



INDUSTRIAL
DECARBONIZATION
ACCELERATOR



GHANA CASE STUDY

Energy Management Systems Training



Accelerating industrial energy efficiency in Ghana

Climate change is fast disrupting the lives and livelihoods of farming and fishing communities in Ghana. Unpredictable weather conditions and rising sea levels mean that Ghana's policies and economy must adapt to meet the challenges of a changing climate.

Ghana is determined to do its part to mitigate global climate change, while also creating a reliable national power supply, especially for the emerging industrial sector. Meeting the growing energy demand while moving away from fossil fuels is a critical part of this effort. To help slash emissions and transition away

from unsustainable energy supplies, the United Nations Industrial Development Organization (UNIDO) Industrial Energy Accelerator has trained 10 industries and 30 energy management consultants to become pioneers of the country's energy efficiency movement.

What's the energy context in Ghana now?

Ghana is one of the countries with the highest rates of electrification in sub-Saharan Africa, at 85 percent. However, the country still relies heavily on fossil fuels, which make up 60 percent of its energy mix, and demand for energy is only growing.

The demand for electricity has grown by 60 percent between 2010 and 2019¹, but power facilities are struggling to match the demand. In the past decade, Ghana has experienced severe electricity supply challenges, costing Ghana's industrial sector millions of dollars. To cope with the supply challenges, more industrial facilities are installing diesel-powered back-up generators, which is only increasing carbon emissions, with a deadly impact on the health of the environment and local communities.

The country's industrial sector contributes to 30 percent of GDP² and employs about 15 percent of the population³. Industry is a key source of the growing energy demand and a place to transform the energy situation in Ghana to one that is environmentally and economically sustainable. Using energy more efficiently in Ghana's industrial sector is a critical first step to meeting the global climate warming mitigation targets laid out in the 2015 Paris Agreement, and tapping into the financial and environmental gains from creating more reliable power supplies.

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If we can use less energy, less fossil fuel and still get what we want, why not? If an industry can reduce the cost of operation, why not make those options available to them? And why should we wait till later and not do it now? If we wait, there will be nothing for us to hold onto or to live on.”

Ms. Letitia Abra-Kom Nyaaba,
Ghana National Cleaner Production
Centre (NCPC)



1 National Energy Statistics 2000-2019, Ghana Energy Commission, 2020. <http://energycom.gov.gh/files/2020%20ENERGY%20STATISTICS-revised.pdf>

2 World Bank data, 2020. <https://data.worldbank.org/indicator/NV.IND.TOTL.ZS?locations=GH>

3 Industrial Analytics Platform, UNIDO, <https://iap.unido.org/country/GHA>

Barriers

Ghana is well-placed to champion an energy transformation.

One that slashes carbon emissions, easing pressure on energy supplies, saving money, while also helping create a thriving economy and planet. But several obstacles must be addressed first:

- Ghana's energy efficiency policies primarily target the residential and commercial sectors, rather than tapping into the huge potential of industry energy efficiency.
- Lack of data or benchmarks for industrial energy efficiency hold back effective policymaking.
- Industry stakeholders are not motivated to adopt energy efficiency technologies due to lack of awareness of the benefits, and limited funding or commercial gain for investment in energy-efficiency projects.

Setting the scene for energy transformation

Ghana is already leading in Western Africa when it comes to energy efficiency in the residential sector. Now it has the chance to do so in the industrial sector too.

As part of its Nationally Determined Contribution (NDC) to achieve the goals of the 2015 Paris Agreement to mitigate climate change, the government of Ghana has set a target to double energy efficiency improvement to 20 percent in the industrial sector by 2030⁴. Such a reduction would save an estimated US\$94 million and US\$109 million⁵, based on the mid-level gas demand projection. It would also create a more secure energy supply, reduce dependence on foreign energy imports, provide financial and reputational benefits for industry actors, and unlock a more competitive job market.



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We have made our policies to ensure that we go through energy transition smoothly with our economy intact, and we encourage all partners to support our country, to be able to transition smoothly.”

Robert B. M. Sogbadji (PhD) Deputy Director,
Nuclear and Alternative Energy Renewable and
Alternative Energy Directorate Ministry of Power

A partnership with UNIDO, supported by the Green Climate Fund, is helping Ghana to achieve this goal and unlock the significant opportunities that a thriving industrial energy efficiency services market offers.

⁴ Ghana's intended nationally determined contribution (INDC), Government of Ghana, 2015. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Ghana%20First/GH_INDC_2392015.pdf

⁵ Ibid

Accelerating the uptake of Energy Management Systems

UNIDO in Ghana has been working with policymakers and industry actors to identify gaps in legislation and funding for the uptake of Energy Management Systems alongside best practices in energy efficiency.

In 2021, UNIDO conducted a diagnostic assessment of the energy landscape in Ghana to scope out the obstacles and the opportunities for energy efficiency, as well as understand national priorities to develop practical solutions and training to national industry and institutional actors.

From May 2021 to April 2022, a team of UNIDO expert technicians and trainers guided 10 'champion industries' in implementing the internationally regarded ISO 50001 energy management system. UNIDO also trained 30 specialized local energy management consultants to meet the demand for industrial energy efficiency services in the future. This is happening alongside an industry-wide awareness raising campaign to showcase the benefits and encourage uptake.

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The most useful aspects of the training so far has been the kind of materials we have received... and the step by step guide which the facilitators give us. They even come to our companies to have an assessment... and then they better guide us.”

Ms. Belinda Lawson,
Trainee representing Niche Cocoa

Energy Management System (ISO 50001)

An energy management system helps companies better manage their energy use, thus improving productivity. It involves developing and implementing an energy policy, setting achievable targets for energy use, and designing action plans to reach them and measure progress. This might include implementing new energy efficient technologies, reducing energy waste, improving current processes to cut energy costs or simply raising the awareness of staff so they are empowered to participate in saving the company's energy. The ISO 50001: 2018 Energy Management Standard is one of the frameworks for developing an effective EnMS. To date, industrial companies have saved millions of dollars and tons of carbon emissions as a direct result of implementing the ISO 50001 standard.



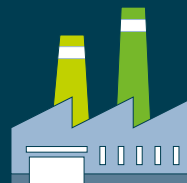
What has the training achieved?

1. Energy efficiency champions gained new skills and tools to establish and/or enhance and maintain over time energy management systems across their production. These tools also empowered energy managers to monitor and demonstrate with figures the savings made in the short and long term.
2. The understanding and involvement of industries' managers and staff increased throughout the process, which legitimized the energy teams and the important work they do. This is a prerequisite for EnMS to succeed.
3. As the training took place, the 10 'flagship companies' that participated were able to assess in detail their energy usage, minimize waste, harness opportunities in their existing production system and implement low cost measures. With close guidance from the trainers, most of them experienced energy savings.

30 SPECIALISTS
TRAINED
in the ISO 50001
energy management
standard



10 INDUSTRIAL
COMPANIES
have implemented
the ISO 50001
energy management
standard



1 POLICY
ROADMAP
developed to
support investment
in industrial energy
efficiency



Companies committed to the ISO 50001 energy management standard:

- Niche Cocoa
- Cargill
- Praise Export Services Limited
- Accra Brewery Limited (ABL)
- Fabrimetal
- Fine Print
- Gokay Group
- Dzata Cement
- Akosombo Paper Mill
- Cocoa Processing Company
- Avnash
- Fanmilk



“

One of the key outputs of the UN program is to transfer the skills. We are not coming and saying, this is what we can do for you. We're coming to say: this is what you can actually do. You've got to continue and teach others. This way, it becomes a sustainable program.”

Mr. Siraj Williams,
Expert trainer

What's next?

UNIDO aims to scale up activities to further accelerate the decarbonization of the industrial sector in Ghana. Using the experience and lessons learned from running the programme of capacity-building and technical support on the implementation of ISO 50001 compliant Energy Management Systems, UNIDO aims to work in collaboration with international and local institutions to reach 50-100 local companies in the coming years.



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This training is geared at not just training us, but also trying to liaise with all the institutions that help in establishing energy management systems, like support systems from the EPA, governmental protection, energy funding organization.”

Robert Anum,
Maintenance and production system support engineer for Fine Print



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About the Industrial Decarbonization Accelerator

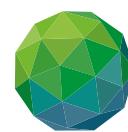
In partnership with key government agencies and industry stakeholders, the Industrial Decarbonization Accelerator works on the ground to rally government, industry and finance around solutions that ignite change in industries. We then take our knowledge and experience to the world, sharing what we have learned to inspire a global movement for industrial decarbonization.

For more information contact the Accelerator's Ghana project coordinator,
Nurzat Myrsalieva: n.myrsalieva@unido.org

To learn more visit our web:
www.industrialenergyaccelerator.org



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