



UNECE

Sustainable Energy Week 2015

Pathways to Sustainable Energy

18-20 November 2015 - **Geneva**

WHITE PAPER

Version 13 November 2015

High-Level Panel: Pathways to Sustainable Energy

**24th Session of the Committee on Sustainable Energy,
18-20 November 2015**

Geneva, Palais des Nations, Salle VII, 19 November 2015, 15.00-18.00

Contents

1. High-level panel discussion: Pathways to sustainable energy
2. Background
3. Exploring Pathways to Sustainable Energy
4. Timeline and next steps

Annex

Draft Project Proposal for a project that aims to strengthen the capacity of the UNECE member States to achieve sustainable development goals

1. High-level panel discussion: Pathways to sustainable energy

*24th session of the UNECE Committee on Sustainable Energy
19 November 2015, 15.00-18.00, Palais des Nations, Geneva*

The United Nations Economic Commission for Europe (UNECE) region will play an important role in attaining the international energy and climate objectives that are being agreed in 2015, notably the energy related Sustainable Development Goals. Divergent economic development, resource availability and energy mixes are being reflected in national energy strategies and thus set different priorities how to achieve the overarching goals. There is an important opportunity to explore the implications of such different sustainable energy strategies for the region, both from the perspective of reducing the environmental footprint of energy and from the perspective of assuring needed energy for sustainable development. Due to its diversity and its financial, technological, and economic strength, the region is well-placed to contribute constructively to the current dialogues about energy for sustainable development. Illustrating possible energy futures is the basis for informed decision making, yet countries have not yet found a common definition of sustainable energy nor agreed on a common pathway for achieving it. The high-level panel will explore what sustainable energy means for the UNECE region. Selected panellists will present national energy policies to inform the subsequent dialogue. Participants will consider the challenges and opportunities of the accelerating transition of energy systems and the national pledges that are being made in the context of the sustainable development and climate agendas. Reference will be made to the outcomes of the Sixth International Forum on Energy for Sustainable Development, held in Yerevan, Armenia, from 29 September to 2 October 2015 and to the World Bank's *Global Tracking Framework*.

15.00-15.30 Introductory remarks from

- Jürgen Keinhorst, Chair of the Committee on Sustainable Energy;
- Scott Foster, Director, Sustainable Energy, UNECE.

Presentation followed by panel dialogue: Energy Darwinism: The evolution of the energy industry

- Jason Channell, Managing Director, Citi Research

This analysis of 'Energy Darwinism' highlights the uncertainties and risk inherent in upstream projects at the upper end of the gas cost curve, in the coal industry overall, for utilities and for the power generation equipment manufacturers. These changes and risks will affect investors, developers, owners, products and consumers of energy, which given the sums of money involved, makes it of paramount importance to be understood. The global energy industry has been transformed in the last five years in ways and to an extent that few would have thought credible. The emergence of shale gas has transformed the United States energy market while Germany has seen some gas-fired power stations running for less than 10 days a year due to the impact of solar leading utility owners to issue profit warnings. Developed markets now spend more on renewable capital expenditures than they do on conventional generation, largely due to uncertainty over commodity pricing and likely future utilisation rates, while the legacy of Fukushima has seen Japan burning gas at \$16-17/mmbtu while the U.S. basks in \$3 shale, driving the introduction of the world's most attractive solar subsidy scheme and catapulting Japan to be the world's second largest solar market. Conversely, the intermittency of renewables has led to the greater demand for the flexibility of gas-fired power plants in some markets.

For more information and to download the publication, please use the following link:

<https://www.citivelocity.com/citigps/ReportSeries.action?recordId=21>

For Mr Channell's curriculum vitae, please see here:

<http://www.bloomberg.com/Research/stocks/private/person.asp?personId=29593069&privcapId=25232403&previousCapId=25232403&previousTitle=Citigroup%20Inc,%20Research%20Division>

15.30-16.30 ***Panel dialogues***

Pathways to sustainable energy

- How have countries defined sustainable energy?
- How are countries integrating international developments into national energy policies?
- How will countries implement their pledges on sustainable development, including the Sustainable Development Goals and the climate agenda of the United Nations Framework Convention on Climate Change (UNFCCC)?
- Can we design a pathway to a sustainable energy system whereby a successful regional outcome is a composite of national choices?

Panellists

- Ulrich Benterbusch, Deputy Director General, Federal Ministry for Economy and Energy, Germany
- Ihor Didenko, Deputy Minister of Energy and Coal Industry, Ukraine
- Barry Worthington, Executive Director, The United States Energy Association
- Martine Provost, Executive Director, Global Sustainable Electricity Partnership, Canada
- Asset Magauov, Director General, KazEnergy Association, Kazakhstan
- Talyat Aliev, Deputy Director, Department for International Cooperation, Ministry of Energy, Russian Federation

16.30-16.45 ***Break***

16.45-17.45 ***Implementation and indicators for success***

- Are we ambitious enough?
- Which are the proper indicators for progress?
- How can we track implementation?
- What role could UNECE play in supporting countries?

Panellists

- Hayk Harutyunyan, Deputy Minister of Energy and Natural Resources, Armenia
- Tim Farrell, Chair, Group of Experts on Energy Efficiency
- Ray Pilcher, President, Raven Ridge Resources, United States
- Yagshygeldi Kakaev, Director, State Agency for Management and Use of Hydrocarbon Resources under the President of Turkmenistan
- Asset Magauov, Director General, KazEnergy Association, Kazakhstan

17.45-18.00 ***Summary and closure of the high-level panel***

- Final remarks from the moderator.

Moderator for both sessions: Jason Channell, Managing Director, Citi Research.

2. Background

The United Nations Economic Commission of Europe (UNECE) region produces 40% of the world's energy while consuming 45%, is home to important energy industries, generates nearly 50% of global economic output and is dominant in the world's financial infrastructure. Fossil fuels comprise 60% of primary fuel, making the UNECE region one of the largest emitters of greenhouse gases, accounting for about half of global emissions. The region is very diverse, comprising high and low income countries, countries that are energy rich and energy poor, and countries that are in the midst of economic transition. The region will play an important role in attaining the climate and sustainable development goals that are to be agreed in 2015 and beyond.

Moving into the climate negotiations in Paris in December 2015, divergent economic development, resource availability and energy mixes are embedded in national energy strategies and reflect different priorities for how to achieve the overarching goals. There is no common understanding of *sustainable energy* what is meant by *pathways towards a future sustainable energy system* or even how to move to such a pathway.

Topics associated with sustainable energy in the agreed Sustainable Development Goals of the United Nations, notably the energy-related ones, are: increasing the share of renewable energy, improving energy efficiency, and ensuring access to modern energy services. The broadly varying conceptions of sustainable energy lead to diverse expressions in national and regional energy strategies and, as a consequence, multiple approaches and outcomes can be found. Some countries interpret sustainable energy to be shaped primarily by the need to reduce emissions of greenhouse gases and pursue a strategy based hundred percent on renewables in the short-term, thereby excluding utilization of exhaustible resources. Other countries see sustainable energy as the need to develop natural resources effectively to address the much needed access-to-energy component for their poorer populations. Yet other countries prioritise the climate agenda, but choose to focus on reducing the carbon intensity of their energy system without excluding fossil energy. Each country sets its own national energy strategy based on its priorities and perspectives on aspects such as climate change mitigation, sustainable development, environmental protection, poverty alleviation, quality of life, and the like.

As an underlying element of all of the sustainable development goals, *sustainable energy* combines environmental, economic and social aspects to ensure a sustainable energy system in the future. Such a system notably would address all aspects of the sustainable development pillar in line with national priorities and concerns, including climate change and natural resource use, job creation and energy security, social tolerance, health and energy access, among others.

There is an important opportunity to explore what sustainable energy means for the UNECE region, both from the perspective of reducing the environmental footprint of energy and from the perspective of assuring needed energy for sustainable development.

Recognising this opportunity, the Russian Federation proposed that UNECE member States investigate and assess pathways for the region to attain sustainable energy and identify early warning indicators if objectives are not being met. In response, the Committee on Sustainable Energy at its twenty-third session on 19-21 November 2015 requested its Bureau to develop an approach and process for implementing such a project.

In this context, a first workshop was held on 26 May 2015 in Geneva with leading experts to provide input to the Open-ended Consultations on UNECE Work on Sustainable Energy that took place 27-28 May 2015 in Geneva and that featured presentations of member States' energy strategies. A second workshop was held on 2 September 2015 to consider a range of energy outlooks. The recommendations from the Bureau and the two workshops have been integrated into the organisation of the high-level panel and are reflected in a project proposal to be discussed during the twenty-fourth session of the Committee on Sustainable Energy on 18-20 November 2015 (see Annex).

The proposed project is intended to enhance the understanding of sustainable energy policy drivers in UNECE member States, promote a policy dialogue and provide awareness-raising of different outcomes that could emerge over time. The project will facilitate a high-level policy dialogue to support governments, energy industries and other private sector, non-governmental and international organizations that are involved in energy in the UNECE region. It further will develop an early warning system if achievement of sustainable energy objectives is not on track. The project will organize exchanges among international energy modelling experts to coordinate and improve existing models, instruments and results, culminating in a ministerial dialogue on how to attain sustainable energy outcomes in the region.

The project will be carried out under the Committee on Sustainable Energy and its Bureau. Implementing partners are UNECE member States, UN Regional Commissions through the existing collaboration on the annual International Forum on Energy for Sustainable Development, and the World Bank.

3. Exploring Pathways to Sustainable Energy

How the global energy architecture will develop is one of the big unknowns in today's decision making. As energy is both cause and solution to many global problems, developing stories that illustrate possible energy futures and explore their consequences is the basis for informed decision-making. Scenarios, forecasts and pathway predictions are part of today's research about the future. They are not predictions about the future but rather allow simulations of what might happen and provide the input assumptions for any successful modelling exercise. Such techniques are used as an exploratory method mainly to highlight discontinuities from the present and to reveal the choices available and their potential consequences.

The project can be described as a series of structured, strategic reflections using a modular scenario-based approach, in which a diverse international team is prepared to bring knowledge and challenge conventional wisdom in energy, energy technology and policy and systems around the focal question of how the UNECE region can attain sustainable energy outcomes. Risks and opportunities of alternative energy futures will be considered and tested in the context of new strategic orientations, options and actions to ensure attainment of sustainable outcomes. The process for the scenario building exercise is an internationally vetted and proven process built on brainstorming, assembling the building blocks into coherent sets, producing a set of coherent scenarios that cover the range of plausible future and finally preparing tactics and responses to opportunities and threats for each potential scenario or future.

25 leading but heterogeneous global experts in energy and other fields from across the region have been solicited for their individual perspectives on the key drivers and uncertainties that will shape the future. The experts were engaged through interviews and two in-person expert workshops held in Geneva in 2015. The advantage of having a heterogeneous group of participants in sufficiently large number is that a wide range of views is aired.

A rigorous and inclusive process built on discussion, debate and agreement of the experts has led to the selection of stories about energy futures. Each story is plausible, but is intended to stretch mental maps in unexpected ways about global energy challenges and how we might respond to them. The development of these stories about the future, scenarios, then leads to development of early warning signals, or signposts, that can provide clarity on the way the world is headed.

Should the Committee on Sustainable Energy approve and fund this project, leading modelling institutions will be asked to run the agreed scenario assumptions through existing, vetted models in order to present preliminary, quantified results. The question would be put to more than one modelling institution explicitly to point out differences that are obtained running different models with similar assumptions. Developing the methodology, "inclusive" modeling environment and tools for scenarios evaluation for the pan-European region, the project will allow a systemic investigation of scenarios, comparison of existing ("reference") and potential new scenarios, and finally lead to a testing of the alternative strategic choices and priorities to ensure attainment of sustainable outcomes in the UNECE region.

The methodology will allow the:

- simulation of energy scenarios using as the basis for an innovative energy/economy/environment modeling frameworks (e.g. MESSAGE - Model of Energy Supply Strategy Alternatives and their General Environmental Impacts);
- complex assessment of targeted areas in the scenario field (using the energy/economy/environment framework);
- development of an anticipatory monitoring of process (based on the fundamentals of a strategic early warning system);
- moving to the ultimate goal of the Integrated Modeling Environment to investigate and evaluate the process as a whole;
- development of new strategic orientations, options, and actions to ensure attainment of sustainable outcomes by the UNECE region and its member States.

4. Timeline and next steps

Outcomes from the two workshops held in the context of this project proposal will be presented during the 24th session of the Committee on Sustainable Energy. Based on the wishes of the Committee and financial backing from member States, a formal proposal would be submitted to the Executive Committee for approval.

The proposed project has a timeframe of 2 years, from November 2015 until December 2017. Crucial for the success of the project will be a ministerial dialogue, possibly in Q3 2017, about the outcomes and recommendations of the work.

- October 2015 - November 2015: Refine/finalize pathway recommendations by international experts after the second workshop, including implications and signposts;
- 18-20 November 2015: Consultations at the twenty-fourth session of the Committee on Sustainable Energy, including high-level discussion on pathways to sustainable energy on 19 November 2015, followed by discussions at the UNECE Executive Committee if requested by member States;
- November 2015 – March 2016: Vetting of findings from exercises, finalising collaborations with modelling organizations and agreement of modelling assumptions and approaches; third workshop with international experts;
- April - August 2016: Evaluation of next steps and the best way to further implementation of the project; designing and carrying out the agreed set of analytic experiments;
- September – October 2016: Fourth workshop of international experts to agree on key findings and results of analytic experiments; discussions at the twenty-fifth Committee on Sustainable Energy session on 28-30 September 2016 in preparation of a high-level (ministerial) meeting;
- October 2016 - February 2017: integrated assessment (straightforward and reverse) of the results of analytic experiments (incl. its presentation and discussion with different teams);
- March – April 2017: Vetting of findings, preparing the final report and presenting the key messages to the Committee on Sustainable Energy at the next opportunity;
- Q3 2017: High-level ministerial meeting in a member State or Geneva as decided by member States, followed by the publication of a final report no later than November 2017.

**UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE
TECHNICAL COOPERATION PROJECT FORM¹**

| | |
|--|------------------------------|
| Project title and project number: Strengthening capacity of the UNECE member States to achieve sustainable development goals. | |
| 1. Expected timing/ duration: November 2015-November 2017 (25 months) | |
| 2. Objective and brief summary of the project: This project aims to strengthen the capacity of UNECE member States to achieve sustainable development goals. The project will facilitate a high-level policy dialogue to support stakeholders in energy in the UNECE region and develop both an instrument for transparent, model-based analysis of pathways to sustainable energy and a system to provide early warning if achievement of the objectives is not on track. The project will culminate in a ministerial dialogue on how to attain sustainable energy in the region. The project will be carried out under the Committee on Sustainable Energy (CSE). Implementing partners are member States, Regional Commissions, and the World Bank. Activities comprise the following: 1) Two high-level dialogues at the twenty-fourth and twenty-fifth sessions of the CSE; 2) Ministerial meeting on attainment of sustainable development goals in the UNECE region in Q3 2017; 3) modelling exercises on alternative energy futures; 4) Preparation of a summary report; 5) An interactive workshop with modelling groups, experts, and interested member States; 6) A workshop on recommendations on how the UNECE region can achieve the objectives; and 7) Development of a network of experts. | |
| 3. Expected results of the project: <ul style="list-style-type: none"> • Improved understanding of member States of alternative pathways of transition to sustainable energy future; • Improved policy making of the UNECE member States regarding sustainable energy development; • Increased capacity of UNECE member States to develop and implement early warning indicators. | |
| 4. Target group and beneficiaries of the project: <u>Target groups</u> include partners and other international stakeholders, policy makers, the private sector, academic institutions and international organisations. <u>Beneficiaries</u> are all UNECE member States. | |
| 5. Justification of project and its relationship to the programme of work: The CSE requested its Bureau to develop the scope, approach, and process for a project on pathways for the UNECE region to attain sustainable energy for further discussion at the twenty-fourth session on 18-20 November 2015. The proposed project will enhance the understanding of sustainable energy policy drivers in UNECE member States and will help attain the objectives of energy for sustainable development. The project is in line with UNECE's Strategic Framework and the Sustainable Development Goals. In the draft outcome document of the 66 th session of the organization, member States "request UNECE, in cooperation with other United Nations Regional Commissions and international organizations, to continue its work on policies and actions to facilitate the transition to a sustainable energy future"; "request UNECE to assist member States in the development of national sustainable energy action plans that promote affordable low net-carbon energy production, transportation and use and that contribute to global attainment of both the objectives of the SE4All initiative and the expected Sustainable Development Goals on energy and combatting climate change." | |
| 6. Estimated UN regular budget resources (work months of RB staff/level of Staff): D1: 1 work month, P5: 2 work months, 2 P3/4: 0.5 work month, JPO: 2 work months, G6: 1 work month. | |
| 7. Estimated extra budgetary resources: US\$720,000 (rounded) | |
| Donor | Amount (US\$) |
| Russian Federation | 330,000 |
| United States | 195,000 ² |
| Others | 195,000 |
| Host country for the Energy Ministerial | Expenses regarding event tbd |

¹ To be filled in before submission to EXCOM: maximum 1 page

² The remaining amount is to be divided equally between the number of donors, in this case 2.