



TEC



Regional technical expert meeting

Efficiency in industry

(13 April 2018, Nairobi, Kenya)

REPORT

Introduction

Background

The regional Technical Expert Meeting (TEM) “Efficiency in industry” was organized by the Technology Executive Committee (TEC), the Climate Technology Centre and Network (CTCN) and the United Nations Conference for Trade and Development (UNCTAD), in the context of the Technical Examination Process on mitigation (TEP-M).

Parties at the nineteenth session of the Conference of the Parties (COP) initiated the TEP-M with the aim of exploring high-potential mitigation policies, practices and technologies with significant sustainable development co-benefits that could increase the mitigation ambition of pre-2020 climate action.¹ This process was further redefined at COP 20.²

The TEP-M consists of:

- Organizing regular in-session thematic TEMs;
- Updating, on annual basis, a technical paper on the mitigation benefits and co-benefits of policies, practices and actions representing best practice and with the potential to be scalable and replicable;
- Preparing, in consultation with the high-level champions, a summary for policymakers, with information on specific policy options and ways to support their implementation;
- Following up the work on the identified policy options and opportunities.

Parties at COP 21 resolved to further strengthen this process by 2020 through enhanced engagement of Parties, non-Party stakeholders, constituted bodies under the Convention and expert organizations to follow up and implement the scalable and replicable best practices, policies and technologies explored during the process.³

¹ Decision 1/CP.19, paragraph 5(a). Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>.

² Decision 1/CP.20, paragraph 19. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a01.pdf#page=2>.

³ Decision 1/CP.21, paragraphs 109–113. Available at <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf#page=2>.

Parties at COP 23 concluded the assessment the TEP, suggesting key ways to improve their effectiveness,⁴ including:

- Focusing the TEP on specific policy options and opportunities for enhancing mitigation and adaptation that are actionable in the short term, including those with sustainable development co-benefits;
- inviting Parties and non-Party stakeholders to organize regional TEMs, building on existing regional climate action events.

Scope of the document

This document provides a summary of the regional TEM, covering the proceedings of the event, a summary of the presentations and discussions.

All presentations made during the dialogue are available on the TEC webpage of the technology information clearing house (TT:CLEAR).⁵

Objective and structure of the meeting

Objective

The objective of the regional TEM was to discuss actionable solutions to address barriers and needs in the context of energy and material efficiency improvements in industry, as well as circular economy models. The regional TEM showcased viable business models and opportunities for green economic diversification. Success factors and the roles of different stakeholders in the process of enhancing industrial energy efficiency as well as best practices and lessons learned were presented.

Structure and participation

The regional TEM had two sessions:

- Session I: Climate technology policies for enhancing efficiency in industry
- Session II: Experiences on the ground

This session highlights industrial energy and material efficiency success stories in different regions. It explores their impact and challenges they have overcome. It also highlights how such success stories cover multiple social and environmental benefits, as well as ideas for their upscaling.

The regional TEM was attended by members of the TEC and representatives of Parties, United Nations organizations, intergovernmental and non-governmental organizations, representatives of the private sector.

⁴ Decision 13/CP.23. Available at <http://unfccc.int/resource/docs/2017/cop23/eng/11a02.pdf>.

⁵ http://unfccc.int/ttclear/events/2018_event3

Nine experts made interventions on various areas of industrial energy efficiency and circular economy from different perspectives and background, including UNFCCC constituted bodies, UN organisations, domestic policymakers, private sectors representatives.

Summary of the regional TEM

Welcome and opening

Mr. Jukka Uosukainen, director of the CTCN, opened the regional TEM by welcoming the participants and highlighting that TEMs have been created to promote a dialogue between policymakers, technology providers and users, to facilitate the identification of technology solutions that are actionable in the short term and contribute to the achievement of the sustainable development goals (SDGs).

He informed on the topic for the TEP-M that the high-level climate champions, in consultation with the TEC and the CTCN, has identified for 2018 (i.e. implementation of circular economies and industrial waste reuse and prevention solutions) and how in the context of Africa, industrial energy efficiency and waste re-use is not only about reducing GHG emissions, but also means increased production, poverty alleviation, local employment, and reduced pollution. This would require a major engagement of the private sector and financial institution to help the creation of concrete and financially viable business cases that can be replicated and scaled up regionally.

Session I: Climate technology policies for enhancing efficiency in industry

The first session was moderated by Ms. Stella Gama (TEC) and described the role that different stakeholders may play in the process of enhancing industrial energy and material efficiency. It also discussed the instruments that the different stakeholder can put in place to overcome barriers and support the transition of the industrial sector to low carbon solutions.

The [first presentation](#) was made by Ms. Duduzile Nhlengethwa (TEC), who provided an overview of the role of the TEC in enhancing climate technology development and transfer and summarized the findings from the work of the TEC on industrial energy efficiency, including the [thematic dialogue on industrial energy efficiency and material substitution](#), the [policy brief on industrial energy and material efficiency in emission intensive sectors](#), and the [executive summaries for target groups](#). She highlighted the crucial role that various stakeholders (e.g. domestic policymakers, international organizations, financial institutions and industry actors) can play to boost the adoption of energy efficiency measure in the industrial sectors as well as to tackle those challenges that still remain unaddressed in the region, like lack of awareness of energy efficiency potential, limited access to financing and the need for capacity-building.

The [second presentation](#) was made by Dr. Maged K. Mahmoud, Technical Director of the [Regional Center for Renewable Energy and Energy Efficiency \(RCREEE\)](#). He provided an overview of the role of RCREEE in promoting energy efficiency in Arab countries and presented the case of Egypt in addressing energy efficiency-related challenges through capacity-building, technical assistance, raising awareness. Dr. Mamhoud underlined the key role that domestic policymakers play in fostering energy efficiency through

appropriate policies, regulatory framework and incentives. This is the case of Egypt and its National Energy Efficiency Action Plan ([NEEAP](#)), which is considered to be an electrical energy efficiency roadmap in the residential, public and tourist sectors in Egypt. The Egyptian NEEAP encompasses a number of measures: from the revision of the energy regulatory framework to the distribution of 12 million CFL and LED lamps, passing by the development of energy efficiency standards and energy code for electrical appliance as well as the introduction of financial mechanism supporting the adoption of energy efficiency measures in the industrial, commercial and tourism sectors.

Mr. Thabo Molekoa, CEO of the Regional Office for Sub-Saharan Africa of ThyssenKrupp, provided the perspective of the business sector. He stated that many African countries are more focused on meeting the increasing demand of energy supply and ensuring access to energy in remote areas, rather than promoting industrial energy efficiency. Energy efficiency is not an interesting business case for investor, as it comes with high capital cost and almost no profit. In addition, he pointed out that there is a lack of energy efficiency experts in the region. Short term actions should encompass increasing awareness among industry actors, policymakers and financial institutions as well as building capacity on technological development and energy management. His recommendations on how to move forward in the short-term also included embracing digitalization and the adoption of regulatory frameworks that can provide the right level of incentives to the industry; for instance – he highlighted – a company which is producing electricity for own consumption may adopt energy efficiency measures but it is now allowed in many countries to feed electricity surplus into the grid.

Mr. Zacharia Munga, UNIDO Project Coordinator, presented on the role of international organizations in promoting energy efficiency and overviewed on the services provided by UNIDO including expert advice and technical assistance to policymakers in developing and formulating policy and regulatory frameworks; facilitation of collaboration agreements between public authorities and industrial sectors; institutional capacity-building on development, implementation and monitoring of industrial energy efficiency policies and programmes, including energy management standards; training programmes on industrial energy systems optimization (motor, pump, steam, compressed air systems, etc.) as well as on the use and implementation of energy management standards; technical assistance to industrial enterprises for demonstration and transfer of state-of-the-art energy systems and energy management technologies; organization of experts group meetings to discuss best practices and contribute inputs to the regional debate on development and transfer of industrial energy efficiency technologies.

In the discussion that followed, participants exchanged views on policy options for the promotion of energy efficiency. Below are the key discussion points:

- There is a need to have a strong political will and raise a profile of energy efficiency among national policy priorities in order to fully utilize the energy efficiency potential;
- A closer coordination among relevant government ministries and between the public and the private sectors at national level is needed in order to implement energy efficiency measures;
- It is critical to raise awareness of financial institutions in order to ensure that energy efficiency is taken into consideration when making investment decisions;
- Domestic policy-makers can foster energy efficiency by establishing adequate policy and regulatory frameworks such as mandatory national energy efficiency standards. Energy efficiency standards can also be adopted at regional level;

- Industry actors are encouraged to share experience on energy efficiency good practices within networks and clusters, to set energy efficiency targets and to adopt voluntary measures;
- International organizations can provide financial, technological and capacity building support, as well as help raise awareness and engage in collaborative research and development programmes;
- Fiscal and financial incentives are needed for broader uptake and up-scaling of energy efficiency measures;
- It is important to involve engineering bodies, business chambers and central banks in energy efficiency discussions.

Session II: Experiences on the ground

The second session was moderated by Mr. Rajiv Garg (CTCN) and presented industrial energy and material efficiency success stories in different regions. It explored their impact and discussed challenges they have overcome. It also highlighted how such success stories cover multiple social and environmental benefits, as well as ideas for their upscaling.

The [first presentation](#) was made by Mr. Federico Villatico-Campbell (CTCN), who provided an overview of the role of CTCN and its technical assistance portfolio related to energy efficiency. He pointed out that industrial energy efficiency in developing countries, especially in middle income countries, is a strong mitigation need in order to reduce energy and water consumption and cut GHG emissions. He also highlighted that, based on CTCN experience in the region, in the African context several barriers exist that restrain the adoption of energy efficiency measures, including the unavailability of reliable data on industrial energy consumption, the lack of supportive regulatory framework, limited access to finance, and little technical knowledge and management capacity of private sector players and service providers. Immediate actions should be undertaken to help leverage external funding and private sector investment: designing and adopting clear and long-term energy efficiency policies, establish energy standards, increase national capacity for energy audit.

Mr. Luis Diogo, Director-General of [Fabrimetal, Angola](#), presented the [first case study](#), focusing on the transformation of metallic waste in reinforced, high-quality steel rods in Angola. Fabrimetal belongs to a Business Group, with more than a decade of experience in steel production, with factories also in DR Congo, Rwanda, Burkina Faso, Mali, Ghana and Senegal. They produce reinforced steel rods using metal scrap collected from all over the country. The metal scrap constitutes 80% of their raw material. The final product is placed in the national market for civil construction and public works or exported. The industrial process comes with a number of social, economic and environmental benefits. Mr. Diogo underlined how the recycling of metal scrap creates new job opportunities, reduces metallic waste in the country, reduces dependence on imports, improves efficiency of the production of steel rods (the steel production process from metal scrap consumes less energy than the production with iron ore) and creates final product with greater thermal stability, which is ideal for the high temperature of the Africa continent.

The [second case study](#) was introduced by Dr. Dhiraj Rama, Executive Director of the Association of Cementitious Material Producers, South Africa. Dr. Rama presented the findings of a [feasibility study on introducing a hybrid GHG reduction technology for the cement sector in South Africa](#) developed with the support of CTCN. He underlined the potential for substantial greenhouse gas emissions reduction in the

cement industry by using waste heat recovery technology combined with mineral carbon capture and utilization. Similarly, the technology has potential for providing good opportunity for product circularity whereby by-products (e.g. calcium carbonate) are transformed into a valuable commodity for re-use in other industrial process (e.g. construction or in the production of paintings, ceramics, paper, resin, etc.). Yet, the implementation of such technology faces some financial challenges that would require public and private financial support and further work to increase the marketability of the by-products.

The [third case study](#) was presented by Mr. Carlos Costa, Project Manager at [SOLMAR](#), a fish processing company in Luanda, Angola. Mr. Costa described the integrated production process adopted by SOLMAR that optimizes the re-utilization of by-products from the fish processing line. The by-products generated are rich in proteins and have great potential for use in aquaculture and as raw material for the production of animal feed, activities that are growing fast in Angola.

Prof. Issakha Youm from the Renewable Energy Study and Research Centre (CERER) of Dakar, Senegal, presented the [fourth case study](#). Prof. Youm underlined the energy saving potential (20%-35%) offered by co- and tri-generation technology for new and existing industries and public services (e.g. hospitals, hotels, universities and airports) in Senegal. He also elaborated on the instruments to deploy for the technology to be fully implemented in the country: political willingness and favourable regulatory and institutional framework; technical capacity building of targeted human resources; appropriate and effective incentive system; awareness raising and demonstration; appropriate financial mechanisms.

In the discussion that followed, participants exchanged views on actionable options for the promotion of energy efficiency and circular economy in the region. Below are the key discussion points:

- Intellectual property rights are not an issue in technology transfer to Africa, only 4% of climate technologies are patented in Africa. Countries need technology packages that are readily available and that are not protected by intellectual property rights;
- The industrial sector is willing to seize opportunities to invest in energy efficiency, provided that there is a sound business case;
- It is critical to engage central banks to ensure there is national support for tax exemptions for energy efficiency investments;
- There are opportunities for collaborative RD&D;
- Integrated waste resource solutions between industries present a huge potential for circular economy;
- More coordination is needed under the Convention, among UN agencies and multilateral development agencies and Bank.