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Strategic review of the sustainable energy subprogramme

Revised strategic review of the United Nations Economic Commission for Europe sustainable energy subprogramme*

Note by the Strategic Review of the Sustainable Energy Subprogramme Consultation Group

I. Executive Summary

1. This document sets forth the United Nations Economic Commission for Europe's (ECE's) strategic approach on energy. The subprogramme's mission is to help its member States meet their commitments to the 2030 Agenda for Sustainable Development (2030 Agenda) and the Paris Agreement. ECE's work on sustainable energy therefore is designed to contribute to ensuring secure access to affordable, reliable, sustainable, and modern energy for all (Sustainable Development Goal (SDG) 7) and to help reduce greenhouse gas (GHG) emissions and the carbon footprint of the energy sector in the region (SDG 13). ECE is working to enhance integration of the region's energy markets and facilitate the transitions to sustainable energy systems while supporting sustainable development in the region.

2. The ECE region needs to accelerate attainment of its member States' commitments and objectives on sustainable energy. In terms of deciding on specific courses of action for the sustainable energy subprogramme to pursue, the Committee considers that the work and its outcomes must reflect United Nations' scale, scope, role, and values in terms of: impact, political relevance, visibility, power to inspire, reputation, attractiveness for resourcing, resource efficiency, nexus contributions, and gender benefits.

3. The intent is to address the region's challenges and objectives with products and activities that deliver measurable, concrete results in the near term but with enduring impact. his document was prepared jointly by the Chairs of the Expert Groups and the Bureau of the Committee on Sustainable Energy (the Committee), has gone through an extended consultation process among member States, and is presented to the Committee for consideration and possible approval and adoption in accordance with the Committee decision in ECE/ENERGY/133, paragraph 25, subparagraph (a).

4. Recognising that ECE member States take different views regarding the use of fossil fuels, carbon capture, use, and storage (CCUS), and nuclear power, the current strategic

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priorities for the subprogramme include sustainable resource management; high-performance buildings; methane management and reduction; carbon neutrality; accelerating the uptake of renewable energy; investment guidelines for more accessible, reliable and sustainable energy services; and helping member States explore efficient and effective pathways to a sustainable energy future. Activities recommended for the future, pending available resources, include: measuring and monitoring energy-related SDGs; improving energy efficiency across all sectors; deploying sustainable hydrogen solutions; ensuring just and inclusive transitions; studying how to address efficient use of energy resources, and in this regard the impact of subsidies as well as carbon pricing options; assessing energy market/power market design; removing barriers to energy trade; enabling optimal deployment of digitalization; ensuring energy system resilience; and assuring energy security.

II. Strategy of the Economic Commission for Europe Sustainable Energy Subprogramme

A. Current strategic priorities

1. Sustainable Resource Management

5. Resource production, transformation and use, if properly managed, can ensure beneficial social and environmental outcomes. ECE is extending the United Nations Framework Classification for Resources (UNFC) to a full-fledged management system for resources (the United Nations Resource Management System (UNRMS)). The objective is to develop, disseminate and deploy UNFC and UNRMS fully involving experts from all member States and relevant stakeholders. ECE has embarked on establishment of international centres of excellence on sustainable resource management (ICE-SRM). The centres will fund expanded outreach and training activities.

6. In support of various global resource initiatives underway, ECE has proposed a five point action plan for sustainable resource management including: (i) Social Contract – a comprehensive Socio-Environmental-Economic Contract to Operate that integrates quality of life, just transition, climate change mitigation and adaptation, and environmental stewardship; (ii) Sustainable Finance Principles and Taxonomy – investors should move to ESG-focused funding based on common sustainable finance principles and taxonomy; (iii) Sustainable Resource Management System – industry should align with a shared principles-based, integrated, sustainable resource management framework based on UNFC and UNRMS, (iv) Supply Chain Traceability – a comprehensive framework for traceability, transparency, and sustainability in resource supply chains; and (v) Strategic Environmental Assessments of plans and programmes. ECE is directly engaged in UNFC/UNRMS, strategic environmental assessments, and transparency/traceability and supports other organizations in the work on social contracts (International Resource Panel (IRP)) and sustainable finance principles (international financial institutions). The secretariat seeks donations to support sustainable resource management as a fully extrabudgetary-funded activity commensurate with the scale of the activities proposed that fall within the purview of ECE.

2. Methane Management and Reduction in the Extractive Industries

7. Reducing methane emissions offers significant climate change benefits, especially in the near term, as there is a large economic reduction potential and cost-effective mitigation technologies often are readily available. ECE's work on methane involves developing best practice guidelines to address monitoring and mitigating methane emissions in the oil, gas, and coal sectors. The Group of Experts on Coal Mine Methane has developed best practice guidance for both coal mine methane (CMM) and abandoned mine methane (AMM) and, with partners, has established international centres of excellence on coal mine methane (ICE-CMM). The focus of the Group is on technical aspects and best practices for managing methane in coal mines, reducing accumulations of methane in coal mines and thereby reducing GHG emissions and improving the safety of coal mines.

8. The Group of Experts on Gas has contributed to describing best practices for monitoring, reporting and verifying (MRV) methane emissions from the oil and gas sector and to proposing mitigation measures that could be adopted easily in the short term. The work on best practices for the oil and gas sector to date is a compendium of practices currently in place. Development of full-fledged, technical level best practice guidance from the UN for the oil and gas sector would be an appropriate next step.

9. The sustainable energy subprogramme will continue promoting best practices in methane management and reduction within the ECE region and beyond. Subject to broader support from member States, this promotion could include work towards a United Nations General Assembly (UNGA) declaration of an *International Decade for Methane Management* which has been initiated by the secretariat. Additional outcomes beyond guidelines should consider collaboration with relevant bodies (within ECE, such as the Air Convention, and with the United Nations Environment Programme (UNEP), United Nations Framework Convention on Climate Change (UNFCCC), Global Methane Initiative (GMI), Climate and Clean Air Coalition (CCAC), and others), member States and partner organizations to reduce atmospheric methane concentrations by eliminating or avoiding anthropogenic sources.

3. Carbon neutrality

10. Work in this area is designed to help member States that plan to do so move to carbon neutrality in the energy sector in accordance with their national plans, if applicable. Achieving carbon neutrality will require an "all technology" strategy involving accelerated deployment of energy efficiency, renewable energy, CCUS, high-efficiency/low-emissions (HELE) technology, low carbon gases (including not only natural gas but decarbonized gases, renewable gases, and hydrogen), nuclear power, and direct CO_2 removal or other approaches such as increasing forests' absorptive capacity. ECE member States recognise that they take different views regarding the use of fossil fuels/carbon capture and storage (CCS)/CCUS and nuclear power. The work of the Committee and its subsidiary bodies shall support member States in pursuing their national sustainable energy objectives and their respective international commitments. The Group of Experts on Cleaner Electricity Systems is overseeing the project on Carbon Neutrality, "Enhancing the understanding of the implications and opportunities of moving to carbon neutrality in the ECE region across the power and energy intensive industries by 2050" (Carbon Neutrality project), and funding is in place for both a broad-based analysis and deep dive appraisals of possible contributions from CCUS and nuclear power, with a focus on the power sector and energy-intensive industries. The secretariat seeks additional funding for comparable deep dives on hydrogen, energy efficiency, renewable energy and on other sectors and other topics such as alternative business models.

4. Renewable energy

11. Current work on renewables involves tracking progress on the uptake of renewable energy in the region; exchanging experience and good practices on increasing the uptake of renewable energy; and cross-cutting cooperation, for example with natural gas infrastructure, to strengthen and accelerate the integration of renewable energy (electricity and gases). Work is also underway to develop guidelines for classification of renewable energy resources under the auspices of the Expert Group on Resource Management. The focus to date has been on Hard Talks based on the results of the Renewable Energy Status Report for 17 member States. Topics related to roof-top solar installation and development of hydroelectric resources are relevant for the future work of the Group of Experts on Renewable Energy.

5. Gas/es

12. Natural gas is considered by certain ECE member States as a transition fuel to a low carbon economy and the role of ECE in this context could be to develop normative instruments to ensure that its role in this transition is in line with the 2030 Agenda and the Paris Agreement. As a concrete example of cross-cutting cooperation, the Group of Experts on Gas and the Group of Experts on Renewable Energy are collaborating to accelerate the deployment of variable renewable electricity (VRE) generation using existing gas

infrastructure to provide needed flexibility. The growing penetration of VRE into energy systems is a challenge for cost-effective system management in the face of strong fluctuations and intermittency to ensure reliable energy service. Decarbonisation can proceed using flexible natural gas-fired generation to enable VRE integration. Deeper decarbonisation can proceed through deployment of a hybrid energy system that uses a full spectrum of gases (natural gas, low carbon, decarbonised and renewable gases including hydrogen) and that more closely coordinates the gas and power sectors across a wide geography to advance VRE penetration and reduce net GHG emissions.

6. Investment guidelines

13. It is expected that the share of fossil fuels in the global energy mix will decline and their production will become more sustainable thanks to innovative technologies. Experts are working to develop investment guidelines for more accessible, reliable and sustainable energy services to minimize and eliminate or offset entirely the GHG emissions associated with fossil fuel use. Member States have requested that this work proceed in close collaboration with international financial institutions. The intent would be to ensure equal access to funding for implementation of projects that reduce GHG emissions from the use of fossil fuels. The funding could include "green" investments, as well as public funding in the form of various forms of support for all electric power generation technologies. The production of electric and thermal energy at cogeneration facilities should be a priority area with high potential as an effective means of reducing the carbon footprint of energy.

7. High-Performance Buildings

14. Buildings consume over 70% of the electric power generated and 40% of primary energy and are responsible for 40% of CO_2 emissions because of the energy services they require. Buildings embody significant CO_2 emissions in the products used to construct them yet could serve as carbon storage with use of wood products. ECE's High-Performance Buildings Initiative (HPBI) aims to: (i) move the dial on buildings' energy performance, GHG emissions and indoor air quality; (ii) improve the global supply chain for the construction business; and (iii) accelerate the uptake of high-performance best practices. The HPBI involves extending the network of centres of excellence, undertaking dissemination, training, and deployment activities, and engaging academia for the research and education leg of the initiative.

8. Pathways to Energy for Sustainable Development and the Pathways Programme

15. The ongoing work on pathways to energy for sustainable development and the Pathways Programme have been conceived to respond to issues that emerged from Phase 1 of the project: closer appraisal of input assumptions and closer consideration of both regional specificities and alternative policy approaches. A concept for a deep dive on Central Asia has been developed. It proposes an assessment of specific opportunities and challenges in Central Asia (including reflection on relevant alternative technologies and policy approaches), testing strategic options using the outcomes of the regional assessment, and dialogue and dissemination. There would be as well capacity building to assist member States to use the analytical architecture developed in Phase 1 and further development of an early warning instrument to permit energy experts to test adaptive responses using the developed modelling capability. The project is still under consideration and has not yet been funded. If the range of regional deep dives is conducted then the stage will be set for broader high-level political dialogue among ECE member States.

B. Future strategic orientations

16. The following topics are recommended for inclusion in the activities of the Committee:

(a) Measuring and monitoring SDGs: closer involvement of the sustainable energy subprogramme in the statistical work of ECE and the custodian agencies of the Global Tracking Framework;

(b) Development of standards, protocols, or other normative instruments for high-performance buildings;

(c) Enhancing a future hydrogen ecosystem by enabling sustainable production, transport, and use of hydrogen, including by scaling up renewable hydrogen, and exploring the possible role of the Committee on Sustainable Energy in developing normative instruments;

(d) Continue to promote best practices in methane management and reduction within the ECE region and beyond including through existing international initiatives;

(e) Conceiving standards and/or practices for just and inclusive transitions;

(f) Investment guidelines for more accessible, reliable and sustainable energy services (to be developed in close collaboration with international financial institutions);

(g) Improving energy efficiency and treating energy efficiency as a priority means of providing access to energy services;

(h) Assessment of energy subsidies and their implications for attainment of the 2030 Agenda and the Paris Agreement;

(i) Continued study of how to address efficient use of energy resources, and in this regard the impact of subsidies as well as carbon pricing options;

(j) Development of UNFC hydropower specifications, and, subject to needs, guidelines;

(k) Accelerate the deployment of variable renewable electricity (VRE) generation; develop normative instruments for sustainable production, distribution and consumption of gas in the ECE region in full support of the transition to a low carbon economy and in this context, ensuring that the role of gas in this transition is in line with the 2030 Agenda and the Paris Agreement;

(l) Energy market/power market design, including grid and interconnections management;

(m) Mapping and removing barriers to international energy trade;

(n) Digitalization;

(o) Assessment of risks and vulnerabilities; energy system resilience;

(p) Assuring energy security.

17. The outcome of this work would be development of normative instruments that are appropriate and necessary for the ECE region. Once those instruments are in place, whether best practice guidance, standards, regulations, or conventions/protocols, the Committee and its subsidiary bodies could support deployment through capacity-building, dissemination, and training.

Annex I

Contextual Background for the Economic Commission for Europe Sustainable Energy Subprogramme Strategic Review

I. Introduction

A. Mandate

1. ECE's work on sustainable energy is designed to improve access to affordable, reliable, sustainable, and modern energy for all and help reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region. It promotes international policy dialogue and cooperation among governments, energy industries and other stakeholders. The focus is on energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane, natural gas, classification of energy and mineral reserves and resources, and energy security.

2. The 2030 Agenda provides an ambitious and comprehensive framework that opens new perspectives for policymaking and international cooperation. The challenges facing the ECE region cut across most sustainable development goals and cannot be tackled effectively through an exclusively sectoral focus. ECE has identified four key nexus areas for collaboration among its substantive divisions: (a) sustainable use of natural resources; (b) sustainable and smart cities for all ages; (c) sustainable mobility and smart connectivity; and (d) measuring and monitoring SDGs. ECE's sustainable energy subprogramme contributes directly in each of the four nexus areas. These nexus areas are likely to evolve over time.

3. Under its current programme, ECE develops normative instruments, including work on standards and best practice guidance in energy efficiency, renewable energy, natural gas and methane. ECE is helping countries improve management of their natural endowments through the United Nations Framework Classification for Resources (UNFC), an internationally applicable scheme for classifying and reporting energy and mineral reserves and resources, and prepared recommendations for policymakers on carbon capture, use and storage.

4. In the longer term and to affirm its value added, ECE will need to continue and expand its work in three critical areas: reducing the environmental footprint of the existing energy system by pursuing energy efficiency, enhancing integration of the region's energy markets, and facilitating transitions to sustainable energy. The programme of work of the ECE's Committee on Sustainable Energy aims to:

(a) Improve energy efficiency from source to use;

(b) Identify energy market failures;

(c) Facilitate economic integration and cooperation and promote sustainable development;

(d) Reduce energy and carbon intensities;

(e) Minimize the impact of the energy sector on the environment from source to use;

(f) Ensure that energy production, conversion and use is cost competitive;

(g) Enhance attainment of environmental goals, including through approaches such as cost-effective renewable energy and carbon capture, use and storage;

(h) Raise awareness of full costs;

(i) Increase capacity;

(j) Innovate constructively across the board in the organization of society, industry, and governments;

(k) Facilitate exchange of experience and expertise through dialogue and networking among UN Member States, industry, non-governmental organizations (NGOs) and intergovernmental organizations (IGOs), academia, and the general public on energy matters.

5. The Committee and its six subsidiary bodies are expected to carry out concrete and results-oriented activities with the aim to achieve the specific objectives identified for each priority area. ECE can use its convening power to facilitate common, rational approaches. The actual actors for attaining outcomes are governments in setting their frameworks, industry in deploying their capabilities, and capital markets that will finance the transitions.

B. State of Play: the Economic Commission for Europe region must accelerate its pace of change, but there are barriers

6. The objective of ECE's sustainable energy subprogramme is to make concrete, measurable progress towards the 2030 Agenda for Sustainable Development and the goals of the Paris Agreement.

7. The ECE member States need to accelerate attainment of their commitments and objectives on sustainable energy. To ensure that energy makes an optimal, enduring contribution to countries' economies and their peoples' quality of life, improving people's living conditions and health, including climate change mitigation and adaptation, the starting point is recognition that:

(a) Energy services are critical inputs to all economic sectors as they enable food production and distribution, access to clean water, development of raw and refined materials, mobility, communications, sanitation, health care, heating and cooling, refrigeration, lighting, education, and so forth;

(b) The current energy system needs to deliver, in aggregate, on access, affordability, efficiency and productivity, quality of service, security and resilience, and environmental performance, including reducing GHG emissions;

(c) Transitions to sustainable energy systems that deliver energy services that support the 2030 Agenda and the goals of the Paris Agreement face important barriers:

(i) The existing energy system represents significant investment in and commitment to physical infrastructure and interconnected supply chains;

(ii) Industrial/urban complexes in many areas are associated with primary energy production – for example power generation, steel production, vehicle manufacturing, and the like – and any shifts away from the primary energy sources will have consequences for jobs and the social fabric of communities beyond the fuel source;

(iii) Investment and operational decisions on resource development, transformation, and consumption are driven by economics determined by supply and demand for products and services with monetary value, to the detriment of resources without explicit monetary value; and

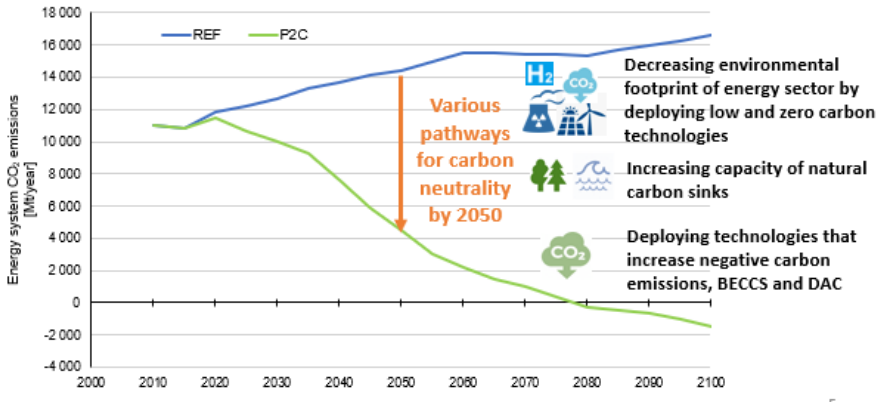
(iv) The political and regulatory infrastructure underpinning energy will be unable to respond to the imperatives of the 2030 Agenda and the Paris Agreement unless and until there is alignment among constituent stakeholder interests, including a willingness to consider all policy and technology options in an agnostic, pragmatic manner.

8. The desired end point is an energy system that supports attainment of environmental, economic, and social objectives in an integrated way – the transitions to a sustainable energy system are an imperative despite the barriers listed above.

C. Economic Commission's for Europe Energy Context

9. The ECE region is diverse and encompasses countries that are high income and low income, energy rich and energy poor, and countries that are in economic transition. It produces and consumes 40% of primary energy and produces 40% of global economic output. 80% of primary energy in the ECE region, as with global primary energy, is fossil, and the ECE region accounts for half of global GHG emissions. With the region's efforts to limit global warming, it is expected that reliance on fossil fuels will decline in the long run. The region remains dominant in the global financial system and is home to important energy industries.

Figure I
Pathways to Carbon Neutrality



Source: UNECE, 2020, Pathways to Sustainable Energy - Accelerating Energy Transition in the UNECE Region.[1]

10. The global coronavirus pandemic has brought economic activity around the world to a nearly full stop. It remains unclear how long the health, social, and economic repercussions of the pandemic will last nor how deep they will go. The consequences for the energy system in terms of pricing, operations, inventories and links among connected supply chains have been significant as demand has plunged across the spectrum of energy services. As the slowdown endures it will deter longer-term investment. Experts have warned that global pandemics such as the current health crisis may become more frequent. Anticipating such an outcome requires systemic preparation and investment in resilience, including in the energy system.

11. ECE has previously noted that the world's doomsday clock for climate change stood at 10 past midnight – recent trends pointed to an increase in global average temperatures of between 4 and 6ºC, a far cry from the target of 2ºC or the even tighter 1.5ºC ambition. Countries are exploring the opportunity that is presented to drive a pivot to a sustainable economic and energy model.

12. Other "megatrends" will affect the energy system and should inform the ECE sustainable energy subprogramme. These megatrends, including topics such as increasing digitalization of energy systems and societies, increasing densification of urban centres, emerging conflicts in international trade, accelerated technology innovation and progress, should be considered on an ongoing basis as part of ECE's continuing strategic reflections.

II. The Economic Commission for Europe Sustainable Energy Subprogramme

13. ECE has unique value propositions given the role that fossil energy plays in the region, the specific make-up of its membership, and ECE's institutional capabilities for developing normative instruments. The ECE sustainable energy subprogramme's expert communities

[1] https://unece.org/fileadmin/DAM/energy/se/pdfs/CSE/Publications/Final_Report_PathwaysToSE.pdf.

have enormous substantive and innovative capability across the range of energy topics, and the subprogramme can mobilise countries, the private sector, organizations, civil society, and academia to work toward meaningful outcomes.

14. It will be important for the Committee on Sustainable Energy to obtain alignment among member States on the pathways to an agreed destination. In particular, the groups of experts will consider, individually and collectively, the relevant SDG targets, 169 in total, and how to advance the targets from the energy side with a focus on impactful outcomes. The expectation is that the Committee and its expert communities will spur and prod member States to find and pursue pathways to meet their commitments. Activities are intended to help countries understand what is possible and to prepare for the worlds of 2030 and 2050.

15. In terms of deciding on specific courses of action to pursue, the Committee considers that the work and its outcomes must reflect United Nations' scale, scope, role, and values:

(a) Impact, scale, and enduring effect;

(b) Political relevance and viability;

(c) Ease of communication and visibility;

(d) Power to inspire, convene, stimulate and train;

(e) Reputational impact;

(f) Attractiveness for resourcing, including extrabudgetary financing, in-kind contributions, and engagement of experts;

(g) Alignment with ECE's purpose and with the activities of the UN family of organizations and other international organizations;

(h) Focus on required instruments/tools/actions that only the UN can produce;

(i) Near-term effect/degree of completion by 2022;

(j) Resource efficiency, nexus contributions, and gender benefits.

16. The objective of ECE's sustainable energy subprogramme is to help member States ensure that energy makes an optimal, enduring contribution to countries' economies, their peoples' quality of life, and responsible environmental stewardship. The subprogramme is conceived to help member States make concrete, measurable progress on energy:

(a) Transform energy in support of the 2030 Agenda;

(b) Ensure just transitions;

(c) Address the nexus challenges of the 2030 Agenda (water, food, cities, resources, etc.);

(d) Ensure access to affordable, reliable, secure, and quality energy services;

(e) Improve energy productivity and energy efficiency;

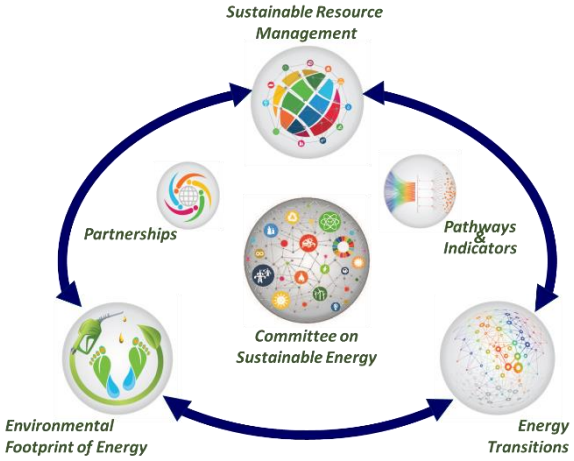
(f) Achieve carbon neutrality in the broader context of energy for sustainable development;

(g) Tracking progress toward the objectives and taking corrective action as needed.

A. Areas of Work of the Committee on Sustainable Energy and its Expert Groups

17. The work of the Committee and its expert groups can be described under three broad categories: Energy Transitions; Reducing the Environmental Footprint of Energy; and Mobilizing Action on Energy for Sustainable Development (see Figure II).

Figure II
Areas of Work of the ECE Committee on Sustainable Energy



18. Energy Transitions involve:

(a) Reconceiving energy as a service to improve energy productivity, ensure affordable access, alleviate energy poverty, unleash innovation and jobs, and introduce new players;

(b) Developing smart and just public and private financing of sustainable actions in the energy sector;

(c) Rationalising energy markets;

(d) Improving energy markets with smart technology and improved market design to enable seamless interaction among consumers and new energy service providers, including distributed generators;

(e) Creating a conducive but rational policy and programmatic ecosystem to enable accelerated penetration of low carbon energy sources;

(f) Deploying ECE's sustainable resource management products to support countries' holistic management of resource endowments, including critical raw materials for batteries and renewables.

19. Reducing the Environmental Footprint of Energy involves:

(a) Reducing the net carbon intensity of the current energy system;

(b) Improving energy efficiency along the whole supply chain and across all sectors;

(c) Using existing energy infrastructure to enhance uptake of low- or no-carbon technology, including renewable energy (electricity and gases), and to foster an economy using electricity, hydrogen and other low carbon gases;

(d) Helping countries limit methane and CO_2 emissions;

(e) Activating ECE's recommendations on HELE, CCUS, coal mine methane (CMM), and Abandoned Mine Methane (AMM);[2]

(f) Removing atmospheric CO_2 through, for example, bioenergy with CCS or direct air capture technology.

20. Mobilizing action on energy for sustainable development involves:

(a) Using ECE industry's capital, technology, and competences to drive a global transition, notably in the area of sustainable resource management;

(b) Engaging with agents of change to deliver workable solutions and concrete outcomes: local actors who effect real change; local, grass-roots communities who create political will; disruptive new players/innovators and existing infrastructure managers/owners;

(c) Instituting local community structures (see Annex II) for effective deployment of ECE products such as best practice guidance, standards, trading arrangements, and fora for exchanges of views;

(d) Collaborating among the UN regional commissions to engage the world's energy community to deliver concrete outcomes;

(e) Coordinating across the UN family on activities, perspectives, and results;

(f) Assisting ECE member States in exploring their strategic options and implementing concrete programmes for achieving energy for sustainable development with pragmatic, enduring, and effective solutions.

[2] HELE refers to High-Efficiency Low-Emission electricity generation that lowers the carbon footprint of power generation by using less fuel more efficiently, CCUS is an acronym for Carbon capture, use and storage which are processes that remove carbon dioxide from industrial process, primarily power generation, and uses the captured gas and stores it in geologic reservoirs afterwards, CMM is Coal Mine Methane and AMM is Abandoned Mine Methane, both of which refer to methane which is liberated during coal extraction or that which is emitted following mine closure.

Annex II

International Centres of Excellence

Economic Commission for Europe Best Practices

I. Introduction

1. The objective of this Annex is to describe the various centres of excellence that collaborate with the sustainable energy subprogramme to describe their purpose and oversight to strengthen the model and approach while leaving flexibility to meet specific requirements.

2. A generic definition of a centre of excellence is *a team, a shared facility or an entity that provides leadership, best practices, research, support and/or training for a focus area*. The following types of centres have been developed to deploy the tools of the energy subprogramme:

(a) ***International Centres of Excellence on High-Performance Buildings (ICE-HPB)*** work to: disseminate the ECE Framework Guidelines for Energy Efficiency Standards in Buildings; engage dialogue among industry leaders to identify challenges, share best practices and build a growing and diverse community of practice; gather and disseminate knowledge, including education/training, exhibits, case studies, research, demonstrations, and the production of industry focused print and on-line resources; catalyse design and construction industry tools and training development, and identify potential barriers to adoption and implementation; and foster public demand and support for best practices through recognition and awards, open houses and tours, public events, and demonstrations;

(b) ***International Centres of Excellence on Coal Mine Methane (ICE-CMM)*** work to: disseminate UNECE's best practice guidance on Coal Mine Methane; train local mining companies and institutions on the techniques, technology, and policy framework to manage methane accumulations in mines; develop case studies and experience addressing methane issues in different mining conditions; and engage with local and national authorities on the merits of deploying proper management techniques;

(c) ***International Centres of Excellence on Sustainable Resource Management (ICE-SRM)*** build national and regional capacities in countries to apply UNFC and UNRMS to all resources to enhance investment in the resource sector and to accelerate countries' attainment of the 2030 Agenda. The principal activities of ICE-SRM designed to achieve these objectives include multi-stakeholder workshops connecting key institutions in countries to extend the principles of UNFC and UNRMS, high-level consultations with investment banks, development banks and other financial institutions such as stock exchanges and the International Accounting Standards Board (IASB), development of documentation, UNFC- and UNRMS-based reporting codes and application guidelines, coordination with key institutions for deploying the resource management mechanism, training courses for Competent Persons, including a formal designation procedure, preparing case studies and application scenarios, and branding, international outreach and communications.

II. Best Practices for International Centres of Excellence cooperating with Economic Commission for Europe

3. The following questions guide consideration of best practices for the work of cooperating international centres of excellence:

- Is there clear **formulation of deliverables** (action plans that are reviewed and updated periodically)?
- What sort of **accountability and oversight mechanisms** ensure that partners deliver on the partnership agreement and adhere to agreed conduct?

- Is there **periodic reporting** that demonstrates **measurable impact** of the partnership and benefits for our membership?
- What sort of **regular reviews** ensure that the partnership remains relevant and fully aligned to organizational priorities?
- Are there **templates** to guide the formulation of future agreements and ensure a common approach, including criteria for the selection of partners?

4. The centres of excellence supporting the ECE Sustainable Energy Division (CMM, HPB, and SRM) are designed to deploy and disseminate a product of ECE that has been endorsed by the intergovernmental process and body (the Committee) and that the subprogramme is mandated to disseminate: Best Practice Guidance on Coal Mine Methane, Framework Guidelines for Energy Efficiency Standards in Buildings, and UNFC and UNRMS.

5. The centres themselves have set criteria that are to be used to determine if a candidate centre in fact qualifies for membership in the network of centres. Qualifying criteria are considered vital to ensure the sustained credibility of the networks of centres. The centres also have agreed terms of reference for what they can be expected to deliver in concrete terms. The terms of reference include an obligation to report on accomplishments for the previous period, on plans for the coming period, and on sources and uses of funds supporting the UN-related activities. It is extremely important to ensure both proper oversight and a continuing link between any given centre and on-going work. The centres are responsible for resourcing their own activities and are expected to be an essential mechanism to mobilize extrabudgetary resources. Ultra-transparency is the intent. The funding model is still under development, but the intent is for the centres to fund their coordination activities.

6. Each type of centre (CMM, HBP, or SRM) has a standard, vetted Memorandum of Understanding (MOU) template to avoid one-off MOUs that could lead to terms and conditions not directly related to deployment and dissemination. Having standard templates for the MOUs of the centres ensures that they are not all *ad hoc*, which also is resource efficient. There is room to reflect certain local circumstances, but the intent is to avoid reinventing the wheel each time. Having a standard template also facilitates the discussions with partners.

7. In terms of questions that have been raised across ECE, the responses are provided below:

(a) *Is there clear **formulation of deliverables** (action plans that are reviewed and updated periodically)?*

Yes. The centres have terms of reference that set forth what is expected of them, they are coordinated among each other regularly, and they report on their forward programmes to their relevant ECE body.

(b) *What sort of accountability and oversight mechanisms ensure that partners deliver on the partnership agreement and adhere to agreed conduct?*

There are some key mechanisms. The formal mechanism is the regular reporting to the relevant ECE body. Additional informal mechanisms are the ongoing coordination of the centres' activities and ECE's process (underway) of reviewing the effectiveness of MOUs.

(c) *Is there **periodic reporting** that demonstrates **measurable impact** of the partnership and benefits for our membership?*

The reporting of achievements and forward plans are developed every year. The HPB network has developed a set of Key Performance Indicators (KPIs) that are both collective for the network and individual for each centre. The idea of KPIs could be better formalized and extended more broadly.

(d) *What sort of **regular reviews** ensure that the partnership remains relevant and fully aligned to organizational priorities?*

Each of the centres is relatively young. The only review to date was provoked by the general ECE review of MOUs and other partnership structures. Each MOU has a renewal clause, and appraisal of the effectiveness of the MOU occurs at the moment of renewal.

(e) *Are there **templates** to guide the formulation of future agreements and ensure a common approach, including criteria for the selection of partners?*

Absolutely, with the standard MOU, generic criteria to qualify as a centre, and terms of reference. Those three documents do not qualify as templates as that would create too-rigid structures, but they facilitate a point of departure and ensure a common vision and common mechanisms.

III. Description of the Centres under the Sustainable Energy Subprogramme

A. International Centre of Excellence on High-Performance Buildings

8. The International Centres of Excellence on High-Performance Buildings (ICE-HPB) comprise a collaborative network of organizations focused on supporting their local industry in the rapid development of next generation of buildings consistent with the ECE Framework Guidelines for Energy Efficiency Standards in Buildings. Centres provide education, training, and other critical resources to regional building industry practitioners, while sharing these resources globally through collaboration with other network participants.

Mission

9. Advance the rapid transition to high-performance buildings, locally and around the world, in support of the United Nations Sustainable Development Goals and the goals of the Paris Agreement, while fostering a thriving building industry that creates healthy, comfortable, and sustainable buildings everywhere for everyone.

Criteria for ICE-HPB Designation

(a) *Committed to the objectives of the Framework Guidelines, including dissemination, training, and education;*

(b) *Committed to the objectives of and active engagement across the network of International Centres of Excellence and the Global Building Network;*

(c) *Established as a going concern/legal entity with strong relationships in the local buildings communities;*

(d) *Must have (local) political support and visibility;*

(e) *In compliance with norms and requirements regarding potential conflicts of interest;*

(f) *Demonstrated competency and capacity in the areas of high-performance buildings and training;*

(g) *Self-funded;*

(h) *Must have physical infrastructure (or access to it), including organizational infrastructure and a regional ecosystem that primes the centre for success, and demonstrated delivery mechanism;*

(i) *Committed to an agenda relevant to the local region based on an agreed menu of activities and projects.*

Terms of Reference for an ICE-HPB

Activities and Projects

10. The mission of a given centre, as an ICE-HPB designated by ECE, is to advance the principles of the ECE Framework Guidelines for Energy Efficiency Standards in Buildings by connecting real estate and design professionals to energy efficiency solutions through

education, training, technical assistance, demonstrations, resources, and research. The centre identifies opportunities, navigates barriers to adoption, brokers relationships, and showcases best practices through its partners, projects, data and performance statistics, and published case studies, and will share resources globally through the ICE-HPB network.

11. The centre helps building developers, owners, operators, and designers save energy and reduce building-based carbon emissions through implementation and adoption of energy efficiency measures and best practices. The centre's activities directly support climate action agendas and are consistent with the ECE Framework Guidelines for Energy Efficiency Standards in Buildings.

12. The activities and projects of the ICE-HPB will include:

(a) Convening dialogue amongst local and international industry leaders to identify challenges, share best practices and build a growing and diverse community of practice;

(b) Gather and disseminate knowledge directly, and through partner organizations, including education and training, exhibits, case studies, research, demonstration projects, and the production of industry focused print and on-line resources;

(c) Catalyse design and construction industry tools and training development, and identify potential barriers to adoption and implementation; and

(d) Foster public demand and support for best practices through recognition and awards, open houses and tours, communication and marketing campaigns, public events, and demonstration projects.

13. An ICE-HPB will report to the Group of Experts on Energy Efficiency on prior year achievements and plans for the coming period.

B. International Centre of Excellence on Sustainable Resource Management

14. International Centres of Excellence on Sustainable Resource Management (ICE-SRM) are a collaborative network of organizations focused on supporting sustainable investment in the resources needed for development in line with the 2030 Agenda for Sustainable Development and the goals of the Paris Agreement. The Centres are conceived to provide policy support, technical advice and consultation, education, training, dissemination, and other critical activities for managers and stakeholders involved in sustainable development of national resource endowments.

Mission

15. Advance global deployment of the United Nations Framework Classification for Resources (UNFC) and the United Nations Sustainable Resource Management System (UNRMS) to secure, sustainably, the resources needed to support attainment of the 2030 Agenda.

Criteria for ICE-SRM Designation

(a) *Committed to attaining the objectives of the UN to deploy and disseminate UNFC and UNRMS, including research, testing, technical advice, training, education, advocacy and certification;*

(b) *Committed to the objectives of and active engagement across the network of International Centres of Excellence;*

(c) *Established as a going concern and a legal entity with strong relationships in the regional, national and local resource development community;*

(d) *Must have regional, national and local political support and visibility;*

(e) *Committed to an agenda relevant to regional, national and local needs based on an agreed menu of activities and projects;*

(f) *Committed to innovation, continuous development and excellence in all areas including the social, environmental, economic and technological aspects of resource management and to the overall integrated efficiency in providing resource-based services to the populations;*

(g) *In compliance with norms and requirements regarding potential conflicts of interest;*

(h) *Demonstrated competence and capacity in the area of sustainable resource management;*

(i) *Self-funded and able to support a central ECE resource management hub in kind and financially.*

16. *Must have physical infrastructure (or access to it), including organizational infrastructure and a regional ecosystem that primes the centre for success, and a demonstrated delivery mechanism.*

Terms of Reference

17. The mission of an ICE-SRM designated by the United Nations Economic Commission for Europe (ECE) is to support secure, affordable and sustainable resource based services through global dissemination of UNFC and UNRMS and their locally adapted applications. This will be achieved through research, testing, consultation, education, advocacy and certification. The ICE-SRM identifies opportunities, navigates barriers to efficient resource management, brokers public-private relationships, and showcases best practices and shares results globally through the ICE-SRM network. The ICE-SRMs directly support stakeholders in achieving the objectives of the 2030 Agenda for Sustainable Development. The activities and projects of an ICE-SRM will include:

Capacity-building

(a) Conduct training, including certification and recognition procedures for competent persons;

(b) Conduct research on efficient, integrated and sustainable resource management;

(c) Conduct testing, case studies and demonstration of UNFC and UNRMS;

(d) Conduct consultations in specific areas of sustainable resource management at the levels of policy formulation, government resource management, industry business process management and capital allocation;

(e) Prepare training materials for universities and organizations and conduct educational courses, workshops and conferences.

Contribution to further development and maintenance of UNFC and UNRMS

(a) Develop application of UNFC and UNRMS in line with the three axes of (i) environmental-socio-economic viability, (ii) technical feasibility and (iii) degree of confidence for public and private sector uses;

(b) Develop principles for public private partnerships emphasizing the importance of government set framework conditions, industry adaption of capabilities and the capital market’s ability to finance valid business models that the two generate;

(c) Develop a technology innovation platform to address challenges in sustainable resource management;

(d) Develop and implement financial reporting guidelines in collaboration with financial institutions;

(e) Develop and implement a “competent person” mechanism, including qualification guidelines and procedures.

Advocacy

(a) Gather and disseminate knowledge directly and through partner organizations, including education and training, exhibits, case studies, research, demonstrations, and the production of industry focused print and on-line resources, including in languages other than English;

(b) Catalyse industry tools and training development;

(c) Identify and address potential barriers to adoption and implementation;

(d) Foster public demand and support for best practices through recognition and awards, public events, and demonstrations;

(e) Support resource management improvements through i.a. uptake in the use and/or legislation of UNFC and UNRMS by countries, companies, regulators, financial reporting sector and other organizations.

Outreach

(a) Conduct outreach workshops;

(b) Institute a dedicated website that is linked to the ECE website;

(c) Prepare and disseminate publications and documentation;

(d) Present at key venues;

(e) Promote and disseminate with respect to transparency and corporate reporting requirements;

(f) Support dialogue among international practitioners to identify challenges, share best practices and build a growing and diverse community of practice;

(g) Promote global recognition of UNFC and UNRMS as brands in resource classification and management. Work with countries, companies, and other organizations to advocate their uptake;

(h) Provide strategic consultancy services to governments, industry and the financial sector.

C. International Centres of Excellence on Coal Mine Methane

18. The activities of the Centres are linked to the expected accomplishment (a) “Improved policy dialogue and cooperation among all stakeholders on sustainable energy issues, in particular energy efficiency, cleaner electricity production from fossil fuels, renewable energy, coal mine methane, mineral resources classification, natural gas and energy security” of Subprogramme 5 “Sustainable Energy” of the ECE Programme budget for 2018-2019. They also contribute to the attainment of the objective of the Subprogramme 5 “Sustainable Energy”: “to ensure access to affordable and clean energy for all and reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region”, as defined in the ECE programme budget for 2020. The Group of Experts on Coal Mine Methane is mandated by the Committee on Sustainable Energy to carry out concrete, result-oriented activities that promote the reduction of greenhouse gas emissions from coal mines through recovery and use of methane, in order to reduce the risks of explosions in coal mines (ECE/EX/7). The principal area of work of the Group of Experts is best practice guidance for effective drainage, recovery and usage of CMM, which is achieved including through collaboration with key stakeholders such as the existing Centres of Excellence.

19. ICE-CMM are tasked with carrying out the following concrete activities and projects:

- Solicit and collect relevant case studies and best practices in sustainable CMM management, provide as needed technical guidance for their development, and serve as a depositary of such cases and practices
- Organize on-site training and visits to ICE-CMM (on a non-profit basis, using as needed cost-sharing mechanisms) by CMM practitioners from interested UN Member

States. Such training would help disseminate best practices through concrete hands-on experience

- In collaboration with the ECE secretariat and members of the Group of Experts on CMM, organize off-site training activities on the application of best practices in various coal mining regions
- Conduct research in its domain of work, as requested by ECE member States, under auspices of the Group of Experts on CMM, and in collaboration with relevant intergovernmental and non-governmental organizations, industry and other stakeholders in the CMM field
- Engage with a wider coal mining community, including the civil society, mining associations, and decision makers through the use of electronic and social media in order to raise awareness of the challenges and opportunities in the CMM sector.