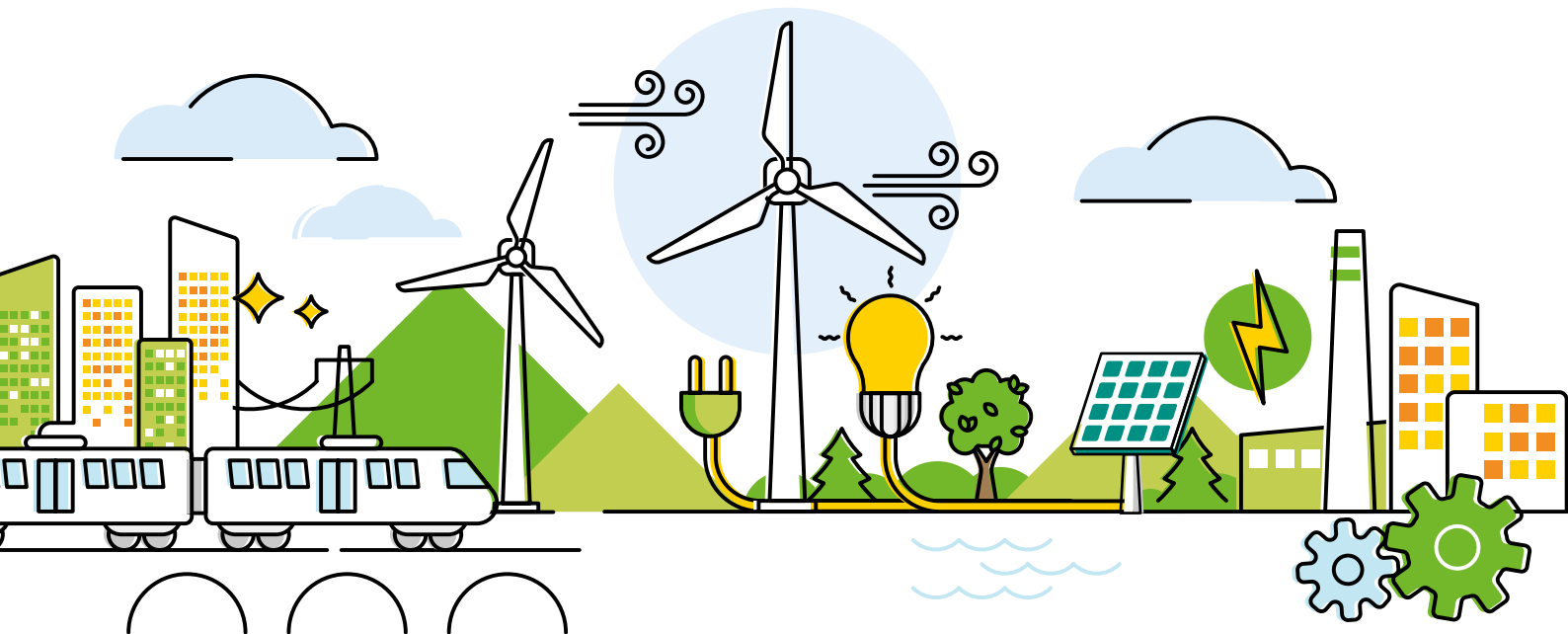




UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



UNIDO's CLEAN ENERGY VISION

Ushering in a new era of industrialization
powered by clean energy



The race is on to achieve a net-zero industrial sector

Stronger action now will enable emerging economies and least developed countries to reap the benefits

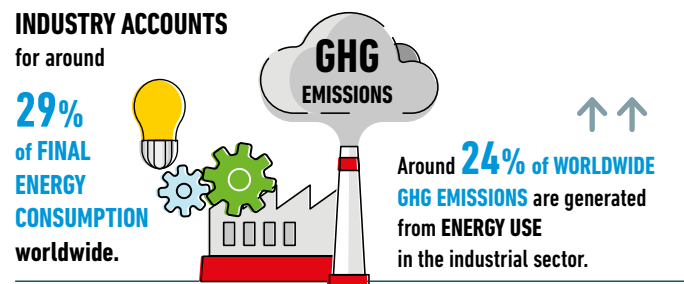
Around the world, momentum to solve the climate crisis is building fast. Citizens and their leaders are taking action and making bolder commitments to reduce emissions and keep the Earth's temperature well below two degrees Celsius. Meanwhile, forward-thinking solutions to adapt to the new climate reality and access clean and affordable energy for productive uses are also on the rise.

The knowhow and technology to shift our global economy away from fossil fuels is available, while stronger political and investor confidence is seeing a robust market for zero-carbon solutions emerge. In the near future, low-carbon countries, economies, cities and industries will outcompete their fossil fuel reliant counterparts. The race to achieve net-zero and resilient economies is on and there is no time to lose.

It is essential to work hand-in-hand with industry as the world transforms its energy system and solves the climate crisis. On the one hand, this sector is a massive consumer of fossil fuels at the global level. Currently, industry accounts for around 29 per cent of final energy consumption worldwide.¹ Globally almost three-quarters of emissions come from energy use. Of this, around 24 per cent of worldwide GHG emissions are generated from energy use in the industrial sector.² If business continues as usual, heavy industrial sectors such as cement, chemicals and steel will account for the world's entire carbon budget in 2050, and the climate goals will be out of reach.

Yet, on the other hand, the industrial sector is best equipped to foster innovative new technologies and to help entrepreneurs access the finance and markets needed to scale them. For example, more energy efficient manufacturing practices, higher recycling rates, electrification, green hydrogen and renewable power have the potential to drastically cut industrial emissions and therefore put the world on track to net-zero.

While the transition to clean industry will not be easy, the abundant opportunities will make it no less exciting. More than US\$3 trillion is expected to be invested in renewable energy over the next decade, including an estimated US\$2.7 trillion in wind and solar.³ The rapid growth in the clean energy industry will provide millions of new jobs and access to energy to many people for the very first time. Particularly for developing nations — where 70 per cent of future energy demand is expected to come from⁴ — the transition to clean energy presents a once-in-a-generation opportunity to sustainably boost economic growth, electrify rural communities, achieve energy security and become leaders in a low-carbon and climate resilient global economy.



1 Fawkes, S., Oung, K., Thorpe, D., 2016. Best Practices and Case Studies for Industrial Energy Efficiency Improvement – An Introduction for Policy Makers. Copenhagen: UNEP DTU Partnership.

2 Climate Watch, World Resources Institute 2020, cited in OurWorldinData and the Visual Capitalist: <https://www.visualcapitalist.com/a-global-breakdown-of-greenhouse-gas-emissions-by-sector>

3 Frost & Sullivan (2020), Growth Opportunities from Decarbonization in the Global Power Market, 2019-2030, <<https://ww2.frost.com/news/press-releases/3-40-trillion-to-be-invested-globally-in-renewable-energy-by-2030-finds-frost-sullivan/>>

4 Goldthau A., Eicke L., Weko S. (2020) The Global Energy Transition and the Global South. In: Hafner M., Tagliapietra S. (eds) The Geopolitics of the Global Energy Transition. Lecture Notes in Energy, vol 73. Springer, Cham. <https://doi.org/10.1007/978-3-030-39066-2_14>

UNIDO's Clean Energy Vision

ACCELERATE. ENABLE. RISE

As net-zero by 2050 becomes the global norm, UNIDO accompanies emerging economies and least developed countries as they strive to balance their industrial growth ambitions with their global climate commitments.

UNIDO's unique approach and technical support to industry, policymakers and entrepreneurs is helping to reap incredible benefits for developing countries and their communities in the clean energy transition. This includes improved health outcomes, access to sustainable energy, new employment opportunities, as well as mitigating the inevitable impacts of climate change. By involving and meeting the distinctive needs of women, youth and other more vulnerable groups, our work can also abate traditional inequalities.

Powering a sustainable and inclusive industrial development agenda

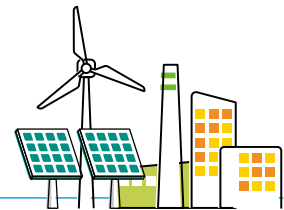
The Sustainable Development Goals (SDGs) constitute the core of the 2030 Agenda for Sustainable Development and guide all global, regional and national development endeavours for the next 10 years. UNIDO's Clean Energy Vision primarily works at the nexus of SDG7 (energy), SDG13 (climate) and SDG9 (industry). It supports access to affordable, reliable, sustainable and modern energy for all. It builds resilient infrastructure, promoting sustainable industrialization and fostering innovation. And, it takes urgent action to combat climate change and its impacts.



Specifically, our work is organized around **THREE INTERWOVEN SOLUTIONS**

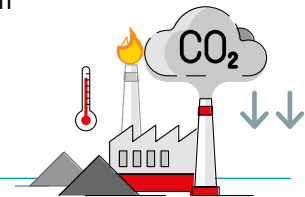
SOLUTION 1

ACCELERATE the shift of industry — both big and small — away from fossil fuels.



SOLUTION 2

ENABLE decision makers to chart a low-carbon path to economic progress.



SOLUTION 3

Foster the **RISE** of local entrepreneurs and innovators.



UNIDO's role

As a specialized agency of the United Nations, with a **unique global mandate to promote and accelerate inclusive and sustainable industrial development**, UNIDO is specifically committed to supporting emerging and developing countries, and their industries, in this transition. After more than 20 years of delivering successful clean energy projects and policy advice, UNIDO has become a **trusted development partner** to more than 170 Member States. UNIDO's rich **in-country experience** has enabled its projects to develop an **unparalleled network** as well as insight into a huge variety of industries. Given the critical role small-medium sized enterprises play in developing nations, **UNIDO does not discriminate in the size of industry it supports**. From family-owned enterprises to multinational industrial organizations, UNIDO's private sector and government partners are turning the tide on climate change by slashing and optimizing energy use, cutting emissions and powering vast industrial facilities with renewable energy. UNIDO's Energy Programme operates at the highest levels of international climate change diplomacy and energy policy. Simultaneously we pride ourselves on the programme's long-standing national presence, networks and partnerships in more than 100 countries. Our new vision builds on this long standing work.



SOLUTION 1

Accelerate the shift of industrial organizations – both large and small – away from fossil fuels

Working with governments, the private sector and finance institutions in emerging and developing economies, we enable industrial enterprises to change the way they think about and use energy. With our special focus on small and medium enterprises, we're ensuring that industries of all sizes have the chance to meet international energy standards, cut running costs, access the finance, expertise and technology needed to shift away from fossil fuels.

Specifically, our signature services in this area are:

Training and tools

Through our growing cadre of national and international energy experts, we deliver world-class specialized training and tools on efficient and renewable energy directly to industry onsite and in-country.

Standards

With a range of global partners, we facilitate agreement on international standards for energy management, while supporting the development of new learning tools, guidelines and instructional material for industry professionals.

Markets

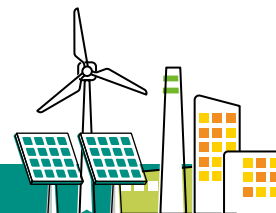
Through policy advice and convening key stakeholders, we help develop vibrant local markets for renewable and energy efficiency services and technologies.

Investment

We bring government, finance institutions and industry together to create innovative partnerships and initiatives that invest in industrial energy efficiency and the uptake of renewables.

Inspiring uptake

Targeted awareness campaigns and compelling examples of success help us inspire a greater uptake of energy efficiency processes, equipment upgrades and renewable energy generation across industry.



Creating an international energy efficiency standard and making it readily available to emerging economies

In 2011 we worked in parallel with global partners to establish the International Standards Organization (ISO) 50001 standard for industrial energy management systems. Following the launch of ISO50001 we have trained in excess of 3,500 industrial companies and more than 650 international and national experts on systematic approaches for management and energy use optimization in industrial enterprise. This means that expertise on industrial energy efficiency is now readily available for the first time in many emerging economies.



SOLUTION 2

Enable decision makers to chart a low-carbon path to economic progress

As emerging economies and least developed countries pursue their industrial growth targets, we help them chart a low-carbon course. In cities this means industry and services using resilient infrastructure and low-carbon energy systems. In rural areas it means enabling communities to access affordable and reliable energy to boost their economic opportunities.

Specifically, our signature services in this area are:

National policy

Through training, policy advice and exchange of best practices we enable government partners to devise national policies and incentives that promote sustainable economic progress.

Clean energy technology

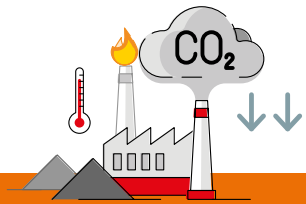
In rural areas we are demonstrating how energy solutions such as solar PV and Small Hydropower can enable off-grid communities to start or expand their enterprises and enhance livelihood opportunities.

Markets

We work with a wide range of stakeholders to kick-start national markets so that affordable, low-carbon technologies are accessible at the national-level.

Levelling the playing field

Supporting the design and implementation of common standards, industry commitments and internationally recognized certification schemes so industries worldwide can operate in fair and balanced markets with respect to sustainability.



Training women to design, install and maintain renewable power systems

In the Republic of The Gambia, where only 13 per cent of the rural population has access to electricity, UNIDO partnered with the local women's empowerment NGO called M'bolo to power their training centre with renewable energy. Today, the centre has 80 solar panels and a wind turbine operating at full power.

M'bolo provides vocational training services to women who have dropped out of formal education. As part of the support to install renewable energy systems, UNIDO also provided renewable energy installation training to the women at M'bolo. The training was so successful M'bolo decided to scale the programme. Today M'bolo trainees are responsible for designing, installing and maintaining the majority of the solar systems operating in The Gambia, generating new sources of income for both the women and businesses across the region.



SOLUTION 3

Fostering the rise of local innovators and entrepreneurs

We're championing the rise of local entrepreneurs and innovators that help developing and emerging economies to drive the transition to low-carbon and resilient development paths. This involves convening government, investors, industry, academia, think tanks, civil society and others to create an environment that fosters innovation to emerge and a market for clean energy technologies. Emerging economies and least developed countries have a lot to gain from investing in this area. By doing so they will find cost-effective solutions to their own unique energy challenges and they stand to become leaders in this emerging field, creating jobs and other opportunities along the way.

Creating supportive ecosystems

Connecting market players and policymakers to create attractive incentives and policy frameworks that support emerging innovations.

Transforming innovation into enterprises

Key business development skills provided to innovators and entrepreneurs to transform their technological or business model innovations into fast growing, scalable and investible enterprises.

Facilitating investment into innovative solutions

Direct investments, mobilization of finance and coaching for entrepreneurs who are developing clean energy applications, sustainable industrial products and related equipment in emerging economies.

Developing market awareness

Accelerating local market demand for clean energy generation, new technology, energy system services and equipment upgrades in traditional industrial sectors.



Access to training and capital helps scale efficient key appliances in India

In 2015, Indian company Atomberg Technologies created an environmentally friendly ceiling fan which was 65 per cent more energy efficient and much more affordable for the community. However, despite the impressive product, the company lacked the investment needed to scale production and roll out the low cost fans.

In 2016, Atomberg was accepted into UNIDO's Global Cleantech Innovation Programme (GCIP), which nurtures cleantech innovators and entrepreneurs with specialized business development support, mentoring and coaching. The support from GCIP, helped Atomberg Technologies transform their early-stage innovation into a viable business. The tailored mentoring programme and exposure to investors and partners enabled Atomberg to mobilize enough capital to sustainably scale-up its operations.

In 2018, Atomberg was ready to scale further. With specialized training and mentoring offered by UNIDO's Private Financing Advisory Network (PFAN), the company was able to successfully pitch the technology behind the more efficient fans to interested investors and raise more than US \$13 million as a result. With this capital, Atomberg scaled its fan business and embarked on developing new technology and appliances.





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A RACE IGNITED BY WOMEN AND YOUNG PEOPLE

Women's active participation in these new industries and in all aspects of the energy transition is essential to achieve the clean and sustainable energy future future that we all need. It is also a historic opportunity to transform traditional gender roles and relations. The evidence showing that women-led businesses are more profitable and that women excel at managing energy in households and communities is overwhelming. We can no longer ignore it.

As for young people, they have the ideas, the creativity and energy to shape the future. More so, who else if not the youth will have the skills and willpower to implement our clean technologies and digitalized economies? Leaving them behind as we transform our industries could deepen the economic and employment crisis we've seen unfold as a result of COVID-19.

For all these reasons, UNIDO's clean energy vision can only be achieved with women and youth at the heart of every aspect of our work. In practice, this means that every training we deliver, every policy we recommend or help draft, every cohort of entrepreneurs we mentor, every financial instrument we design and every global conversation we hold will factor and address the specific needs and voices of women and young people.

Convening global and regional stakeholders in the 'Race to Zero'

UNIDO provides a platform and a global voice for industrial stakeholders in the global energy transition. We do this by convening partnerships and international forums, advocating for global standards to establish fair market conditions, developing thought leadership with a distinct industry perspective and presenting knowledge, expertise, and analysis to identify innovative solutions. We also foster partnerships with sub-regional economic communities/organizations and their Members States by supporting the establishment of Regional Sustainable Energy Centers. So far, we have established eight centres and two more are underway.

FLAGSHIP EVENT The Vienna Energy Forum

Our flagship biennial Vienna Energy Forum (VEF) brings together over 1,600 participants from around 120 countries, representing all regions and all sectors of society, with over 100 policymakers including ministers and heads of international agencies. The VEF provides a unique platform for diverse energy stakeholders to identify challenges and solutions, while building and strengthening partnerships for future collaboration.



**CCREEE** (Caribbean Centre for Renewable Energy and Energy Efficiency)
Bridgetown, Barbados

Antigua and Barbuda, Barbados, Bahamas, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Montserrat, Suriname, Trinidad and Tobago, Saint Vincent and the Grenadines



**SICREEE** (SICA Centre for Renewable Energy and Energy Efficiency)
El Salvador

Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Belize, Dominican Republic



**ECREEE** (ECOWAS Centre for Renewable Energy and Energy Efficiency)
Praia, Cape Verde

Benin, Burkina Faso, Cabo Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, São Tomé and Príncipe, Senegal, Sierra Leone, Togo



Regional Center for Renewable Energy and Energy Efficiency
المركز الإقليمي للطاقة المتجددة وكفاءة الطاقة

RCREEE (Regional Centre for Renewable Energy and Energy Efficiency) for the Arab region

Cairo, Egypt

Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Palestinian Authority, Somalia, Sudan, Syria, Tunisia, Yemen

UNDER CONSTRUCTION

ECO Centre for Renewable Energy and Energy Efficiency

Afghanistan, Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkey, Turkmenistan and Uzbekistan

REEECH

REEECH (Renewable Energy and Energy Efficiency Capability for the Hindukush-Himalaya)

Kathmandu, Nepal

Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan



EACREEE (EAC Centre for Renewable Energy and Energy Efficiency)

Kampala, Uganda

Kenya, Tanzania, Uganda, Burundi, Rwanda, South Sudan



Pacific Centre for Renewable Energy and Energy Efficiency
مركز الإقليم الهادف للطاقة المتجددة وكفاءة الطاقة

PCREEE (Pacific Centre for Renewable Energy and Energy Efficiency)

Nuku'alofa, Tonga

American Samoa, Cook Islands, Fiji, Federated States of Micronesia, Guam, Kiribati, Marshall Islands, Northern Mariana Islands, New Caledonia, Nauru, Niue, French Polynesia, Papua New Guinea, Pitcairn Islands, Palau, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna, Samoa



SACREEE (SADC Centre for Renewable Energy and Energy Efficiency)

Windhoek, Namibia

Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

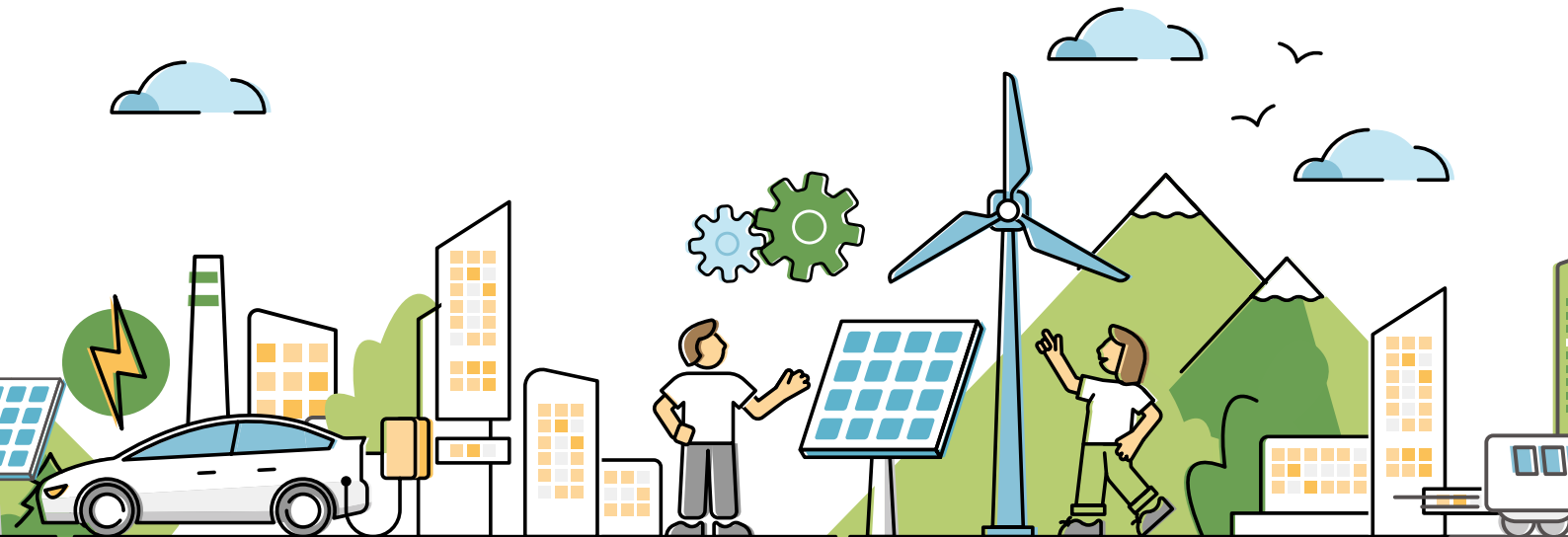
UNDER CONSTRUCTION

ECCAS Centre for Renewable Energy and Energy Efficiency

Angola, Burundi, Cameroun, Centrafrique, Congo, RD Congo, Gabon, Guinée Equatoriale, Rwanda, Sao Tomé et Principe, Tchad

Join us!

Our Clean Energy Vision is led by UNIDO's Energy Department with our counterparts in industry, government, financial institutions and civil society around the world. Contact us to find out more about how your industry or government can get involved in this critical work to accelerate industry's race to zero emissions.



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