



28th Session of the Committee on Sustainable Energy

Accelerating and Deepening the Transition of Sustainable Energy Systems

25-27 September 2019, Geneva



1. Opening and Adoption of the Agenda

ENERGY



Opening Remarks

Jürgen Keinhorst

Chair, Committee on Sustainable Energy

1. Opening and Adoption of the Agenda



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	25 Sep	26 Sep	27 Sep
10.00 - 13.00	<p>Opening and administrative matters</p> <p>---</p> <p>Accelerating and deepening the Transition to Sustainable Energy Systems</p>	<p>Attaining carbon neutrality</p> <p>a) Modernization of energy infrastructure</p> <p>b) Decarbonising electricity</p> <p>c) Moderated discussion</p>	<p>Sustainable Resource Management cont.</p> <p>a) Efficiencies, cities and circular economy</p> <p>---</p> <p>3 Expert Groups</p> <p>---</p> <p>Gender and energy</p>
<i>Lunch</i>	<i>Energy Transition Toolkits</i>	<i>Energy Transition Toolkits</i>	
15.00 - 18.00	<p>Pathways to Sustainable Energy cont.</p> <p>---</p> <p>Policy dialogue with the Committee</p>	<p>Sustainable Resource Management</p> <p>a) Gas pathways to 2050 and RE</p> <p>b) Managing resources</p> <p>---</p> <p>3 Expert Groups</p>	<p>Regional outreach and collaboration</p> <p>---</p> <p>Future work of the Committee</p>



1. Opening and Adoption of the Agenda

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Documents

<https://www.unece.org/index.php?id=51057>

(bottom of page – tabs documents/
room documents)

- Annotated Provisional Agenda (ECE/ENERGY/122)
- Overview of the week (CSE-28/2019/INF.3)
- List of documents (CSE-28/2019/INF.2)
- Session structures (CSE-28/2019/INF.4)
- **Advance copy Draft** report of the 28th session (ECE/ENERGY/123)
- Questionnaire and suggestions (CSE-28/2019/INF.7)

Agenda
Item 1

2. Election of Officers

For the 29th and 30th Sessions

ENERGY



Relevant Documents

- List of Bureau members and Bureau nominations (CSE-28/2019/INF.5)

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2. Election of Officers

For the 29th and 30th Sessions

ENERGY



Nominations for Chair

Mr. Jürgen Keinhorst (Germany)

Director

Federal Ministry for the Environment, Nature
Conservation and Nuclear Safety

2. Election of Officers (cont.)

For the 29th and 30th Sessions



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Nominations for Vice-Chair

Mr. Admir Softic (Bosnia and Herzgovina)

Assistant Minister for Energy Sector, Ministry of Foreign Trade and Economic Relations

Ms. Natela Turnava (Georgia)

Deputy Minister of Economy and Sustainable Development

Mr. James Gannon (Ireland)

CEO, Sustainable Energy Authority of Ireland

Mr. Gilberto Dialuce (Italy)

Director General for Electrical Market, Renewable Energy, Nuclear and Energy Efficiency, Ministry of Economic Development

Mr. Pawel Pikus (Poland)

Deputy Director, Oil and Gas Department, Ministry of Energy

Mr. Alexander Tolparov (Russian Federation)

Deputy Director, Department for International Cooperation, Ministry of Energy

Mr. Jean-Christophe Füeg (Switzerland)

Head of International Energy Affairs, Swiss Federal Office of Energy

Ms. Nataliya Boyko (Ukraine)

Deputy Minister of Energy and Coal Industry

2 Overview: Committee Bureau

Effective after 28th session

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Chair: Jürgen Keinhorst, Germany

Admir Softic, Bosnia and Herzegovina

Alexander Tolparov, Russian Federation

Natela Turnava, Georgia

Jelena Simovic, Serbia

James Gannon, Ireland

Jean-Christophe Füg, Switzerland

Gilberto Dialuce, Italy

Nataliya Boyko, Ukraine

Talgat Karashev, Kazakhstan

Jarad Daniels, United States

Pawel Pikus, Poland

Chairpersons of the Subsidiary Bodies

David MacDonald,
Expert Group on Resource Classification

Aleksandar Dukovski,
Group of Experts on Energy Efficiency

Barry Worthington,
Group of Experts on Cleaner Electricity
Systems

Nazir Ramazanov,
Group of Experts on Renewable Energy

Raymond Pilcher,
Group of Experts on Coal Mine Methane


Francisco de la Flor Garcia,
Group of Experts on Gas

Adoption of Conclusions and Recommendations

ENERGY



Document
ECE/ENERGY/123

United Nations		ECE/ENERGY/123
	Economic and Social Council	Distr.: General 3 October 2017 Original: English
Economic Commission for Europe		
Committee on Sustainable Energy		
Twenty-sixth session Geneva, 26-28 September 2017		
Report of the Committee on Sustainable Energy on its twenty-sixth session		
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3. Accelerating and Deepening the Transition to Sustainable Energy

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- **(a) Pathways to Sustainable Energy**
 - Presentation of Results and Recommendations

- **(b) Discussion with the Subsidiary Bodies**

- **(c) High-level Policy Dialogue with Countries**

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3. Accelerating and Deepening the Transition to Sustainable Energy Systems

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Relevant Documents

- ECE/ENERGY/2016/7 – Pathways to sustainable energy – Concept note
- ECE/ENERGY/2018/1 – Pathways to sustainable energy – Status report
- ECE/ENERGY/2019/1 – Pathways to sustainable energy – Accelerating energy transition in the ECE region
- CSE-28/2019/INF.6 - Biographies of speakers
- CSE-28/2019/INF.8 – Detailed Activity Report
- CSE-28/2019/INF.9 – Glossary
- CSE-28/2019/INF.11 – Concept for an Early Warning System
- CSE-28/2019/INF.11 – Full long presentation of the results

Pathways to Sustainable Energy

Phase I - Results and Recommendations

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Introductory Remarks

Scott Foster

Director, UNECE Division on Sustainable Energy

Jürgen Keinhorst

Chair

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Roadmap for the Presentation

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1. Pathways to Sustainable Energy Project Phase I Review

- Pathways Project Design and Objectives
- Key Takeaways
- Detailed Scenarios and Modelling Results
- Proposed Concept for an Early Warning System for Policy Makers

2. Policy Recommendations from Phase I

Followed by:

- 1. Discussion with the Subsidiary Bodies**
- 2. Special Lunch Session with Partner Organisations - Energy Transition tools**
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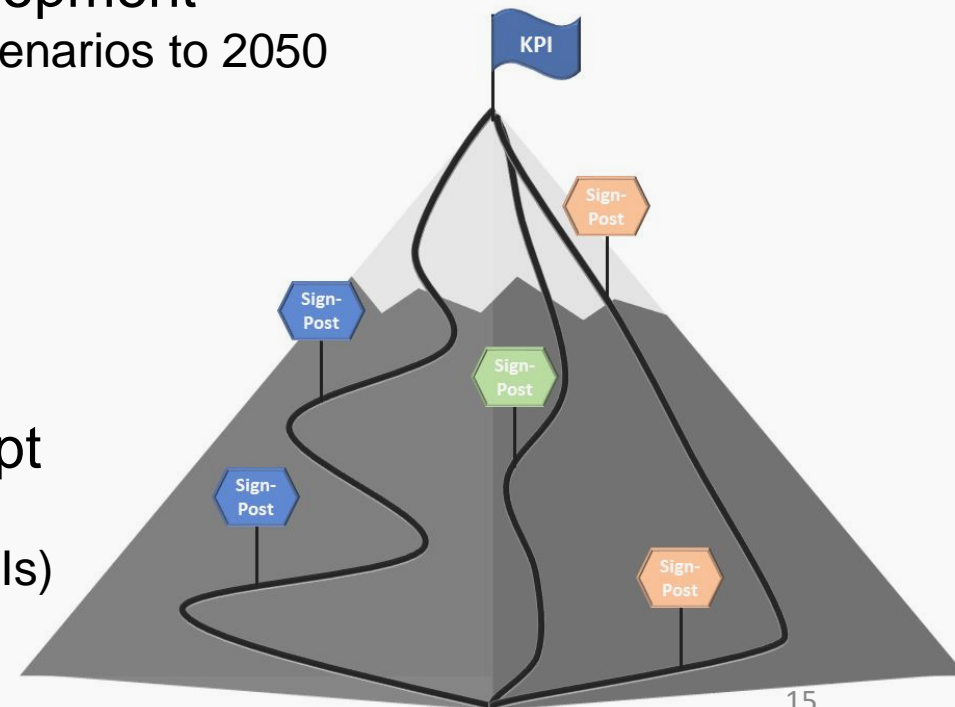
Project Objectives

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How can the UNECE Region attain Sustainable Energy (SE)?

- **Current Phase:** May 2017 – Oct 2019
- **Outputs**
 - **Pathways and Scenario Development**
 - Sub-regional modelling of SE scenarios to 2050
 - Policy and technology options
 - **Policy dialogue**
 - Adaptive policy pathways
 - Policy dialogues
 - Sub-regional workshops
 - **“Early-warning system” concept**
 - SE Targets
 - Key Performance Indicators (KPIs)
 - Signposts



Pathways Project and Sustainable Energy

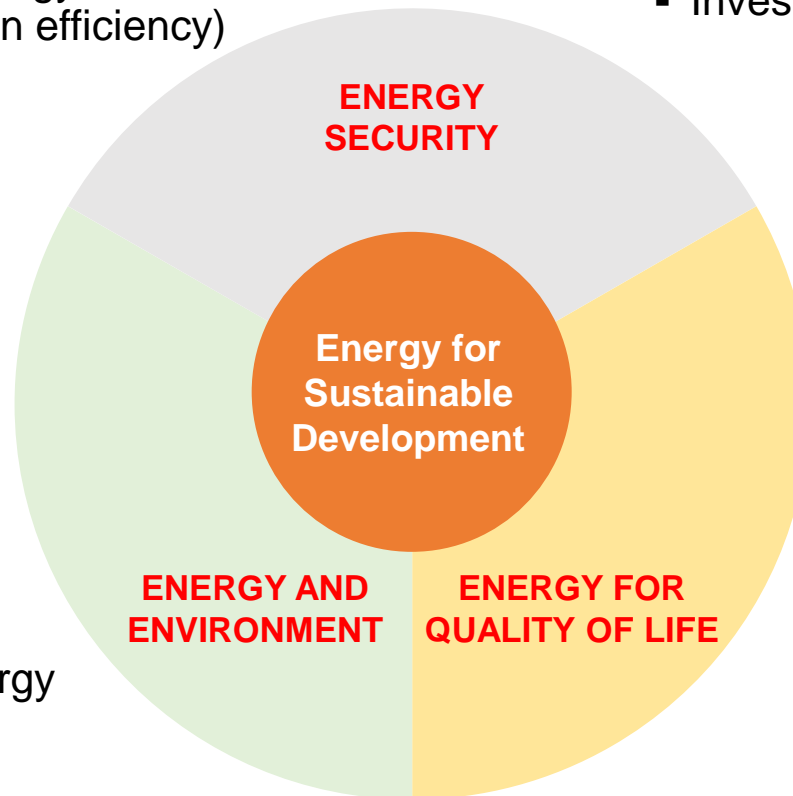
Three Pillars



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“Secure the energy needed for economic development”

- Energy Efficiency (energy intensity of economy, rate of improvement of energy intensity, conversion efficiency)
- Fuel mix
- Net energy trade
- Investment requirements



“Minimize adverse energy system impacts on climate, ecosystems & human health”

- GHG emissions from the energy system
- Energy-related air pollution, water use & water stress

“Provide affordable energy that is available for all at all times”

- Access to energy services
- Energy affordability
- Food security (biomass use)

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Mission (Im)Possible?

- **Technology transition** is imperative to attain sustainable energy and meet 2°C target.
- It is possible to achieve sustainable energy but **collaboration, forward looking policy measures for investors & immediate action is needed**. This change implies disruption in the energy sector.

Reality Check

- In UNECE region 80% of today’s energy fossil fuel based. Even under a scenario that meets the 2°C target, fossil fuels will still account for at least 56% of the region’s energy mix by 2050 – far way from a net-zero world. **Accelerated decarbonization and energy transition is crucial**.

Investment Implications

- To meet 2°C target, energy **infrastructure spending** in the UNECE increases by **\$200 billion p.a.** (versus Business As Usual scenario of USD 785 billion p.a. through to 2050).
- **Delay is expensive**. The cost of transition rises steeply allowing less time for sectoral and societal adaptation.
- In any case, **the cost increase to meet 2°C target is negligible** compared to social and health costs. The model assumes nothing on the cost implications of climate change but they will be significant - Air pollution ALONE cost USD 1.8 trillion in 2015 in OECD and BRIICS* combined.

“In an uncertain world, better to keep all options on the table and develop a few more”

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All technologies will play a role in attaining sustainable energy in ECE region.* -> The work of the Committee on Sustainable Energy and its Subsidiary Bodies promotes sustainable energy in the UNECE region and focuses on:

Reducing the Environmental Footprint of the Energy Sector

- The 2°C target/ net zero commitments need **reduced carbon emissions and negative carbon technologies** to bridge the gap until innovative low or zero-carbon energy technologies are invented and deployed.

Long-term Planning - Accelerating the Transformation of the Energy System

- Transform the energy system to **provide energy services based on low carbon technologies**.
- **Modernizing and optimizing fossil-based infrastructure**, integrating low carbon infrastructure, and positioning **energy efficiency at the heart** of the future energy system are essential to achieve sustainable development.
- This is a long-term undertaking and must embrace all pillars of sustainable development seeking to **leave nobody behind** and maintaining social cohesion and inclusion.

Furthering Sustainable Resource Management

- Articulate a vision of a **carbon-neutral circular economy** and embed it with significant country engagement and international cooperation.
- Embrace **circular economy principles** that integrate the full spectrum of the 2030 Agenda's goals and targets

“Sub-regional diversity is important in UNECE and collaboration part of any policy debate”



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- **Subregional Aspects** -> Each country will pursue its own pathway based on their economic circumstances and natural endowments. The UNECE region is comprised of high and low income countries, countries that are energy rich and energy poor as well as countries in economic transition. ***Lessons learned from subregional workshops****:

I. **Trade offs between Energy Security, Environment and Quality of Life** ->

Energy security: priority for economic development needed to pay for a *just* transition spanning generations.

Energy poverty: priority

- II. **Lack of investments** on subregional level to accelerate energy transition -> **achieving carbon neutrality and 2°C target is a shared responsibility**. There is need for partnerships, trade and dialogue on subregional level. Across UNECE there is unequal distribution of investment in energy infrastructure. Renewable energy potential remains untapped in the Caucasus, Central Asia, Russian Federation and South East Europe.

“Sub-regional diversity is important in UNECE and collaboration part of any policy debate”



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III. Need for institutional and structural reform ->

Combating corruption by promoting increased transparency and accountability of the energy sector

Improvement of the legal and regulatory framework to promote new business models.

IV. Promoting active citizenship -> maintenance of civil society initiatives and promotion of awareness rising campaigns.

- **Phase II -> There is limited willingness to cooperate on sustainable energy. More joint efforts are needed!**

This project is a good vehicle for informed collaboration on Pathways to Sustainable Energy. Collaboration requires a trusted source of shared up-to-date knowledge, common scenarios, forums for dialogue and shared experience.

- There is need for subregional and technology deep-drives for greater clarity on data and situation of energy sector.

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Detailed Scenarios and Modelling Results

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Presentation

Holger Rogner

Senior Analyst, International Institute for Applied System Analysis (IIASA)

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Detailed Scenarios and Modelling Results

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- 1. Methodology**
- 2. Scenario Development**
- 3. UNECE Primary Energy Demand by Scenario**
- 4. Subregional Final Energy Demand by Scenario**
- 5. UNECE Electricity Generation by Scenario**
- 6. Subregional Electricity Generation by Scenario**
- 7. UNECE Investment Requirements**
- 8. Subregional Investment Requirements**
- 9. Energy Affordability**
- 10. Energy Poverty**

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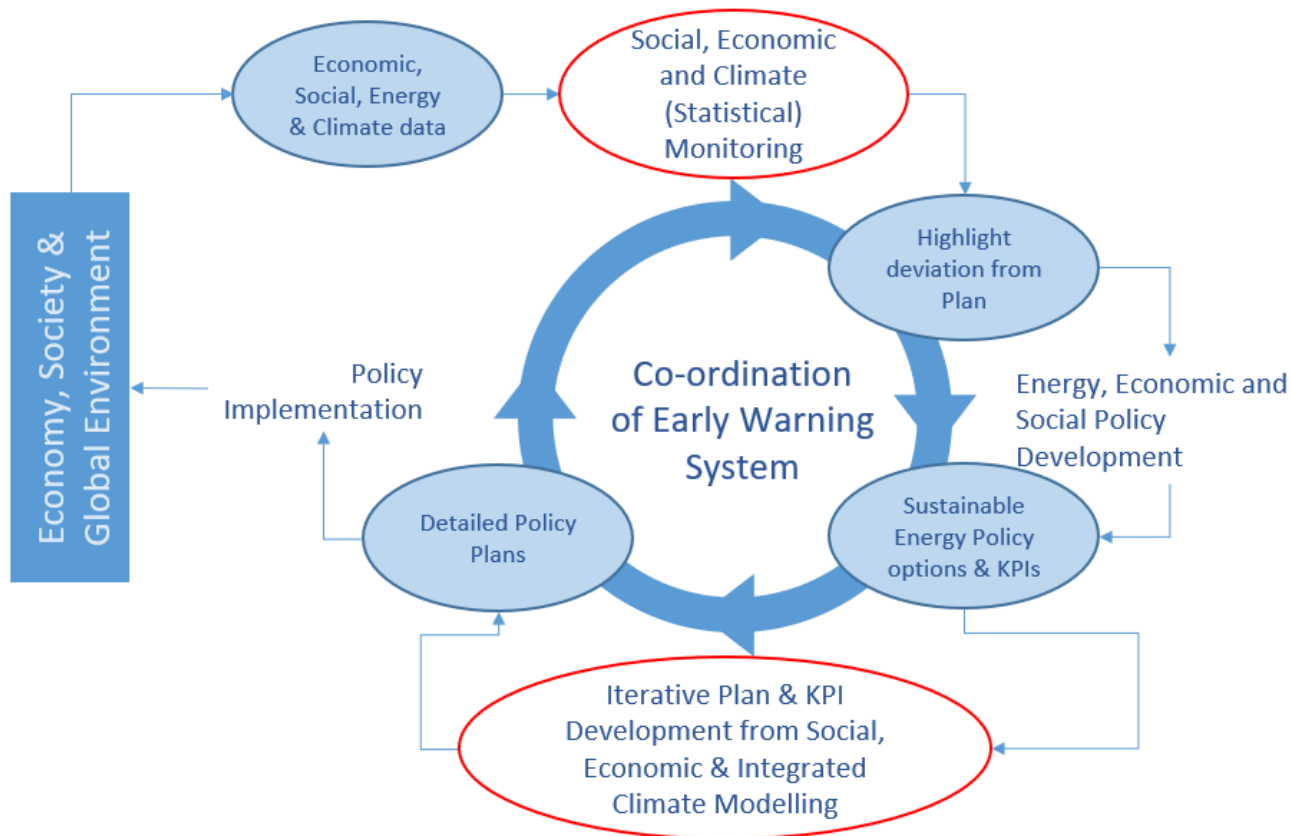
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Elements of an Early Warning System

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An early warning system requires an iterative process. Sustainable energy policies affect global economy and environment. Global challenges can be tracked and incorporated in the model making the regional monitoring process more realistic and relevant.



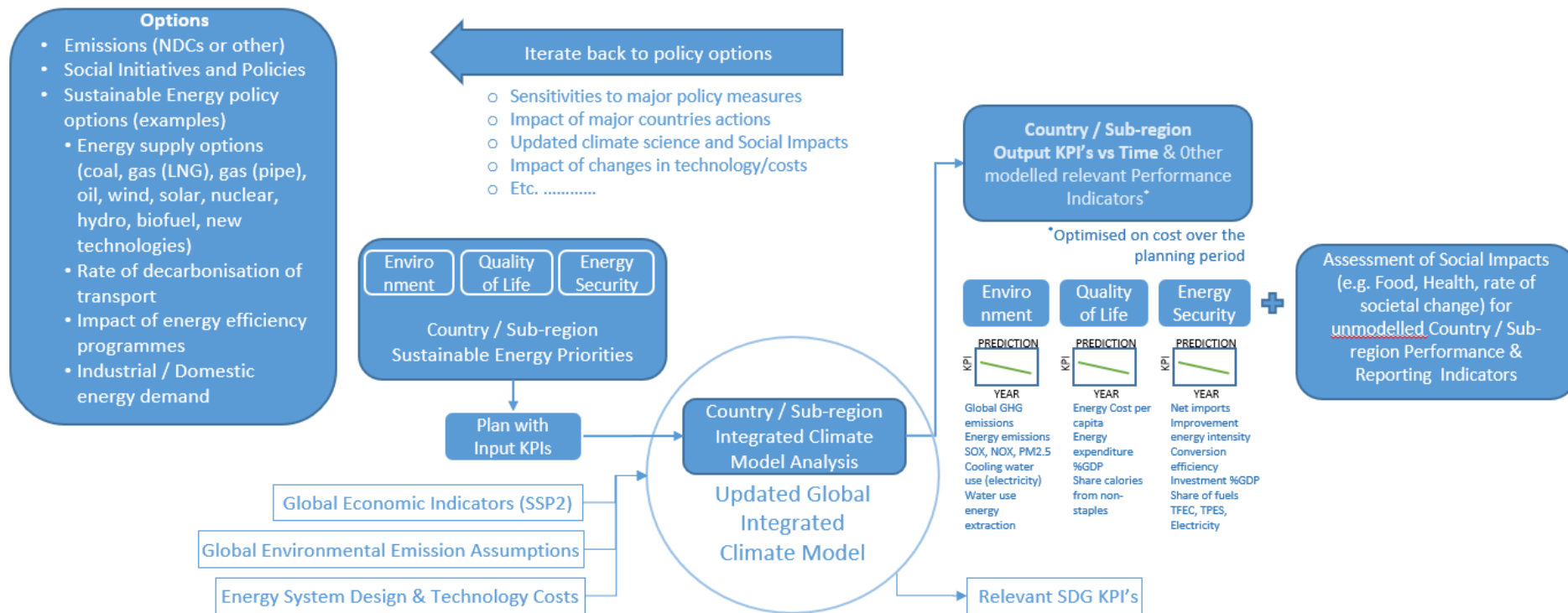
Note: for more information document "Early Warning and Planning System"

National Level Early Warning System

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This Early Warning System uses a two-layered approach. The first, and most important, layer is that of a Member State. The second is that of the UNECE region which is simply a summation of the individual country inputs created in a standardized format by using the same Integrated Energy and Climate Models.



Note: for more information document "Early Warning and Planning System"

Pathways to Sustainable Energy

Phase I - Results and Recommendations

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Strategic Options and Policy Recommendations from Phase I

Scott Foster

Director, UNECE Division on Sustainable Energy

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Strategic Options

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Countries can choose from various strategic approaches to achieve sustainable energy and meet their international climate commitments.

This project defines sustainable energy through three pillars that embrace sustainable energy goals – i) energy security, energy and quality for life and energy and environment.

The main challenge is to balance trade-offs among competing goals when designing energy policies.



Energy Champions

Countries turn to domestic or global energy champions to finance and manage needed investments while deploying an array of policy measures aligned (e.g, standards or fiscal incentives)



Policy Stretch

Countries consider that intensification of investment in energy efficiency and renewable energy and new entrants in both supply and demand sides accelerate the transformation to a low carbon energy system while meeting the demands of growing economies and populations



Deep Transformation

Countries undertake to transform energy fundamentally. The transformations cover pricing, tariffs, market design, market actors and enabling new categories of demand and supply side players



Focus on Energy Champions

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- **Implement efficiency standards in appliances, buildings, and industry**
- **Encourage market concentration and global collaboration among industry leaders**
- **Reinforce networks and extend interconnected operations on a wide regional basis**
- **Expand renewable energy capacity in large, central facilities with necessary storage or back-up capacity**
- **Develop a low-carbon transport infrastructure (electric, gas, hydrogen)**
- **Deploy CCS supported by policies similar to those deployed for other low or no carbon technology**
- **Deploy HELE technology to replace the least carbon efficient power technology world-wide**
- **In countries that accept nuclear power, build new plants with existing technology and develop next generation technology**



Focus on Policy

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- **Expand support for low-carbon energy sources, notably renewables, by increasing portfolio obligations and by enabling greater participation of low-carbon distributed generation**
- **Remove barriers to investment and enhance incentives to accelerate improvements in energy efficiency**
- **Remove subsidies that distort energy markets, specifically fossil and end-use subsidies**
- **Institute minimum performance standards for fossil fuel using technology (vehicles, powerplants)**
- **Encourage accelerated use of ICT to improve demand-side participation in energy markets, to improve efficiencies, and to enable greater penetration of intermittent renewables**
- **Encourage use of mechanical and chemical storage of electricity**
- **For countries that accept nuclear power, address capital exposure and improve risk management**
- **Invest in network infrastructure to support penetration of natural gas and to support increased regional penetration of intermittent renewables**



New Business Ecosystem



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- **Set a real and impactful price on carbon (greater than \$120/tonne CO₂). Apply world-wide with revenues generated used to support the transition in developing countries**
- **Invest in major energy infrastructure improvements in transport, power, and natural gas networks, socializing costs and access**
- **Remove all energy subsidies other than those designed to commercialize new technology**
- **Redesign energy markets to provide energy services (quality of life improvements are the business model)**
- **Deploy ICT to improve system connectivity and efficiencies, improve demand-side participation in energy markets, and enable greater penetration of distributed generation and intermittent renewables**
- **Conceive balancing markets in the power sector based on energy market boundaries and not political boundaries and enabling full participation by all stakeholders**
- **Deploy minimum performance standards throughout the energy system (emissions, power station efficiencies, appliance efficiencies, buildings etc.)**

Energy Security / UNECE Regional Interdependence



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- Most countries focus on national level actions whereas *a priori* it would appear that **global and regional solutions would be more effective if there were a culture of trust and reliability** in energy transactions.
- For the UNECE region, promoting **mutually beneficial economic-interdependence would accelerate attainment of the 2030 Agenda** through integrative nexus solutions that the notion of sustainable development offers.
- The **regional business models require a foundation of institutionalized investment and transaction frameworks**. Ensuring energy security as part of the ongoing deep transformation creates an imperative to mobilize needed investment in the energy system of the future that is rational and pragmatic socially, environmentally, and economically.
- **Concepts of energy security have evolved** over time from security of supply seen by consuming/importing countries to broader views of energy security that embrace supply, demand, and transit. With increasing penetration of digital technology throughout the energy system and with intensification of climatic events, **the energy system is exposed to new risks of either human (e.g., hacking or terrorist attacks) or natural origins (events like forest fires, hurricanes, or flooding from rising oceans)**. These additional security risks create an added imperative to address the challenge of resilience in terms of both planning and recovery.

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Discussion with the Subsidiary Bodies

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Moderator: Lisa Tinschert, Adviser, GIZ

Margalita Arabidze, Vice-Chair, Group of Experts on Renewable Energy

Raymond Pilcher, Chair, Group of Experts on Coal Mine Methane

Aleksandar Dukovski, Chair, Group of Experts on Energy Efficiency

Barry Worthington, Chair, Group of Experts on Cleaner Electricity Systems

Francisco Garcia de la Flor, Chair, Group of Experts on Gas

Sigurd Heiberg, Pathways Project Advisory Board Member
Expert Group on Resources Management

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Discussion with the Subsidiary Bodies

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Questions:

- **How can countries attain sustainable energy given technology development and deployment realities?**
- **What role can technologies play in the modernization of the energy system of the region?**
- **Is the energy transition possible at the proposed speed?
Are the proposals realistic?**
- **What would it take to accelerate and deepen the transition?**
- **What recommendations have not been mentioned?**
- **Which themes would deserve a deep-dive?**

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Energy Transition tools

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Transition Toolkit

Marzia Zafar, World Energy Council

Kopernikus Project ENavi - Energiewende Navigation System

Stefan Stückrad, Institute for Advanced Sustainability Studies (IASS)

Decision Theatre on sustainable mobility

Carlo Jäger, Global Climate Forum

Special
Session

Partners Activities

Energy Transition Tools

Transition Toolkit

ENavi - Energiewende navigation system

Theatre on Sustainable Mobility

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