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**Economic Commission for Europe****Committee on Sustainable Energy****Group of Experts on Energy Efficiency****Sixth session**

Bangkok, 7-8 October 2019

Item 3 of the provisional agenda

**Task Force on Industrial Energy Efficiency****Task Force on Industrial Energy Efficiency****Background paper on outcomes of workshops to promote energy efficiency in industry<sup>1</sup>****Note by the secretariat****I. Background information**

1. Today the industrial sector is responsible for about one-third of the global final energy consumption and CO<sub>2</sub> emissions. This is also a sector that will continue to grow rapidly in order to contribute to the expected nearly tripling in size of the global economy by 2050<sup>2</sup>. The challenge is therefore how to bring about a continuous reduction of emissions, while simultaneously supporting a growing global economy, in order to achieve net-zero CO<sub>2</sub> emissions by 2050 – a target set by the Intergovernmental Panel on Climate Change (IPCC) to try to keep global warming to not more than 1.5 degrees Celcius. Considering energy efficiency as an example, it has been estimated that by implementing existing and cost effective best-available technologies and practices (BAT&P), industry could reduce its energy consumption by about 30 percent at constant output. This potential increases up to 60 percent when considering future technological innovation.

2. However, even though much is being done to draw attention to such cost-effective potentials, implementation of energy efficiency measures to achieve even the currently available and cost-effective potential remains sporadic and slow. One of the key reasons for this is communication gaps on understanding energy efficiency and how it can be practically implemented. Communication gaps, as well as asymmetry in distribution of information exist within companies (e.g. between global, regional and country level entities as well as between

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<sup>1</sup> This background paper has been prepared by the ECE secretariat and Co-Chair of the IEE Task Force based on the outcomes of two workshops organized by ECE and UNIDO. Cooperation with UNIDO and organization of these activities were approved by the fifth session of the Group of Experts on Energy Efficiency on 13-15 November 2018. The Task Force is co-chaired by Mr. Hannes Mac Nulty and Mr. Stefan M. Buettner, Vice Chairs of the Group of Experts on Energy Efficiency.

<sup>2</sup> PWC, 2015 - The world in 2050. <https://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf>

business/production units of the same facility), between enterprises and policy makers, and between the numerous supporting organizations providing resources and programmes to companies.

3. Experience and research of international organizations, such as United Nations Industrial Development Organizations (UNIDO), United Nations Economic Commission for Europe (ECE) and Organisation for Economic Co-operation and Development (OECD), show that such communication gaps are often present due to simple and common barriers that exist both inside and outside an enterprise's "control fence".

4. Key "inside the fence" barriers:

(a) Top management's focus is on production and volumes, not on energy efficiency, which lacks integration into daily business practices and decision-making;

(b) Lack of adequate in-house knowledge and skills to assess own performance first and then for identifying, assessing, developing and implementing energy efficiency measures and projects based on a business case approach;

(c) Use of inadequate performance indicators that misrepresent achievements and mislead decision-making, including on investments;

(d) Difficult to find economic reasons to effectively influence supply chains on low carbon measures.

5. Key "outside the fence" barriers:

(a) Weak, inadequate and/or ineffective policy frameworks that do not focus on effectively engaging with energy end-users to trigger and drive long-term and sustainable change;

(b) Mistrust and/or lack of collaboration between Governments and industry in identifying and designing mutually beneficial, effective and feasible supporting policies and programmes;

(c) Slow and inadequate progress on developing new and innovative energy-efficient technological solutions in industry due to limited engagement between industry, research institutions and start-ups;

(d) Limited collaboration between different organizations providing a range of support mechanisms to industry and often an inadequate connection and communication with enterprises.

6. Since 2017, several workshops organized by ECE to consider in detail the challenge of the various communication gaps and how best to address them look into these problems: Policy Maker Meets the Engineer (Geneva, 19 January 2017), Creating the Business Case for Energy Efficiency: Engaging Governments with Industry (Astana, 13 June 2017), Best practices in selected economic sectors to improve energy efficiency (Geneva, 1 October 2017), and Making Industrial Energy Efficiency the New Normal (Kiev, 13 November 2018). The outcomes of these workshops served as a basis for establishing the Task Force on Industrial Energy Efficiency (IEE Task Force) under the Group of Experts on Energy Efficiency at its fifth session on 13-15 October 2018. The demonstrated benefits of providing an opportunity for policy makers to engage directly with company representatives also provided a foundation for establishing the UNIDO Industry Working Group (IWG), which aims to develop the voice of industry on the topic of energy efficiency and decarbonization.

7. In May 2019, two events were organized that inaugurated the activities of UNIDO IWG and ECE IEE Task Force: UNIDO Industry Working Group kick-off workshop (Vienna, 7-8 May 2019) and the UNECE/UNIDO Workshop Promoting Industrial Energy Efficiency in Ukraine and Neighbouring Countries (Kiev, 27-28 May 2019), which served as the first meeting of the IEE Task Force and was based on the approach of the earlier workshop Policy Maker Meets the Engineer.

8. The overarching objectives of both workshops were to set in motion a global process of effectively engaging policy makers and industry together in productive discussion and action to accelerate industry-led energy efficiency implementation based on a business case

approach and the subsequent development of transformative policies to support and drive these actions on a national level. Each of the two workshops had the specific purpose to be the first step of a long-term ambition to enhance engagement between policy makers and industry.

## II. Main findings and conclusions of the UNIDO Industry Working Group kick-off workshop

9. The overall objective of the IWG is to develop a much stronger and collective engagement with global industry (ensuring a central focus is on the industry energy end-user perspective), supported by enhanced collaboration with policy makers and supporting organizations, to help achieve a significantly increased and wide-spread implementation of energy efficiency and decarbonization actions through both existing and innovative solutions. The IWG engages with members on two possible levels: a) a high-level basis through annual workshops and ongoing best practice communication and b) a project-level basis involving active participation in Special Working Groups (SWG). An SWG is a small group of companies that, with the support of UNIDO and potentially other supporting organizations, actively work together on an innovative energy efficiency topic that can help advance the business case for industrial energy efficiency.

10. The IWG kick-off workshop brought together a unique mix of key international stakeholders. These stakeholders included multinational companies from a range of different sectors, national policy makers, and various supporting organizations, such as international organizations, NGOs and research institutions. ECE was represented by the two Co-Chairs of the IEE Task Force. The two main goals of the meeting were:

(a) To discuss the proposed concept and objectives of the IWG and obtain important input to help determine the best approach for effective engagement between key stakeholders;

(b) To define the priority topics for the SWGs that companies most feel are the key to achieving net-zero CO<sub>2</sub> emissions by 2050.

11. Over the two days, the workshop participants exchanged views from a diverse range of perspectives. The ensuing discussions, break-out sessions and constructive feedback made it clear that there was indeed an urgent need, as well as important benefit, in bringing companies into more direct engagement with policy makers and supporting organizations, at the very least to help address important communication gaps and develop a common understanding of the issues facing widespread energy efficiency implementation.

12. Day 1 of the workshop aimed to capture perspectives of the different stakeholders on the overall objective of the IWG and what they felt it should deliver as specific outputs. Some high-level key points taken from Day 1 are as follows:

(a) While perspectives of the various stakeholders were often very different, overall there was a keen interest to continue engagement through such a multi-stakeholder environment in order to work on overcoming various communication gaps;

(b) With many different initiatives and corresponding organizations active in the area of industrial energy efficiency and decarbonization, coherence between these, as well as clarity of their objectives, should be taken into account and clearly communicated;

(c) Participants expressed a strong interest in better availability of relevant information and resources, awareness and capacity building, dealing with the broad range and complexity of regulation and data orientated projects.

13. Day 2 of the workshop started with plenary presentations and discussion primarily focused on the SWGs, which then led to the break-out sessions that had the objective to discuss and propose priority topics that could be taken on by SWGs. These break-out sessions delivered a range of valuable SWG topic suggestions, covering the following possible areas:

(a) *Making decarbonization the new normal for business processes:* Developing a “shop floor to boardroom” approach that involves all levels of a company’s business in the development of practical and implementable corporate decarbonization strategy

(b) *Energy analytics for accurate assessment and progressive benchmarking*: Developing an energy analytics package relevant for specific users (financing, technical projects and management processes).

(c) *Accelerating innovation through practical application*: Developing specific collaboration programmes between technology research institutes, start-ups and companies interested to provide test-bedding opportunities in order to develop a structured approach to accelerated technology innovation processes.

### **III. Main findings and conclusions of the UNECE/UNIDO workshop Promoting Industrial Energy Efficiency in Ukraine and Neighbouring Countries**

14. This workshop served as the first meeting of the ECE IEE Task Force. Taking into consideration the status of industrial energy efficiency developments in Ukraine and other countries of South-Eastern and Eastern Europe, the Caucasus, and Central Asia, this workshop specifically focused on advancing engagement between energy intensive companies and policy makers so that policy developments can be adequately adapted to industry's business needs, while still aiming to achieve progressive national energy efficiency targets. The objective of the workshop was to demonstrate through peer-learning and exchange of experience how taking into consideration perspectives of the policy end-user (the company) concerning technical, business and confidence challenges can help provide valuable input into effective policy developments. ECE was represented by the Chair of the Group of Experts on Energy Efficiency, a Co-Chair of the IEE Task Force, several experts, and regional adviser.

15. The workshop's focus was not only on the challenges that needed to be overcome. It also enabled sharing of experience on proven solutions and mechanisms that could be adapted to the needs of this region. This approach was taken to demonstrate how to support the complex task of developing industrial energy efficiency policies that are progressive and impactful, while also at the same time ensuring that they are adequately adapted to industry's everyday business reality.

16. The workshop provided an initial understanding of the energy efficiency policy situation in Ukraine and neighbouring countries and an overview of international insights on industrial energy efficiency approaches through a series of plenary presentations and discussions. This part was followed by two interactive break-out sessions (with participants split in two groups) that built upon these "setting the scene" perspectives. The first break-out session developed a priority list of the challenges facing energy efficiency implementation. The second session developed recommended policy solutions to overcome them. Both groups were made up of a mix of industry representatives and policy makers to enable variety of perspectives and joint development of proposals.

17. The first break-out session focused on the challenges posed by optimizing existing assets, investment in new technology and how to best identify opportunities and monitor the performance of implemented projects. While each group developed its own list of priority challenges, the outcome was that the results of the two groups were quite similar. This demonstrates that the typical challenges facing implementation of energy efficiency can be considered generally well understood and common across different countries and sectors. Several key challenges were identified.

18. *Optimization of existing assets*. The key challenge identified was a typical lack of motivation and/or commitment to modernize and upgrade existing assets due to a lack of awareness and general absence of an energy efficiency culture, in addition to an overall unsupportive market and/or financial environment. This in turn leads to a lack of systematic approach on energy efficiency across all business units.

19. *Investments in technology*. In terms of the challenges facing investments in new technology (typically undertaken after existing assets are optimized), a lack of affordable or innovative financing solutions (external and internal) was identified as a priority topic. This challenge also included the issue that there was a general lack of understanding both within

companies and in financial institutions for making the business case for energy efficiency investments.

20. *Performance Monitoring and Reporting.* A primary challenge discussed for this topic concerned the lack of a general understanding and/or approach on energy performance indicators. Such a situation in turn resulted in a lack of clear legislation, capacity building and coordination within governments as well as companies to support unified in-house energy performance monitoring and external reporting.

21. The second break-out session had the objective to develop policy-driven solutions that could be used to overcome the identified challenges. Participants considered specifically different advantages of voluntary and mandatory policy mechanisms and how they might be best able to address the challenges. The experience of other countries that have such policies in place, as well as the opinion of industry representatives on how such policies could impact their business, played a key role in the discussions. A number of possible policy solutions were identified.

22. *Optimization of existing assets.* To improve awareness of the benefits of energy efficiency and support its integration into normal business operations across all business units it was proposed that a policy focus should be on education and guidance in parallel with motivational programmes such as tax incentives linked to savings and actions achieved and league tables/award schemes for companies.

23. *Investments in technology.* Policy solutions proposed for this topic focused on financing mechanisms, with the approach that small and medium enterprises (SMEs) in general require external financing while larger companies are often able to self-finance but need greater awareness of the business case for energy efficiency measures. An important point was that the initial approach should be kept simple, for instance small and easily accessible subsidies for a range of relevant technologies. Backing up any financial mechanisms developed would also have to be a strong network of competent energy efficiency experts to independently advise both companies and financial institutions.

24. *Performance Monitoring and Reporting.* Education was once again highlighted as a key policy tool to improve energy performance monitoring and reporting approaches and thereby also uptake. As part of the educational approach, an idea of a “CEO Club” was proposed which would enable sharing of experience, capacity building, and an energy saving competition between companies in some form, driven by the commitment of the top management.

#### **IV. Overall conclusions**

25. Both workshops were very successful in building upon the previous ECE industrial energy efficiency workshops in targeting the active engagement of industry and policy makers to interact and join forces on groundwork for a new approach towards developing transformative policies. Since the first Policy Maker Meets the Engineer workshop in January 2017, the IEE Task Force has assiduously focused on highlighting the importance of engaging more proactively with industry, the policy end-user, in order to convert what has become common discussion into real action.

26. Moving forward, these two workshops have set in motion what can be considered long-term effects, as their successful format of engaging with industry and bringing both industry and policy makers into active collaboration will be replicated on an ongoing basis. Overall these actions will play a valuable role in preparing industry to be a key agent to achieve the full potential offered by energy efficiency based on a business case approach, as well as channelling input and perspectives of global industrial energy end-users to policy makers to improve policy effectiveness and alignment with continuously evolving business reality