

Key Facts about Black Carbon

- 1 Black carbon—commonly known as soot—is a component of fine particulate matter (PM2.5) emitted from the incomplete combustion of fossil fuels and biomass.
- 2 It warms the atmosphere by absorbing sunlight and emitting the excess energy as heat.
- 3 When it falls out of the atmosphere onto snow or ice, black carbon accelerates the rate of melting. Reductions in the extent of snow and ice lead to rapid warming in the Arctic.
- 4 Globally, black carbon's impact on climate is exceeded only by that of carbon dioxide and methane.
- 5 Black carbon has contributed significantly to recent Arctic warming.
- 6 Inhaling fine particulate matter (of which black carbon is a key component) can exacerbate respiratory and cardiovascular illnesses in humans.
- 7 Because black carbon lasts only a few days or weeks in the atmosphere, reducing emissions can act as a rapid brake on Arctic warming, helping to slow the rate of change while nations implement long-term strategies to address global warming.

Specific activities under the EU Action

- Assessing black carbon data to identify knowledge gaps, improve source quantification, and evaluate black carbon's impact on climate in the Arctic;
- Publishing international inventories and projected emissions of black carbon;
- Developing modelled scenarios for policy options to reduce black carbon emissions;
- Guidance documents on best available techniques (BAT) for reducing black carbon emissions from gas flaring and domestic heating; and
- Communicating findings to key stakeholders, with a special focus on coordination with the Arctic Council and UN ECE Convention on Long-range Transboundary Air Pollution, and cooperation across regional, national, and international black carbon initiatives.

For more information and updates, please visit www.eua-bca.amap.no

Implementing Partners

- Arctic Monitoring and Assessment Programme (AMAP) Secretariat
- Carbon Limits (CL)
- Environment Agency Austria (EAA)
- Finnish Environment Institute (SYKE)
- International Institute for Applied Systems Analysis (IIASA)
- Norwegian Institute for Air Research (NILU)
- Swedish Environmental Research Institute Ltd. (IVL)

For more information:

Contact AMAP Secretariat
www.eua-bca.amap.no



This document has been produced with the financial assistance of the European Union. The contents of this document are the sole responsibility of the authors and can under no circumstances be regarded as reflecting the position of the European Union.

For further information, visit www.eua-bca.amap.no

Action on Black Carbon in the Arctic: A European Union Initiative to Support International Policy Development

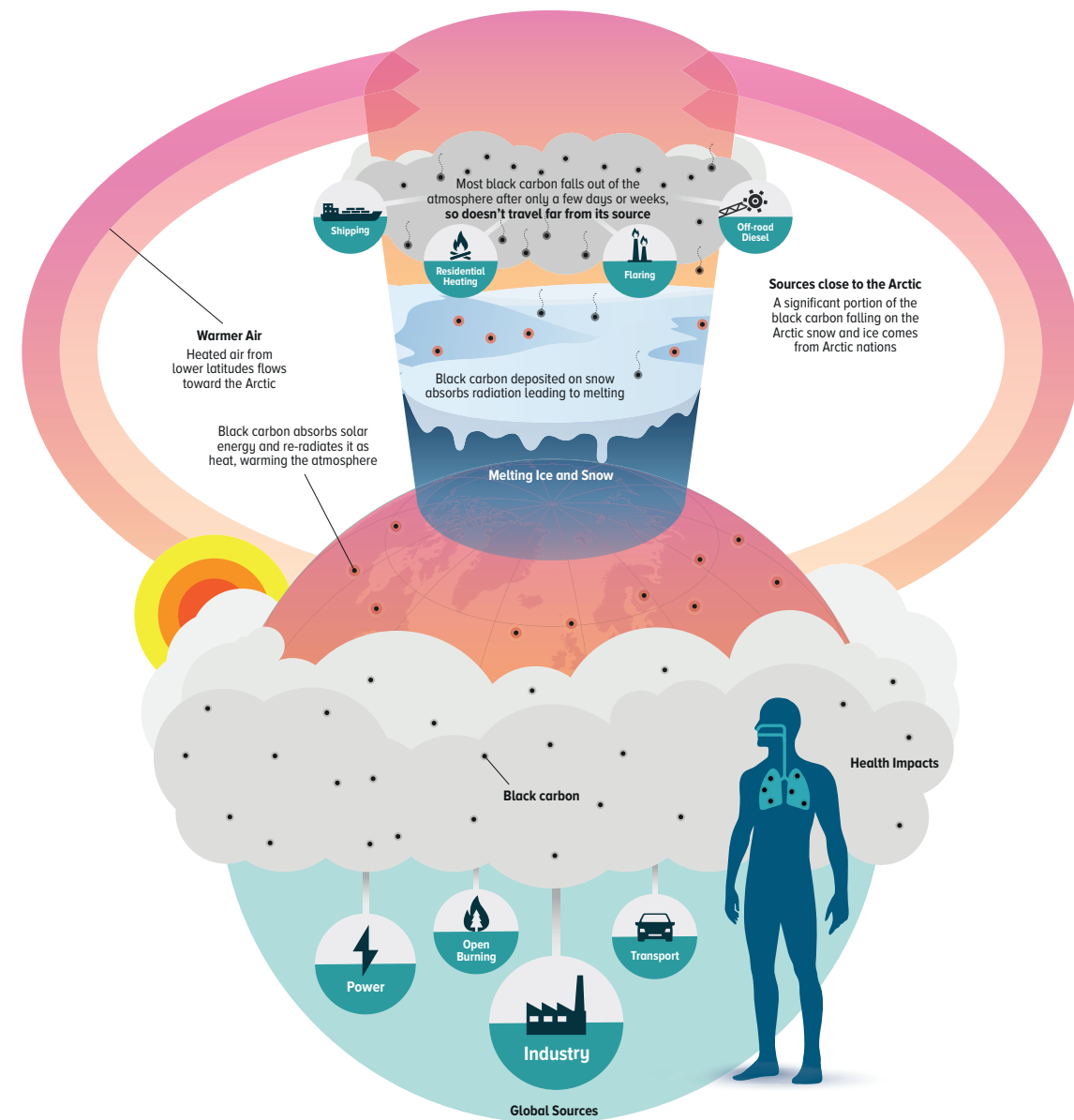


Why is black carbon a concern in the Arctic?

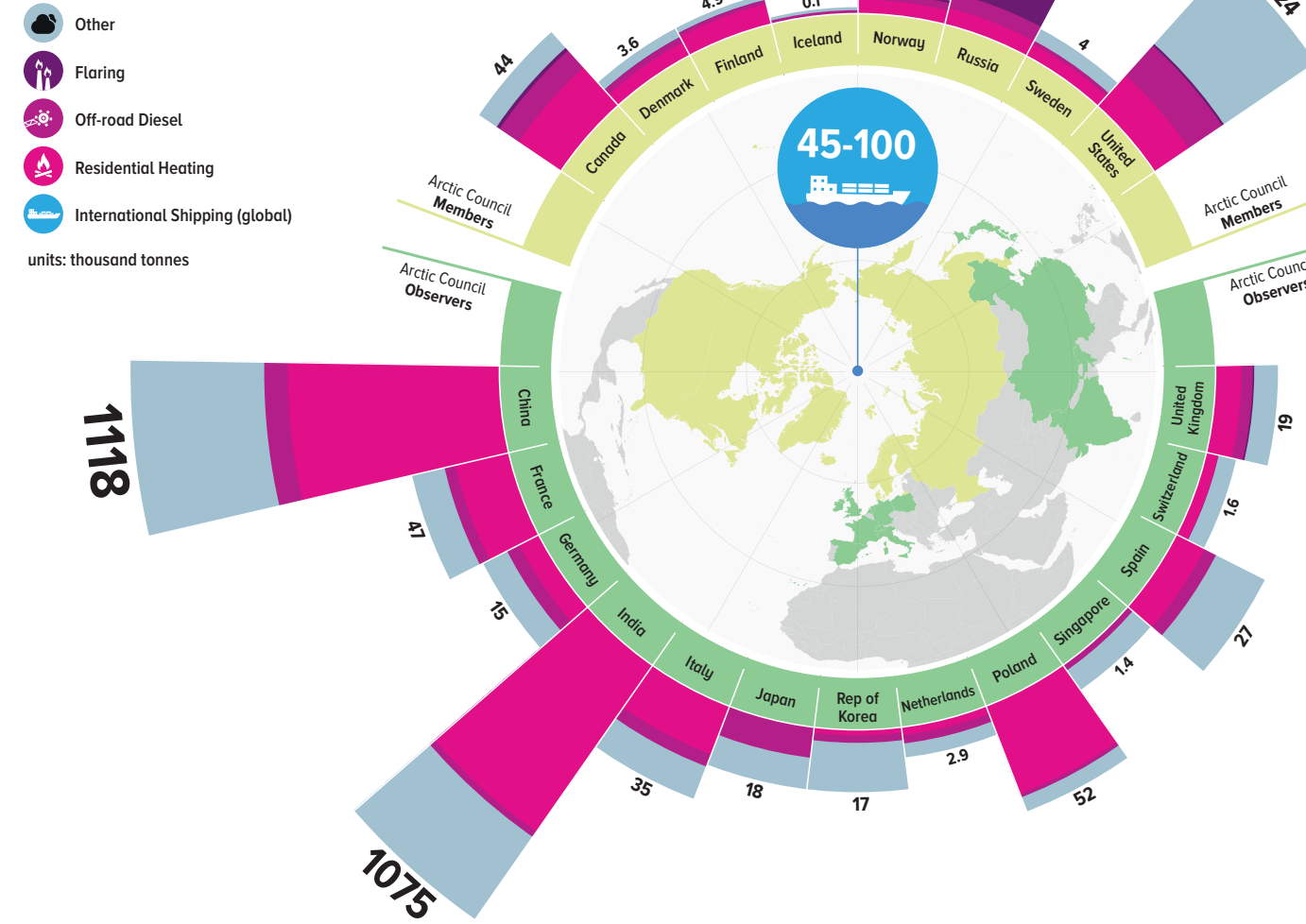
Black carbon—commonly known as soot—is a tiny particle formed by the incomplete burning of fossil fuels, biofuels, and biomass. Although it remains in the atmosphere for just a few days or weeks (compared with a century or more for carbon dioxide), it is a major short-term contributor to global warming. Scientists estimate that black carbon’s impact on the Earth’s climate is exceeded only by that of carbon dioxide and methane. It can also exacerbate respiratory and cardiovascular illnesses in people.

In the atmosphere, black carbon affects the Earth’s temperature by absorbing solar energy and releasing it as heat. When it falls out of the atmosphere onto ice or snow, it warms the surface and dramatically increases the rate of melting. Because snow and ice reflect solar energy back out to space, reductions in their extent lead to more warming. This feedback loop is one reason why the Arctic is warming more than two times faster than the rest of the world.

Studies suggest that black carbon has contributed significantly to recent warming in the Arctic. Its short lifetime in the atmosphere means that reducing black carbon emissions can have immediate benefits, allowing nations to quickly slow warming in the Arctic and elsewhere while they work on longer-term measures to address global climate change.

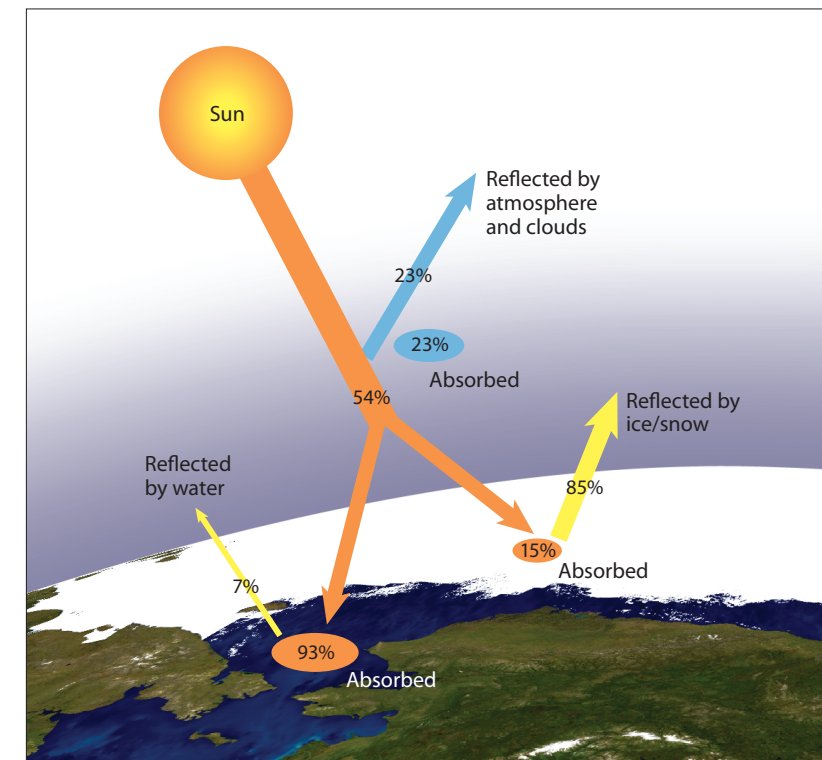


Black Carbon Emissions from Arctic Council Member and Observer States in 2015



Where do black carbon emissions come from?

Important natural and human sources of black carbon emissions include wildfires, the burning of agricultural and solid waste, residential wood burning, gas flaring, maritime shipping, and the combustion of diesel fuel. Arctic nations are responsible for about a third of the Arctic warming caused by black carbon, even though they produce only about 10% of global human black carbon emissions. Most black carbon particles do not travel far from their source, so emissions produced closest to the Arctic tend to have the greatest impact.



What is the European Union Action on Black Carbon in the Arctic?

The European Union (EU) Action, which runs from 2018–2020, will contribute to efforts to reduce black carbon emissions in the Arctic by:

- Supporting the development of commitments and targets to limit production of Arctic black carbon, with a focus on the three regionally important human sources from Arctic nations (gas flaring from oil and gas fields, residential heating—including heating stoves and diesel fuel use—and maritime shipping); and
 - Enhancing international cooperation on black carbon policy in the Arctic region.
- The Action has four major work components:
- Improving the knowledge base on black carbon emissions,
 - Increasing awareness and sharing knowledge,
 - Preparing technical advice documents and scenario analyses, and
 - Supporting development of a roadmap for international cooperation on black carbon.

Why is the EU interested in taking action on black carbon in the Arctic?

The Arctic is a strategically important region and is experiencing dramatic, transformative impacts from climate change. The EU recognizes the importance of taking action now on black carbon to reduce its warming effect on the Arctic, improve air quality, and protect human health. Cost-effective technologies to reduce black carbon emissions already exist and can be implemented now.

How can the EU influence the actions of Arctic nations?

The eight Arctic nations—Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States—are all members of the Arctic Council. The EU is also represented on the Arctic Council by its three members (Denmark, Finland, Sweden) and seven official Observer nations. The EU itself has ad hoc Observer status on the Arctic Council. The EU Action supports the Arctic Council’s work, and will contribute to the climate and clean air policies and health benefits of Arctic and non-Arctic nations through measures to reduce black carbon emissions.

The EU will also coordinate its work under the Action with other relevant international efforts addressing

black carbon, including those under the UN Economic Commission for Europe’s Convention on Long-range Transboundary Air Pollution, the Climate and Clean Air Coalition, the Intergovernmental Panel on Climate Change, and the United Nations Framework Convention on Climate Change, as well as the World Bank, International Maritime Organisation (IMO) and Organisation for Economic Cooperation and Development (OECD).

The Action will seek a future common direction (roadmap) for many nations and organizations to take action together to reduce black carbon emissions in the Arctic and its impacts related to climate change and human health.