CARBON

The issue of the carbon impact of energy access in rural areas not covered by interconnected grids is still largely undocumented. Geres plans to undertake in-depth work with a view to proper **measurement and control of the greenhouse gas emissions of energy access projects**, including those based on renewable energy. In our view, economic development and improvements in people’s living conditions cannot be detached from the carbon issue and analysis of the **whole life-cycle** of the means of production and consumption should therefore be built into projects



Measurement and control of the greenhouse gas emissions of energy access projects.



SCALING UP AND PUBLIC POLICY

In order to maximize the impact of its initiatives, Geres seeks to scale up the projects it develops. To this end, we work with both public (local authorities, ministries, etc.) and private (businesses, organizations in the social and inclusive economy, etc.) players. Geres positioning in terms of expertise and support/mentoring of local and international players makes it easier to scale up the rollout of the technologies and methods developed.

By developing or facilitating debate with the public authorities, energy access operators, civil society, the private sector and communities, Geres fosters a more inclusive approach to energy policies. We also take part in institutional advocacy work at national and international level, with the aim of influencing the establishment of those policies.

Because they make it possible to go beyond Geres own direct implementation capacity, our involvement in local policy-making and our efforts to set up multi-stakeholder partnerships including the private sector, coupled with capacity-building, are essential levers in the rollout of solutions enhancing energy access and quality of life.



Set up in 1976, Geres is an international development NGO which works to improve the living conditions of the poorest and tackle climate change and its impacts. As a grassroots actor, the energy transition is a major lever in all its actions. In order to drive societal change, Geres promotes the development and dissemination of innovative and local solutions, supports climate-energy policies and actions and encourages everyone to commit to Climate Solidarity by taking action and supporting vulnerable populations.

5 MAJOR AREAS OF EXPERTISE

Geres focuses its strategy on five areas of expertise which, taken together, can speed up the energy transition.



CONTROLLING ENERGY DEMAND

Support stakeholders to adopt energy-sparing and energy-efficient social, technical and economic solutions suited to the different contexts, using technical levers (improving equipment and the built environment) and social and anthropological levers (changing perceptions and practices).



ROLLOUT OF RENEWABLE ENERGY

Supply zero-carbon energy, available locally and on a long-term basis, at controlled, predictable and affordable cost. Apart from installing energy production equipment based on renewable resources, Geres contributes to the development of sustainable fuel supply chains and supports technical and social innovation around renewable energy.



ENERGY ACCESS

Promote access to reliable, sustainable energy services for private individuals, companies and institutions. This area of expertise combines the technical levers of controlling demand and renewable energy with social and economic levers designed to ensure their inclusive dimension.



SUPPORTING CLIMATE-ENERGY POLICIES AND ACTIONS

Support, guide and influence local and national territorial policies to combat climate change and reduce poverty as a contribution to the emergence of low-carbon, resilient societies.



MOBILIZATION

Encourage everyone to commit to genuine societal change in the direction of greater Climate Solidarity. Act to reduce one's carbon footprint and support vulnerable populations on their path to sustainable development and adaptation to climate change.

5 CROSS-CUTTING APPROACHES

To ensure the sustainability and scaling up of its activities, Geres deploys its expertise on the basis of four major methodological principles within an inclusive framework designed to achieve a major ambition: enabling the most vulnerable to become decision-makers and take an active role in the energy transition.

INCLUSION APPROACH

Fostering the participation and commitment of all to a fair and ambitious energy transition and ensuring access to essential energy services, including for the most vulnerable

ECONOMIC DEVELOPMENT

To support stakeholders and economic sectors to create and share added value and local employment, while contributing to sustainable development.

CAPABILITY-BUILDING AND TRAINING

To pass on knowledge and skills to local stakeholders to help them become agents of change.

PARTNERSHIP APPROACH

To pool know-how, complementary services for the community and solutions that guarantee the adaptation to local contexts and sustainable stakeholder ownership of the value chains and territories.

TERRITORIAL APPROACH TO DEVELOPMENT

To conduct our actions with local stakeholders, considering the territorial and political context.



MORE INFORMATION IS AVAILABLE ON OUR WEBSITE AND ON OUR SOCIAL NETWORKS.
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