

The project was considered during the 106th meeting, but no decision was taken

ECONOMIC COMMISSION FOR EUROPE

EXECUTIVE COMMITTEE

106th meeting
Geneva, 8 July 2019

Item 8

Informal Document No. 2019/33

Extrabudgetary project

**Improve understanding of the UNECE member States
on the role, potential and challenges of nuclear energy
in achieving sustainable development and climate change goals**

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

Project title: Improve understanding of the UNECE member States on the role, potential and challenges of nuclear energy in achieving sustainable development and climate change goals

Expected timing/ duration: September 2019 – December 2020

Objective and brief summary of the project: The objective of the project is to improve understanding of the UNECE member States on the role, opportunities and challenges of the nuclear energy in achieving sustainable development and climate change goals. The proposed project will evaluate assumptions and generate more specific information regarding nuclear energy in the project “Strengthening capacity of the UNECE member States to achieve the energy-related Sustainable Development Goals” (Pathways project, 2016–2021), and to improve the understanding of the social, environmental and economic aspects. While some countries have chosen not to pursue nuclear power, others choose to deploy nuclear power as part of their commitments to the 2030 Agenda for Sustainable Development and the Paris Climate Agreement. The results of analyses done to date under the Pathways project indicate an important continuing role for nuclear power as part of the energy mix going forward if the world is to meet its obligations to mitigate climate change while attaining sustainable development. These results were reinforced by a recent analysis by the IEA that achieving sustainable energy will be difficult if the operating lives of existing nuclear power stations are not extended. This project will explore the role that nuclear power could play in a future low-carbon energy mix. This project is one of a series of technology and regional deep dives being undertaken to support and complement the Pathways project. The first is a deep dive on natural gas, “Improved understanding of the UNECE member States on the role of natural gas in achieving 2030 Agenda for Sustainable Development and the Paris Climate Agreement” (January–December 2019) that is already underway. This second deep dive will explore in-depth the role that nuclear energy could play as a strategic option for countries to meet their international commitments. It will examine the economic, operational, and design assumptions embedded in the Pathways analysis and will consider: i) the potential for advanced nuclear technologies and small modular reactors to minimize capital and operating costs while meeting safety standards and obtaining social license to operate; ii) nuclear energy displacing higher carbon-intensity fuels in power generation, transport, heating, and other end-use markets; and iii) how nuclear energy can work with renewables to achieve the least emissions in the most cost-efficient and diversified way. A part of the exploration will involve a comparison of the full life-cycle health, safety and environmental impact of nuclear energy in comparison to other energy sources. The project will also study the associative aspects of nuclear energy in other sectors of the society, including health, industry, innovation, and gender participation in advanced sciences and technologies. The objective of the project will be achieved by implementing the following activities:

A1.1. Conducting an analysis on the full impacts on people and the environment of energy generation technologies associated with different pathways;

A1.2. Conducting an analysis on risks and uncertainties with different pathways;

A1.3. Organizing workshop to validate the market analysis, explore scenarios and prepare a summary report;

A1.4. Providing recommendations on updates to pathways modelling based on nuclear market analyses and system costs data;

A2.1. Developing a competitive market analysis of nuclear energy displacing higher carbon-intensity fuels in power generation, transport, heating, and other end-use markets, including advanced reactors, such as small modular reactors (SMR);

A2.2. Organizing a workshop on role nuclear energy can play to support the 2030 Agenda for Sustainable Development, especially its associative roles in other sectors of the social well-being and meeting the Paris Climate Agreement objectives;

A3.1. Conducting an analysis integration of nuclear with renewables and gas in optimizing the cost of decarbonisation of the electricity system;

A3.2. Organizing a workshop on the integration of nuclear with renewables and gas in optimizing the cost of decarbonization of the energy system;

A4.1. Conducting an analysis of the role of policy in nuclear energy deployment;

A4.2. Preparing a final report on nuclear energy’s role in the Pathways project.

Expected results of the project:

EA1. Confirmed assumptions regarding nuclear cost and technical parameters for consideration in the Pathways project;

EA2. Improved understanding by UNECE member States of the environmental performance of nuclear energy;

EA3. Improved understanding by UNECE member States of the opportunity to complement renewable energy using nuclear power;

EA4. Improved understanding by UNECE member States of the opportunities and challenges presented by nuclear energy.

Target group and beneficiaries of the project:

UNECE member States are beneficiaries of the project. The target audience for this project are senior officials from ministries of energy and industry, and national experts and financial institutions.

Justification of project and its relationship to the programme of work:

The project is directly 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 fuel, renewable energy, coal mine methane, mineral resource classification, natural gas and energy security” of Subprogramme 5 “Sustainable Energy” of the UNECE Strategic framework for 2018-2019. The project is directly linked to the objective of the Subprogramme 5 “Sustainable Energy” “to assist member States in ensuring access to affordable and clean energy for all and to help reduce greenhouse gas emissions and the carbon footprint of the energy sector in the region.” of the UNECE Proposed programme budget for 2020.

Estimated UN regular budget resources (work months of RB staff/level of Staff):

1 month of D1/ RB

Estimated extra budgetary resources

Donor	Amount (US\$)
World Nuclear Association	414,100
Project Manager: Scott Foster	Section/Division: Sustainable Energy
11.06.2019	
Cleared by Programme Management Unit: Catherine Haswell	Approved by EXCOM¹
11.06.2019	08.07.2019
Chief	
11.06.2019	

¹ See paragraph 31 (a) of Commission decision A(65).

Annex
Results-based budget for the extra-budgetary project

Expected accomplishments	Planned activities	Estimated cost (US\$)
EA1. Confirmed assumptions regarding nuclear cost and technical parameters for consideration in the Pathways project.	A1.1 Conduct an analysis on the full impacts on people and the environment of energy generation technologies associated with different pathways. P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 2 months International consultant to prepare a paper on full impacts (Life Cycle Assessment) to people and the environment of energy generation technologies associated with different pathways x 2 months x \$5000 per month	47,200 37,200 10,000
	A1.2 Conduct an analysis on risks and uncertainties associated with different pathways. P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 1 month International consultant to prepare a paper on risks and uncertainties associated with different pathways x 1 month x \$5000 per month	23,600 18,600 5,000
	A1.3 Organize workshop to validate the market analysis, explore scenarios and prepare a summary report. P3 staff to provide overall project management and coordination x \$13,500 x 2 months Travel of 3 experts x \$2000 Operating costs \$1000	34,000 27,000 6,000 1,000
	A1.4 Provide recommendations on updates to pathways modelling based on nuclear market analyses and system costs data. P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 2 months International consultant to conduct research and prepare a paper on recommended updates (2 months x \$5000 per month)	47,200 37,200 10,000
EA2. Improved understanding by UNECE member States of the environmental performance of nuclear energy	A 2.1 Develop competitive market analysis of nuclear energy displacing higher carbon-intensity fuels in power generation, transport, heating, and other end-use markets, including advanced reactors, such as small modular reactors (SMR). P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 2 months International consultant to prepare a paper on competitive market analyses of nuclear energy displacing higher carbon-intensity fuels x 1 month x \$5000 per month	42,200 37,200 5,000
	A2.2 Organize a workshop on role nuclear energy can play to support the 2030 Agenda for Sustainable Development, especially its associative roles in other sectors of the social well-being and meeting the Paris Climate Agreement objectives. P3 staff to provide overall project management and coordination x \$13,500 x 2 month Travel of 3 experts x \$2000 Operating costs \$1000	34,000 27,000 6,000 1,000
EA3. Improved understanding by UNECE member States of the opportunity to complement renewable energy using nuclear power	A3.1 Conduct an analysis integration of nuclear with renewables and gas in optimizing the cost of decarbonization of the electricity system. P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 2 months International consultant to prepare a report on the integration of nuclear with renewables and gas x 1 month x \$5000 per month	42,200 37,200 5,000
	A3.2 Organize a workshop on the integration of nuclear with renewables and gas in optimizing the cost of decarbonization of the energy system. P3 staff to provide overall project management and coordination x \$13,500 x 1 month Travel of 3 experts x \$2,000 Operating costs \$2,000	21,500 13,500 6,000 2,000
EA4. Improved understanding by UNECE member States of the opportunities and challenges presented by nuclear energy	A4.1 Conduct an analysis of the role of policy in nuclear energy deployment. P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 2 months International consultant to prepare assessment report x 1 month x \$5000 per month	23,600 18,600 5,000
	A4.2 Prepare a final report nuclear energy's role in for the Pathways project P4 staff to provide senior technical expertise on sustainable energy x \$18,600 x 1 month International consultant to prepare a final report x 1 month x \$5000 per month	42,200 37,200 5,000
Budget summary		357,700
Evaluation		5,000
13% of Programme Support Costs		47,151
Total (rounded)		410,000
1% Coordination levy		4,100
Grand Total		414,100