

Fifty-sixth session of the Working Group on Strategies and Review (22-25 May 2018)

**Thematic session on solid fuel residential heating as a source of air pollution and short-lived climate forcers**

Thursday, 24 May 2018, room XXV

**Rationale and Objectives**

Residential heating using solid fuels is a major source of particulate matter (PM) and black carbon emissions in the UNECE region and thus a significant contributor to air pollution and climate change. It is a difficult emission source to address given the diffuse nature of residential combustion appliances and the availability of solid fuels. Combustion of solid fuels (e.g., wood, pellets and coal), is known to emit high levels of black carbon, which is both a component of PM and a short-lived climate forcer. In view of this, Parties to the UNECE Convention on Long-range Transboundary Air Pollution have added PM, including black carbon as a component of fine PM, to the 1999 Protocol to Abate Acidification, Eutrophication and Ground-level Ozone (the Gothenburg Protocol) when it was revised in 2012.

This thematic session will discuss the issue of solid fuel residential heating in the UNECE region, including sources, emissions, impacts, and mitigation measures. Discussions in this thematic session on respective policy approaches taken by Parties will satisfy article 8 of the Convention regarding the exchange of experiences and best practices on policies, strategies and measures to implement the Convention's protocols and their amendments.

This session will also bring forward the current context under the Gothenburg Protocol for addressing emissions from solid fuel residential heating, including how this sector is being addressed within the Convention's current workplans (e.g., the Task-Force on Techno-economic Issues) and where further consideration may be needed, such as possible mechanisms for Parties to prioritize addressing rich sources of black carbon.

**Format of the session**

The session will include presentations from a number of countries and international organizations and other stakeholders to showcase different measures taken, at the national, regional and global level. It will also include a panel discussion, that will focus on the various emission reduction measures and comprehensive policy solutions addressing in a balanced way the air quality, climate, health and energy aspects of solid-fuel residential heating.

The session will feature two parts: the morning will focus on the scientific and technological context and actions taken by international and regional actors and stakeholders, and the afternoon will focus on national actions by Parties to the Convention. The afternoon will contain the panel discussion.

**Chairs' Summary**

A Chairs' summary of the thematic session will be drafted and annexed to the WGSR56 Report. Delegates could also consider conclusions for the report itself.

## PROGRAM OVERVIEW

**Side Event on Seasonal Air and Climate Pollution:** Wednesday, 23 May, 18:30-20:30, World Meteorological Organization (7bis Avenue de la Paix, Geneva)

<b>Thursday, 24 May, room XXV</b>  <b>10:00 – 10:20</b>  <b>Opening remarks</b>	Introduction by the Chair of the Working Group on Strategies and Review	Jennifer Kerr, WGSR Chair
	Welcoming remarks <ul style="list-style-type: none"> <li>How addressing emissions from residential solid fuel heating helps to achieve the 2030 SDGs</li> </ul>	Marco Keiner UNECE Environment Division Director
	Energy efficiency in buildings	Scott Foster, UNECE Sustainable Energy Division
<b>10:20 – 11:40</b>  <b>Overview of sources, emissions and impacts on air quality, climate and health</b>  <b>Chair: Till Spranger (WGSR Vice-Chair)</b>	Domestic heating and its impact on health	Dorota Jarosinska, WHO-Europe
	Emissions from wood/solid fuel burning in the UNECE region, and air and climate impacts	Zig Klimont - International Institute for Applied System Analysis
	Ambient air quality impacts - source apportionment results from Canada	Maygan McGuire – Environment and Climate Change Canada
	Results from INERIS from source apportionment, emissions factor testing and ambient monitoring	Laurence Rouil – INERIS and EMEP Steering Body Chair
	Black carbon emissions performance testing protocol development: lessons learned from ICCI/Nordic labs experience	Svante Bodin, International Cryosphere Climate Initiative
	TemaNord Project: Improving emissions inventories of short-lived climate pollutants in Nordic countries	Petra Hagström – Swedish Environmental Protection Agency
<b>Coffee Break</b>		
<b>12:00 – 13:00</b>  <b>Technological options and policy context for reducing emissions from solid fuel residential heating</b>	Overview of techno-economic work on best available techniques for solid fuel residential heating	Tiziano Pignatelli, Co-chair of the Task Force on Techno-economic Issues
	Overview of technological developments <ul style="list-style-type: none"> <li>Typical stoves used in various parts of UNECE</li> <li>Overview of best available technologies</li> </ul>	Marco Palazzetti CEFACD – European Committee of manufacturers of domestic heating and cooking appliances
	Wood energy: “More heat with less wood”	Florian Steierer

<b>Chair: Ivan Angelov (WGSR Vice-Chair)</b>		UNECE Forestry and Timber Section
	Overview of the treatment of emissions from solid fuel from residential heating and black carbon in the Gothenburg Protocol	Jennifer Kerr, WGSR Chair
	Messages from the Saltsjobaden VI workshop relevant to the residential heating sector	Jean-Guy Bartaire, co-chair of the Task Force on Techno-Economic Issues
<b>Lunch Break</b>		
<b>14:30 – 15:00, Room XXV</b>	<b>Side event: “Wood energy in the UNECE region”</b>	
<b>15:00 – 16:10</b>  <b>International and domestic policy approaches to reducing emissions from solid fuel residential heating</b>  <i>Parties and other international organizations will present their experiences in terms of policy approaches or a technological solutions and/or barrier and challenges</i>  <b>Chair: Paul Almodovar (WGSR Vice-Chair)</b>	International and domestic policy approaches to reducing emissions from solid fuel residential heating: Overview of recommendations	Pam Pearson, International Cryosphere Climate Initiative
	Ecodesign standards (2022): Implications for UNECE EMEP countries	Roald Wolters European Commission
	Poland: Domestic heating and the LIFE Project in the Malopolska Region	Piotr Lyczko, Marshal Office of the Maloposlka Region
	United Kingdom	Brendan Mahon – DEFRA
	Estonia	Marek Maasikmets – Estonian Environmental Research Centre
	Stakeholder engagement and relevant activities on woodstoves (Burn Right)	Heidi Sevestre, International Cryosphere Climate Initiative
	Italy	Cristina Leonardi - Ministry of Environment, Land and Sea
	Chile	Rodrigo Dittborn - Ministry of the Environment
	United States	Larry Brockman – US EPA
<b>Coffee Break</b>		
<b>16:30 – 17:30</b>	Finland	Mikko Savolahti -Finnish Environment Institute

<b>International and domestic policy approaches to reducing emissions from solid fuel residential heating (ctd)</b>  <i>Parties and other international organizations will present their experiences in terms of policy approaches or a technological solutions and/or barrier and challenges</i>  <b>Chair: Jennifer Kerr (WGSR Chair)</b>	Lithuania	Paulius Žvirblis - Ministry of Environment
	Canada	Maygan McGuire – Environment and Climate Change Canada
	Germany	Sabrina Rippl - Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
	Ireland	Michael Young – Senior Advisor – Environment
	Switzerland	Gaston Theis – Federal Office of the Environment
	Russia	Alexander Romanov – Deputy Director General – International Cooperation SRI Atmosphere JSC
	France	Claire Rosevegue – Ministère de la Transition Écologique et Solidaire
	Poland	Kinga Majewska – Ministry of the Environment
<b>17:30 – 17:55</b>  <b>Panel discussion: Moving forward</b>  <b>Chair: Anna Engleryd (EB Chair)</b>	Summary and Path Forward	Panellists: <ul style="list-style-type: none"> <li>• Jennifer Kerr</li> <li>• Zig Klimont</li> <li>• Svante Bodin</li> <li>• Till Spranger or Sabrina Rippl</li> <li>• Tiziano Pignatelli</li> <li>• Scott Foster</li> </ul>
<b>17:55-18:00</b> <b>Closing remarks</b>		Jennifer Kerr, WGSR Chair

## **BACKGROUND**

### **Gothenburg Protocol and Emissions from Solid Fuel Residential Heating**

With the addition of particulate matter, specifically to prioritize sources of PM that are also significant sources of black carbon, to the amended Gothenburg Protocol, it became the first legally binding instrument to include a focus on short-live climate forcers. The commitment under the Gothenburg Protocol sets emission reduction targets for PM emissions for 2020. In order to facilitate the implementation of their basic obligations under the protocol, Parties are required to apply measures to encourage the increase of energy efficiency and the use of renewable energy (art. 6 (c)).

The Gothenburg Protocol also recommends measures for achieving emission reductions of PM from the residential combustion installations (annex X). It recommends emission limit values for new residential combustion installations with a rated capacity of less than 500 kW hours, as well as the application of product standards (as described in the European Committee for Standardization (CEN standards)) and ecolabels. For existing residential combustion stoves and boilers, it recommends public information and awareness-raising programmes with regard to proper operation of stoves and boilers, the use of untreated wood and the correct seasoning of wood for moisture content, promotion of the replacement of the oldest existing boilers and stoves by modern appliances or an obligation to exchange or retrofit old appliances.

### **Sustainable Development Goals**

The 2030 Agenda requires coordinated action between various sectors, at various levels, as well as integrated solutions, due to the comprehensive and interlinked nature of the sustainable development goals.

As wood is a major fuel used for small-scale residential heating, it is directly relevant to sustainable development goal (SDG) 7. Its use has been encouraged as a renewable source and is relevant to the achievement of target 7.2. While it is perceived as a “green” option, incomplete combustion of wood is a source of PM emissions which has adverse effects on human health, causing in particular respiratory and cardiovascular diseases. It contributes to high PM concentrations in many urban environments. Exposure levels can be high due to the proximity of emitting sources to the people. This also then makes it relevant to the achievement of SDG 3.4 and SDG 11.6.2.

Emissions from wood burning can vary significantly depending on user behaviour and on the quality of the wood being burned. They can be lowered several times if burning is made in the right conditions and with the right type of wood.

While there are a number of technical measures that can ensure increased efficiency of wood burning and heat produced, a crucial factor is the characteristics of the housing in which it is used, i.e. the energy efficiency. Insofar, as these measures are accompanied by measures to increase the energy efficiency in buildings, it is relevant to SDG 7.3.

In addition to the significant benefits for health, reducing emissions from residential burning can also have significant benefits for climate, especially in the short-term. Increasing the efficiency of wood burning for residential purposes reduces the emissions of CO<sub>2</sub> as well as short-lived climate forcers such as black carbon (a component of PM) and methane, thus contributing to the achievement of SDG 13.

<b>The residential heating sector and the 2030 Agenda</b>	
<b>Goal 3:</b>	Ensure healthy lives and promote well-being for all at all ages
Target 3.4	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
<b>Goal 7:</b>	Ensure access to affordable, reliable, sustainable and modern energy for all
Target 7.2	By 2030, increase substantially the share of renewable energy in the global energy mix
Target 7.3	By 2030, double the global rate of improvement in energy efficiency
<b>Goal 11:</b>	Make cities and human settlements inclusive, safe, resilient and sustainable
Target 11.6	By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management
	Indicator 11.6.2: Annual mean levels of fine particulate matter (e.g. PM <sub>2.5</sub> and PM <sub>10</sub> ) in cities (population weighted)
<b>Goal 13:</b>	Take urgent action to combat climate change and its impacts
Target 13.2:	Integrate climate change measures into national policies, strategies and planning