Position paper:

Advancing gender equality in the renewable energy sector

Alliance for Rural Electrification

Schneider Electric

Imprints

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Design & Layout: Alliance for Rural Electrification

Cover page photo: Schneider Electric

Year of publication: April 2025

Alliance for Rural Electrification

About the Alliance for Rural Electrification (ARE)

ARE is the global business association representing 200+ Members along the distributed renewable energy value chain, working to expand sustainable electricity access, create jobs and respond to climate change in Africa, Asia-Pacific, and Latin America.

This paper highlights women's crucial role in the renewable energy sector, both on-grid and off-grid, and the impact of gender equality on universal energy access. Since 2006, ARE has led in the coordination between private sector, international cooperation and development support programs. Based on this experience, we present key recommendations for companies and funding partners to promote gender-inclusive energy solutions.

To find out more, please visit:
ruralelec.org/about-are/

Schneider Electric

About Schneider Electric

Schneider Electric is a global leader in the digital transformation of energy management and automation, committed to sustainability. Through its Schneider Sustainability Impact (SSI) programme, it supports the United Nations Sustainable Development Goals (SDGs) by providing access to safe, reliable, efficient, productive, and green energy. The company is dedicated to advancing circularity, preserving biodiversity, and upholding social, governance, and ethical standards.

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Introduction

Over the past decade, the renewable energy (RE) sector has made tremendous strides in providing affordable, reliable, sustainable and modern electricity for rural populations. Between 2010 and 2017, over 920 million people gained access to electricity[1], with renewable energy sources contributing approximately 30% to global electricity generation[2]. Access to RE has improved the quality of life and unlocked economic opportunities in some of the hardest-to-reach communities around the globe.

Distributed renewable energy, including solar energy, is at the forefront of the clean and just energy transition, with solar PV expected to drive 80% of the growth in global renewable capacity over the next five years[3]. Despite these advances, around 685 million people remain without access to clean and affordable electricity[4].

To achieve universal access by 2030, policies, business models, programmes and investments must maximise the socio-economic benefits that electricity brings, while making sure that no one is left behind. **Gender equality is arguably essential to achieve this, as women are strong agents of change in local communities.**

Available data indicates that **women tend to reinvest a greater portion —up to 90%, compared to 35% for men— of their generated income** in community livelihoods and essential services such as small enterprises, health, education, and nutrition[5].

> Gender-sensitive approaches have a greater capacity to reduce household poverty and improve the overall well-being of the community.

Involving women in the design and implementation of renewable energy projects can have a multiplier effect in poverty reduction and community well-being. The traditional energy sector is male dominated, with a female participation of 16%[6]. In contrast, **women make up an estimated 32% of the RE sector**[7]. Further advancing women's rights in the RE sector offers **access for companies to an untapped and expanded pool of talent** and potentially **an array of innovative solutions** that conventional approaches may miss.

Advancing gender equality benefits the economy, stimulates local energy demand and affordability, increases the profitability of RE technologies, and reduces the sector's need of grants and subsidies. In some projects, **women empowerment through rural women self-help groups and associations have enabled a 14% income increase in local communities[8].** A focused approach to ensure women benefit from energy access programmes is thus crucial, as initiates a positive cycle of increased returns on investment, ultimately driving long-term development and prosperity.

Concrete recommendations for RE companies, international funding partners and private investors on how to further enhance women empowerment, include:

1 IEA, IRENA, UNSD, World Bank, WHO, Tracking SDG 7: The Energy Progress Report 2019, 2019: pg 15
2 IEA, Renewables 2024, Analysis and forecasts to 2030, 2024: pg 14
3 IEA, Renewables 2024, Analysis and forecasts to 2030, 2024: pg 7
4 IRENA, IRENA, UNSD, World Bank, WHO, Tracking SDG 7: The Energy Progress Report 2024, 2024: pg 15
5 IFC, IFC Jobs Study: Assessing Private Sector Contributors to Job Creation and Poverty Reduction, 2013: pg 117
6 Power for All, Factsheet: Decentralized Renewable Energy can help to address gender gaps, 2023: pg 1
7 IRENA, Renewable Energy: A Gender Perspective, 2019: pg 10
8 ARE, Private Sector Driven Business Models for Clean Energy Mini-Grids. Lessons learnt from South and South-East-Asia, 2019: pg 44

01.

Recommendations for RE companies

RE companies could start by **collecting and analysing gender-disaggregated data in the conceptualisation phase** of projects through community consultations. Relevant information includes existing and potential energy uses, number of formal and informal MSMEs owned by women in the community, purchasing and decision-making power of women, and other barriers to access resources. The data collected can help renewable energy companies tailor their products, marketing, sales strategies, and financial or capacity-building support to meet the specific needs of local women.

RE companies are also encouraged **to recognise the business case for increased employment of women.** Currently, women represent only 32% of the total workforce in the renewable energy sector and are disproportionally concentrated in the lower spheres of the decision-making hierarchy[9]. **Evidence shows that local companies with gender parity or female leadership are more profitable than those led by men, often surpassing them in performance**[10,11].

Similarly, gender equality pursued at the board, high and mid-level management has shown to reap concrete benefits. Balanced gender numbers at organisational levels lead to higher business profits and transparency, better motivation and working environments, as well as greater innovation and sustainability impact[12]. **RE companies are thus encouraged to foster balanced distribution of board and senior roles between men and women**. This could be achieved through inclusive recruitment, promotion and development processes, pay equity, strategic benefits and more to ensure women and men have the same chance for success.

Key recommendations:

Collect and analyse gender-disaggregated data to inform programmes

Enhance job opportunities for women

Promote gender equality in leadership and management

Monitor and evaluate gender impact

Train women entrepreneurs and strengthen their networks

It is also recommended that RE companies monitor and evaluate their gender impact. Impact assessments may be informed by gender-disaggregated data such as different access levels to energy, ownership of financial and productive use equipment, revenue generation, education levels and health. In turn, the learnings could be considered when operating projects and in the planning phase of subsequent projects.

As shown by evidence from the field, **networks of women entrepreneurs and 'saving groups' can be established and supported to ensure women entrepreneurs develop their own business models, exchange best practices, share project risks and access credit for energy consumption.** Training could focus on corporate governance, financial planning, budgeting, project management and pitching to investors.

9 Power for All, Powering Jobs Census 2022: The Energy Access Workforce, 2022: pg 23
10 ENERGIA, Women's Energy Entrepreneurship: A Guiding Framework and Systematic Literature Review, 2019: pg 27
11 IDS Bulletin, vol 51 (1), Gender and Entrepreneurship in the Renewable Energy Sector of Rwanda, 2020
12 GWNET, Women for Sustainable Energy: Strategies to Foster Women's Talent for Transformational Change, 2019: pg 25-26

02.

Recommendations for international funding partners & private investors

A major challenge for women to reap the full benefits of energy access in rural areas arises from their disadvantageous position to access financial means, training, information, productive use equipment and land. International funding partners and private investors are strongly encouraged to adopt gender mainstreaming. Inclusive analysis, equal participation, and integrated approaches, ensure that energy access programmes consider how they differently impact women and men, involve both genders in decision-making, and embed gender equality throughout the design, implementation, monitoring, and evaluation stages. Maximum social impact, sustainability and return on investments can thus be achieved.

International funding partners and private investors are equally encouraged to **prioritise capacity building programmes that equip women with enhanced technical capacities.** This could for example be achieved by funding skills development through universities and technical and vocation education and training (TVET) institutions to help train a diverse pool of talents that may be employed by RE companies or in other roles in the sector. Ideally, such programmes may include collaborations with business associations that provide mentorship activities and internship placements to provide real work experience in the industry.

Encouraging access to productive use equipment for women entrepreneurs coupled with on-site training, could also be boosted. Collaboration between RE companies, international development partners, governments and local associations is key. This collaboration enables inclusive financial schemes to facilitate access to PURE equipment and more.

Evidence shows that women-led business activities in rural areas can be further improved with modern digital solutions. These tools enable women entrepreneurs to gain financial and commercial data on their customers, receive remote market linkage support and build a bankable profile over time to unlock further finance for their businesses. **International funding partners and investors could, for example, support RE companies adapt their solutions to different literacy levels and provide basic capacity building for the effective use of digital tools.** The limited access to formal education among women, due to factors like traditional gender roles, early marriage, and a preference for educating boys, should be considered.

International funding partners may actively promote, and finance community engagement initiatives aimed at addressing resistance to women's greater economic participation and decision-making roles at both household and community levels. This would require challenging social norms and stereotypes while equipping women with the knowledge, skills, and resources needed to safeguard their rights.

Key recommendations:

Integrate gender equality approaches and women empowerment goals in programme cycles

Invest in capacity building for women

Facilitate women's access to productive use equipment

Leverage digital solutions for women entrepreneurs

Invest in raising awareness among families, communities, and community leaders to foster acceptance of women's enhanced leadership

The Schneider Electric Case Studies

01.

Powering systemic sustainable change:
Gumla's smart villages approach to sustainable agriculture & women empowerment

Location

The project focuses on Sehal and Chatti, two small tribal villages in the Gumla district of Jharkhand, India, home to 200 families and situated around 130 km from Ranchi, the capital state. Families are smallholder farmers with an average landholding of 2.5 acres and an annual income of USD 650. The villages relied on rain-fed agriculture.

Context

Since 2014, PRADAN, a non-governmental organisation, has worked in Sehal under its Livelihood Improvement Programme, forming self-help groups, facilitating access to government programmes, and introducing diesel pumps for irrigation. However, high diesel costs resulted in low utilisation. In 2019, PRADAN partnered with Schneider Electric to launch Project ASTHA, replacing diesel pumps with solar-powered ones, ensuring reliable, cost-effective irrigation.

The solution aimed to improve the livelihoods of Sehal's villagers through sustainable irrigation practices, market linkages, community ownership, and women's empowerment. In addition, the installation of solar microgrids, provided a stable power supply, improving agricultural productivity and enhancing health, education, and socio-economic conditions.

Gender approach & impact

Schneider Electric collaborated closely with PRADAN to engage not only women but also their families, male relatives, and influential community leaders. Recognising gender-based stereotypes, limited decision-making power for women, and community hesitancy toward women taking leadership roles, awareness workshops and regular community dialogues were conducted to highlight the collective benefits of women's active participation. Male family members and village leaders were involved from the project's inception to ensure their support and to normalise women's engagement in leadership roles.

A key project initiative, the Ghagra Women Farmer Producer Organisation (FPO), enables women to lead agro-processing activities such as mustard oil production, rice milling, and crafting Sal leaf plates. Women manage the distribution, marketing, and selling of agricultural products, gaining practical exposure to entrepreneurship. This targeted engagement has successfully addressed social barriers, gradually shifting perceptions around women's roles—from traditional caregivers to entrepreneurs and community leaders.

The FPO also ensured solar pumps to be community-owned and collectively managed. This model has been specifically designed to ensure equal access for female-headed households alongside male-headed ones. Women are actively involved in decision-making processes and operational management, ensuring men and women benefit equally from improved agricultural productivity. To sustain the FPO and maintain solar pumps in the region, 20 youths received two months of training in a Schneider Electric-supported skill development centre in Bangalore, India with state-of-the-art lab infrastructure.

The installation of solar-powered irrigation pumps has boosted agricultural productivity, enabling 60 families in Sehal to cultivate three crops, including cash crops, to grow second and third crop cycles, and generate additional annual incomes of USD 710 to 830 per family.

The project also led to a 25% increase in women-led initiatives, enabling women to actively participate in farming and agro-procesisng activities, directly improving their income stability, household financial contributions, and overall quality of life.

The project has significantly reduced migration rates from 54% to 17%. Prior to this initiative, limited land productivity forced male family members to migrate seasonally to different regions across India in search of employment. This seasonal migration left women as heads of households, often without adequate resources or necessary skills to support their families financially. Moreover, the increased household responsibilities and the sole burden of caregiving prevented women from actively participating in the local economy. By addressing these critical gaps, the project has stabilised incomes and significantly enhanced women's ability to contribute to and benefit from local economic activities.

This success highlights the potential of smart village solutions to drive sustainable, systemic change, improve livelihoods, and create a more equitable and sustainable future.

Key statistics:

25%

increase in women-led initiatives, fostering gender equality and leadership

Increase in

women's engagement

in agro-processing activities

20

youths trained at a skill development centre

A reduction from

54% to 17%

in migration rates for villagers

An increase in annual income ranging from **9% to 28%** for the families, resultant from the Ghaghra Women Farmers Producuers Organization (FPO)

Constraints & recommendations

Implementing sustainable irrigation practices and building stronger market linkages can help ensure consistent income for villagers. Encouraging community ownership and empowering women to take on leadership roles can further enhance project impact.

The Climate Smart Village initiative by Schneider Electric has shown that reducing migration rates, enabling farmers to grow multiple crop cycles, and generating additional annual incomes are key factors in scaling up. Introducing high-capacity solar pumps ensures food security and reduces reliance on expensive diesel pumps and erratic monsoon rains. Empowering women through initiatives like the Ghagra Women Farmer Producer Organisation, which engages in agro-processing activities, can also drive systemic, sustainable change.

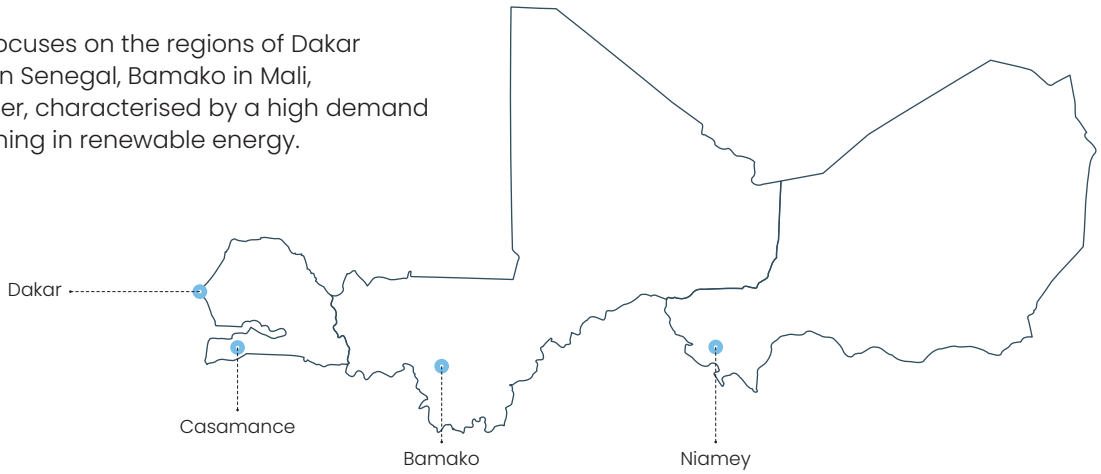
02.

The Economic & Social Development of Women through Renewable Energies in the Sahel (DESFERS) programme:

Empowering women for sustainability & energy transition in Senegal, Mali & Niger

Location

The programme focuses on the regions of Dakar and Casamance in Senegal, Bamako in Mali, and Niamey in Niger, characterised by a high demand for vocational training in renewable energy.



Context

The Schneider Electric Foundation aims to bridge the energy divide globally through vocational training and sustainable development. In 2019, in partnership with Plan International and a consortium of stakeholders, it launched the Economic and Social Development of Women through Renewable Energies in the Sahel (DESFERS) programme to tackle energy poverty and socioeconomic inequalities affecting women in the Sahel. Limited access to reliable electricity, and restrictive social norms, such as limited access to education, hinder women's economic participation.

DESFERS focuses on green skills training, technical school upgrades, and entrepreneurship support for women entering the RE sector. A consortium of local NGOs and technical partners provides specialised expertise. As part of the Youth Education & Entrepreneurship and Youth Impact Through Learning initiatives, the programme aims to train one million youth, and support 10,000 entrepreneurs by 2025. Schneider Electric supplies essential equipment, including inverters, electrical work benches and state-of-the art training infrastructure, ensuring high-quality education. The company has been selected as a Diversity, Equity and Inclusion (DEI) Lighthouse in the Green Economy category for its support of this programme.

Gender approach & impact

DESFERS empowers women through entrepreneurship and employment. In the Sahel region, where women face significant barriers to education and vocation al training, this initiative aims to break these barriers by equipping six training centres and training 20 teachers.

A key focus of the programme is the creation of 4,650 small and medium-sized women-owned businesses and 600 savings and credit groups. These significantly improve the social status of women by providing them with the necessary tools and resources to enhance their livelihoods and actively participate in the energy sector.

The programme has already delivered impactful results, including green skills training to 7,204 women, the establishment of 6,099 women-led green enterprises, and improved access to RE solutions and credit facilities for 21,000 women. By building an ecosystem that includes training, mentorship, and access to funding, the consortium of partners empowers women to lead a just energy transition.

This gender-focused approach not only advances gender equality but also contributes to the broader goals of sustainable development and economic growth in the Sahel region. By empowering women, the DESFERS programme fosters a more inclusive and resilient economy, driving systemic change and creating a more equitable future.

Key statistics:

6
training centres equipped with state-of-the art tools

20
teachers trained

7,204
women trained in green skills

6,099
women-led green enterprises generated

600
savings and credit groups established

4,650
small and medium-sized women-owned businesses created, such as kiosks to sell cold drinks

21,000
women gained improved access to renewable energy solutions and credit facilities.

Constraints & recommendations

To effectively scale up the DESFERS programme, addressing key challenges is essential. Strengthening market linkages by establishing partnerships with local renewable energy companies and government agencies will help ensure consistent income. Furthermore, advocating for policy reforms that ensure active participation from both men and women, such as equal access to financing and land ownership is vital.

Promoting community ownership through RE cooperatives and leadership enhances long-term sustainability. A comprehensive monitoring and evaluation framework is also needed to track impact and identify areas for improvement. Finally, expanding education and vocational training in remote areas through mobile training units and distance learning programmes, will further improve equal access to opportunities.

03.

Powering rural India:

The story of Pallavi Jayabhaye, how one woman is leading the clean energy revolution

Location

The project is focused on Hingoli, a town situated at the northern part of Maharashtra, India.

Context

Access to clean and reliable energy remains a critical challenge in rural India, where millions of households still depend on polluting and unreliable energy sources. Recognising the urgent need for renewable energy solutions, Schneider Electric launched the Clean Energy Entrepreneur Network—a programme designed to equip rural youth, with technical and entrepreneurial skills in the clean energy sector. The objective is to create a sustainable ecosystem of micro-entrepreneurs who can bridge the gap in energy access, drive local economic growth, and create jobs. This initiative has already trained over 400 entrepreneurs and aims to establish 4,000 clean energy entrepreneurs by 2025, impacting 100 million lives globally by 2030.

Gender approach & impact

Women in rural communities disproportionately experience energy poverty—affecting household work, health, education, and economic independence. Despite their crucial role in community development, women they remain underrepresented in the energy sector. Supporting women entrepreneurs in clean energy can drive rural electrification, job creation, gender equality in entrepreneurship, and long-term socio-economic growth.

One such inspiring example is Pallavi Jayabhaye, a female clean energy entrepreneur from Hingoli, Maharashtra, who transitioned from homemaker to business leader. Raised in Jintura, a farming village in Maharashtra, she married at 20 while pursuing her B.A. degree, and with her husband's support she completed her education in 2023.

Her entrepreneurial journey began when she learned about Schneider Electric's Entrepreneur Development Programme (EDP), a part of the Clean Energy Entrepreneur Network. She underwent technical training in solar energy and business skills at Samajik Shaikshanik Vikas Kendra, (SSKVK), Nagpur, and later completed a 21-day incubation program at Sri Sri Rural Development Programme (SSRDP), Bengaluru.

Pallavi later founded SK Solar & Power Solutions, providing affordable and reliable solar energy to homes, businesses, and farmers. By 2024, she has installed 10 kW of solar power across Hingoli, built a thriving business with a turnover of ₹5.2 million (₹52 lakh / USD 61,180) and created local employment by hiring two full-time employees and four contract workers. Her off-grid and on-grid solar solutions ensure 24/7 power availability, while the solar-powered irrigation solutions have helped farmers enhance crop yields and increase their earnings.

Pallavi's business is not just about selling solar products—it's about empowering communities, enabling economic independence, and championing clean energy adoption. Her journey reflects the transformational power of clean energy entrepreneurship. Her story showcases how rural women, when equipped with the right skills and opportunities, can become powerful change-makers in their communities.

Key statistics:

10 kW
of solar power installed

A successful business with a
₹5.2 million
(₹52 lakh / $61,180) turnover in 2024

24/7
power availability to commercial establishments

Hired
two full-time
employees and four contract workers

Increased crop yields and earnings through
solar-powered irrigation solutions.

Constraints & recommendations

While Pallavi has successfully launched her clean energy enterprise, certain challenges persist. Many rural communities remain unaware of the benefits of solar energy, highlighting the need for greater outreach and collaboration with the government to improve adoption rates. Access to finance is another hurdle, as the high initial costs of solar solutions can be a barrier for customers. Implementing micro-financing or instalment-based payment models could make these solutions more affordable. Scaling her business will require training more local technicians to install and maintain solar systems. Expanding training programmes, particularly for women and youth, can help bridge this skill gap.

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