Arctic Council Task Force on Short-Lived Climate Forcers:
Progress Report and Recommendations for Ministers

The Arctic Council Ministerial Tromsø Declaration from April 2009 created the Task Force, charging it:

> *to identify existing and new measures to reduce emissions of these [short-lived climate] forcers and recommend further immediate actions that can be taken and to report on progress at the next Ministerial meeting*

In November 2009, the Senior Arctic Officials further refined this charge through the approval of Operating Guidelines that agreed the Task Force could initially focus on black carbon. The focus on black carbon does not represent a judgment by the Task Force that black carbon is more important than methane or other climate forcers in terms of Arctic impacts.

Key Findings

Carbon dioxide emissions are the dominant factor contributing to observed and projected rates of Arctic climate change. However, addressing short-lived climate forcers such as black carbon, methane and ozone offers unique opportunities to slow Arctic warming in the near term.

Black carbon emitted both within and outside of the Arctic region contributes to Arctic warming. Per unit of emissions, sources within Arctic Council nations generally have a greater impact.

There are strong regional differences between the climate effects of black carbon sources in the Arctic versus most other parts of the world.

Unlike the case for methane and other well-mixed greenhouse gases, the most effective black carbon control strategies for Arctic climate benefits will vary by location and season.

Additional measurements, research and analysis will be needed to better identify which specific black carbon mitigation measures—both inside and outside of the Arctic Council nations—will lead to the largest Arctic climate benefits.

Controls on black carbon sources that reduce human exposure to particulate pollution improve health, and in that regard many measures can be considered no-regrets.

The largest sources of black carbon emissions in Arctic Council countries have been identified.

To maximize climate benefits, particulate matter (PM) control programs should aim to achieve maximum black carbon reductions.

Total Arctic Council black carbon emissions are projected to decrease if existing and planned land-based transport regulations are effectively implemented, though this is not uniform across countries or sectors.

Emissions from sources other than land-based transport will likely remain the same or increase without new measures.

Co-operation in other international forums is needed.

Recommendations for the Arctic Council and Its Member Nations

Based on the above findings, the Task Force recommends that Arctic Council nations individually and collectively work to implement some early actions to reduce black carbon.

The Task Force recommends that Arctic Council nations continue their efforts to estimate and develop black carbon emission inventories, and to voluntarily and periodically share these inventories.

The Task Force recommends that Arctic Council nations consider specific mitigation options for the transport, residential, agricultural and forest burning, and shipping sectors; and periodically share information on progress in reducing their black carbon emissions.

Measures to reduce black carbon from transport, especially diesel-powered , could include more retrofitting of older vehicles and equipment, retirement of old engines, vehicles and equipment, and enhancing or expanding current controls to the extent that PM standards are not in place.

Similar retrofit, retirement, or replacement measures could be applied to reduce black carbon emissions from stationary engines and equipment.

Measures to reduce black carbon from residential heating could include standards, change-out programs, technologies for more efficient combustion and retrofits addressing wood stoves, boilers and fireplaces.

To reduce black carbon from agricultural burning, prescribed forest burning and wildfires, measures could include demonstration projects for management alternatives to burning, prevention of accidental fires, and greater resources devoted to fire monitoring and prevention. When controlled burning is necessary, management techniques may help reduce emissions or limit their impacts.

Measures to reduce black carbon from marine shipping in and near the Arctic could include Council-wide adoption of voluntary technical and non-technical measures, [adoption of the proposed amendment of MARPOL Annex VI to establish an Energy Efficiency Index,] and collaboration with IMO on other certain actions.

For gas flaring, it is premature to identify specific black carbon mitigation options but increased research and better emission inventories are recommended to improve understanding of the significance of this source.

Arctic Council actions on black carbon mitigation offer an important leadership opportunity to promote near-term Arctic climate protection.

Future of Arctic Council Work on Short-Lived Climate Forcers:

The Task Force urges the Arctic Council and Council nations to carefully consider the findings and recommendations contained herein in order to help identify future priority work areas. The Task Force also recommends that the information contained herein be viewed in combination with other relevant information, such as the results from the AMAP Expert Group.

The Task Force recommends that the Arctic Council continue its work in this area.

Consideration should be given to mechanisms for facilitating the sharing of information on emissions, impacts, and mitigation options across Arctic Council nations. This information should also be made available to AMAP and ACAP or other Council bodies for their specific needs.

The Arctic Council and Council nations may be able to leverage existing methane efforts to encourage additional methane reductions, both within and outside Arctic Council nations, by communicating and demonstrating the climate benefits of such measures specifically for the Arctic.