

Approaches on
Heatstoves,
"Combined"
Stoves,
Coalstoves:
Nordic and Arctic
Councils, CLRTAP
and CCAC



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Black Carbon Policy Work on Woodstoves

Nordic Council: 2011-15

- Focus on raising consciousness of BC issues (governments, producers, general public) and Eco-labelling need for BC testing protocol
- Final study and retrospective policy survey of past Nordic country measures: www.norden.org
- Follow-on project (2015) focused on refining BC testing protocol

“ACAPWood”: Arctic Council, 2012-14

- Focus on government emissions reporting and past policies of seven (six) Arctic Council nations
- Final report at: www.arctic-council.org

CCAC: 2015-18

- Five components: expanded BC protocol testing, producer outreach, Burn Right campaigns, combined cooking and heating stoves – and forward policy recommendations (ongoing 2018)

Mitigation – Three Approaches

- **EXISTING STOVES: "Burn Right!" (CCAC and national campaigns)**
 - Emissions reduced 30-50%-even up to 80 % where people "burn very wrong"
 - Good first step with low costs - local or national information campaigns
 - Guidance aimed at reducing BC/PM2.5 for climate/glacier/Arctic and health benefits – or simple economics
 - Lighting phase most important for emissions of BC: "light from the top"
 - Has not previously included any mention of climate impacts
- **FUEL or TECHNOLOGY switching:**
 - Change to pellets, wood chips, LPG, propane, electric etc. or other domestic heating systems like heat pumps-geothermal, waterborne systems/boilers, district heating

Mitigation – Three Approaches

- **NEW STOVES:** Development/introduction of low-BC/PM2.5 stoves and associated measures/regulations
 - Not an issue of technology development: Very low-BC and PM2.5 stoves using whole logs already exist (reverse combustion/inverted flame or “Bionic fire” stove)
 - Nordic Council of Ministers: new BC testing protocol found many low-BC stoves (and “bionic fire” even better than pellet stoves)
 - No country (including EU, Nordics and U.S./Canada) has BC standards – so great potential for regulation and voluntary “climate-friendly” standards for new stoves by producers and eco-labeling programs
 - Incentives for buying new stoves-phasing out old stoves: phase-out programs, tax and monetary incentives, banning use of old, inefficient stoves in regions and locally
 - Here again: has not previously focused on mitigating BC, only other smoke pollutants

Gaps: Combined Cooking & Heating Stoves

- Combined cooking and heating stoves are not accounted for in global or regional emission inventories and models, including GAINS
- Mapping this use important specifically close to snow and ice
- No accepted protocol for BC emissions
- Legacy use greater than conventional wisdom (UK/Ireland, coal, peat – see next slide!)
- Two major patterns?:
 - Primary cooking with spillover heating needs (mostly at night), more temperate and alpine regions
 - Primary heating with some cooking and **IMPORTANT** hot water functions (perhaps 30-50% of daily use)

Gaps: Residential Coal Heating

- Limited data on allocation of coal use in residential sector between cooking and heating stoves, as well as heating boilers – and in unexpected countries
- Focus on fuel use rather than total emissions
- No accepted protocol for BC emissions
- Lab testing versus field/user error
- What about PEAT (!) stoves (Ireland/Scotland)
- Is this a discrete category, or are all coal stoves also “combined use” (answer seems to be yes)

Annex X of the Revised Gothenburg Protocol

Table 12

Recommended limit values for dust emissions released from new solid fuel combustion installations with a rated thermal input < 500 kWth to be used with product standards

	<i>Dust (mg/m³)</i>
Open/closed fireplaces and stoves using wood	75
Log wood boilers (with heat storage tank)	40
Pellet stoves and boilers	50
Stoves and boilers using other solid fuels than wood	50
Automatic combustion installations	50

Note: O₂ reference content: 13%.

(ii) Emissions from existing residential combustion stoves and boilers can be reduced by the following primary measures:

a. Public information and awareness-raising programmes regarding:

i. The proper operation of stoves and boilers;

ii. The use of untreated wood only;

iii. The correct seasoning of wood for moisture content.

b. Establishing a programme to promote the replacement of the oldest existing boilers and stoves by modern appliances; or

c. Establishing an obligation to exchange or retrofit old appliances.

(b) Non-residential combustion installations with a rated thermal input 100 kWth–1 MWth:

Recommendations for Further GP Work

1) Develop guidance documents on :

- **Burn Right** - Awareness Raising, National Campaigns, Burn Right Instructions and support
- **Phase out programs for old stoves** – economic and other incentives for replacing old stoves by new stoves .

2) Review and revise Table 12 of the Annex X of the revised GP concerning emission limit values for new stoves on the market:

- Addressing testing protocols for BC and PM2.5
- Reviewing and revise emission limit values, taking into account BAT since 2012

3) **Voluntary Eco-labelling:** Consider guidance on undertaking voluntary performance labelling of new stoves using more stringent emission limit values for PM2.5 and BC, working proactively with stove producers

4) **Agreed BC Testing Protocol** (Nordic/CCAC Report Summer 2018) – currently completing beta-testing by seven countries

5) **Further Work Exploring Combined Stoves and Coal [Peat?] Stoves**

CCAC Project: Draft Key Recommendations to Reduce Black Carbon from Heating Stoves

1. Put in place ambitious emission limits and efficiency standards for new wood-burning heating stoves, with strict emission limits for both black carbon and particulate matter
2. Agree on a harmonized testing method for measuring black carbon from wood burning stoves
3. Implement strong incentives to replace older, dirtier wood stoves with newer, cleaner stoves
4. Set up and expand public education and awareness campaigns on appropriate wood burning practices and stove maintenance

Key Recommendations, continued

5. Integrate even higher black carbon emission limits into eco-labeling schemes for wood-burning stoves
6. Without effective change-out programs, the only timely solution is to prohibit or restrict wood-burning heating stoves
7. Adopt and fund household energy efficiency programs
8. Put in place fuel quality specifications
9. Set up innovative R&D programs to help stove manufacturers develop cleaner, more efficient stoves
10. Develop and implement monitoring and evaluation of policy and regulatory measures



Thank you!

norden.diva-portal.org

oaarchive.arctic-council.org

www.burnright.org