

National Report by Poland 2018

Enhanced Black Carbon and Methane Emissions
Reductions – Arctic Council Framework for Action

Ministry of Environment Information about current methane and black carbon emission reduction in Poland – insert for Arctic Council rapport

1. Summary of current black carbon emissions to CLRTAP, where appropriate, and, if available, future projections

Poland fulfills its obligation for preparing *Informative Inventory Report* under UN ECE Convention on Long-range Transboundary Air Pollution (CLRTAP), signed in November 1979 in Geneva. Emission estimates in Poland account for sulphur dioxide, nitrogen oxides, ammonia, carbon monoxide, particulate matter (PM_{2.5}, PM₁₀, black carbon and total suspended particulates - TSP), non-methane volatile organic compounds (NMVOCs), heavy metals (HMs) and persistent organic pollutants (POPs) including dioxins (PCDD/F), HCB, PCB and PAH.

The information on air pollutant emissions, including black carbon, was included in the *Informative Inventory Report* submitted in March 2018 to the European Union, the European Environment Agency (EEA) and the UN ECE Convention on Long-range Transboundary Air Pollution. The report is available on the EEA website:

https://cdr.eionet.europa.eu/pl/eu/nec_revised/iir/envwqokxg/

Poland, as Arctic Council Observer State, has followed Annex B guidance of *Enhanced Black Carbon and Methane Emissions Reductions an Arctic Council Framework for Action* and since 2017 has submitted information on emissions of black carbon (BC). BC emissions in the years 1990 – 2016 are presented below. Projections of air emissions as reported to CLRTAP in 2017 do not include black carbon.

Table 1. Emissions of BC in the years 1990 – 2016 [kt]

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
BC	20.17	20.22	20.20	23.97	23.43	24.00	25.98	26.68	24.75	24.61	24.28	23.87	23.64

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BC	24.69	25.36	25.69	24.03	23.41	23.45	23.03	23.34	22.72	22.57	21.15	20.12	19.79	21.26

Vast majority (94%) of black carbon emissions come from fuel combustion (1.A), 65% of which is related to stationary combustion in residential sector (1.A.4.a) and off-road vehicles and other machinery in Agriculture/Forestry/Fishing (1.A.4.cii) and 29% is related to road transport (1.A.3.b). BC emission in 2016 by key source sectors is presented in Figure 1.

Table 2. Emissions of black carbon by sectors in 2016

Sectors	BC [kt]
Total	21.26
1. Energy	20.55
A. Fuel Combustion	20.07
1. Energy Industries	0.34
2. Manufacturing Industries and Construction	0.88
3. Transport	5.87
4. Other Sectors	12.99
5. Other	IE
B. Fugitive Emissions from Fuels	0.48
1. Solid Fuels	0.48
2. Oil and Natural Gas	NA
2. Industrial Processes and Product Use	0.08
A. Mineral Industry	0.05
B. Chemical Industry	NA
C. Metal Industry	0
D. Other Production	NA
G. Other	0.01
3. Agriculture	0.05
A. Enteric Fermentation	NA
B. Manure Management	NA
D. Agricultural Soils	NA
F. Field Burning of Agricultural Residues	0.05
5. Waste	0.58
A. Solid Waste Disposal	NA
B. Biological Treatment of Solid Waste	NA
C. Incineration and Open Burning of Waste	0.58
D. Wastewater Treatment and Discharge	NA

IE (included elsewhere) – for emissions by sources of pollutants estimated but included elsewhere in the inventory instead of under the expected source category.

NA (not applicable) – for activities under a given source category that do occur within the Party, but do not result in emissions of a specific pollutant.

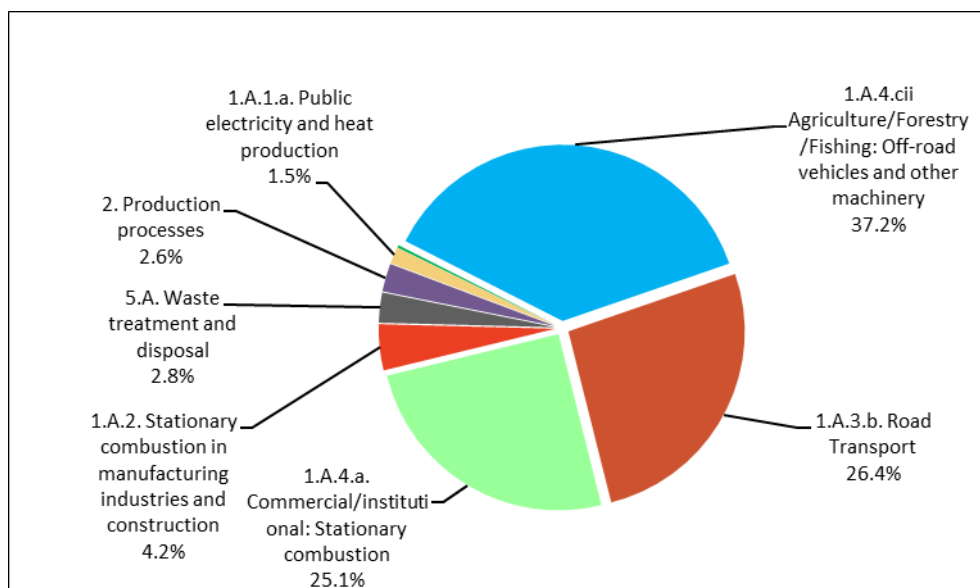


Figure 1. BC emissions in 2016 by key sectors

2. Summary of current methane emissions to UNFCCC and, if available, future projections

The Polish greenhouse gas inventory (including CO₂, CH₄, N₂O, HFCs, PFCs, SF₆, NF₃) is compiled on an annual basis and submitted to the United Nations Framework Convention on Climate Change (UNFCCC). The latest National Inventory Report (NIR), submitted in 2018, presents the results of the greenhouse gases) inventory in Poland for 2016 and for the whole preceding period since 1988. Full version of Poland's NIR 2018 is available on the UNFCCC website:

<https://unfccc.int/documents/65421>

The CH₄ emission (excluding category 4.LULUCF) amounted to 1 844.37 kt in 2016 equivalent to 46.11 million tonnes of CO₂. Compared to 1988, the emission in 2016 was lower by 33.9%. The contribution of CH₄ to the national total GHG emission amounted to 11.6% in 2016. Three of the main CH₄ emission sources include the following categories: *Fugitive Emissions from Fuels*, *Agriculture* and *Waste*. They contributed with 42.4%, 30.1% and 19.1% share to the national methane emission in 2016, respectively (Figure 2). The emission from the first mentioned sector came from underground mines (36.9% of total CH₄ emission) and Oil and Natural Gas system (5.5% of total CH₄ emission). The emission from *Enteric Fermentation* (3.A) dominated in *Agriculture* and amounted to app. 26.6% of total CH₄ emission in 2016. Waste disposal sites were responsible for 17.6% of the total methane emission and Wastewater Handling for 1.1% of total CH₄ emission.

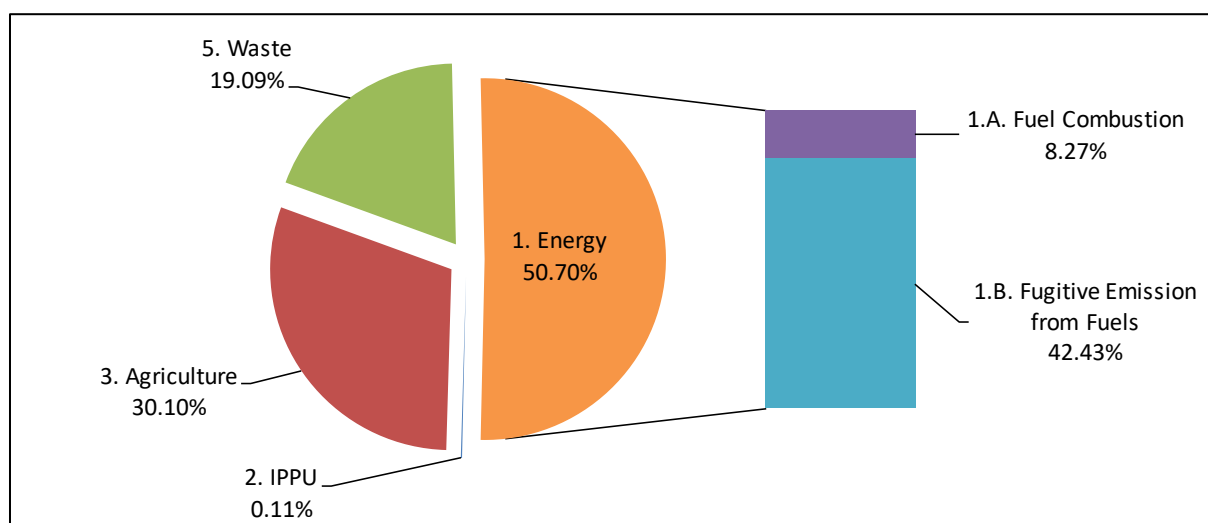


Figure 2. Methane emission in 2016 by sectors

Projections of methane emissions up to 2040 has been elaborated for the purpose of *Seventh National Communication and Third Biennial Report under the UNFCCC* and are presented, together with trend since 1988, in table 3.

Table 3. National emissions of methane for 1988–2016 and projected up to 2040 [kt CO₂ eq.]

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
CH ₄ (with LULUCF*)	69 765.46	69 398.60	64 059.20	59 366.25	57 576.54	55 851.21	55 146.64	53 682.58	52 954.97	52 777.16	51 001.56
CH ₄ (without LULUCF*)	69 721.30	69 354.48	64 015.00	59 321.05	57 531.79	55 808.76	55 105.45	53 636.36	52 918.12	52 738.66	50 966.47

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CH ₄ (with LULUCF*)	50 015.60	48 711.18	50 495.23	48 895.48	49 304.71	48 906.19	49 350.55	49 632.32	48 971.72	48 706.13	47 566.65
CH ₄ (without LULUCF*)	49 977.71	48 677.75	50 461.74	48 859.67	49 266.50	48 870.36	49 315.37	49 591.52	48 940.12	48 669.51	47 534.81

	2010	2011	2012	2013	2014	2015	2016	2020**	2030**	2040**
CH ₄ (with LULUCF*)	47 529.91	46 429.40	46 206.13	46 492.43	46 024.40	46 695.16	46 154.18	45 469.36	44 681.57	44 258.39
CH ₄ (without LULUCF*)	47 496.15	46 396.20	46 172.15	46 452.80	45 986.77	46 658.80	46 109.36	45 427.52	44 641.04	44 219.10

LULUCF -Land use, land use change and forestry

** *Seventh National Communication and Third Biennial Report under the UNFCCC*

Table 4. Emissions of methane by sectors in 2016

Sectors	CH ₄ [kt]
TOTAL without LULUCF	1 844.37
TOTAL with LULUCF	1 846.17
1. Energy	935.10
A. Fuel Combustion	152.46
1. Energy Industries	4.15
2. Manufacturing Industries and Construction	4.18
3. Transport	4.46
4. Other Sectors	139.67
5. Other	IE, NO
B. Fugitive Emissions from Fuels	782.64
1. Solid Fuels	681.44
2. Oil and Natural Gas	101.20
2. Industrial Processes and Product Use	2.04
A. Mineral Industry	NA
B. Chemical Industry	1.48
C. Metal Industry	0.56
D. Other Production	NE
G. Other	NO
3. Agriculture	555.20
A. Enteric Fermentation	491.09
B. Manure Management	63.13
D. Agricultural Soils	NA
F. Field Burning of Agricultural Residues	0.99
G. Liming	NA
H. Urea application	NA
4. Land Use, Land-Use Change and Forestry	1.79
A. Forest Land	1.57
B. Cropland	IE, NO
C. Grassland	0.22
D. Wetlands	0.00
E. Settlements	NA, NO
F. Other Land	NA, NO
G. HWP	NA, NO
5. Waste	352.03
A. Solid Waste Disposal	324.07
B. Biological Treatment of Solid Waste	7.94
C. Incineration and Open Burning of Waste	0.00
D. Wastewater Treatment and Discharge	20.02

IE (included elsewhere) - emissions and/or removals for this activity or category are estimated and included in the inventory but not presented separately for this category
NO (not occurring) - an activity or process does not exist within a country
NA (not applicable) - the activity or category exists but relevant emissions and removals are considered never to occur
NE (not estimated) - emissions and/or removals occur, but have not been estimated or reported

3. Summary of National Actions, National Action Plans, or Mitigation Strategies by sectors

- **The Seventh National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change**

The Seventh National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change was prepared in accordance with Decision UNFCCC/CP/1999/7 (Part II). The Communication presents information for the period of 2008 - 2011.

The document contains a summary description of the impact of national measures on greenhouse gas emissions. Extract information concerning reducing methane emissions is presented in the table below. The report is available at webpage:

http://cdr.eionet.europa.eu/pl/eu/mmr/art18_br_natcom/envwkysrq/

- **National Programme of Air Protection 2020 (with the prospect up to 2030)**

The *National Programme of Air Protection (NPAP)*, which was adopted in September 2015, aims at improvement of air quality in Poland (i.a. reduction of emissions PM10, PM2.5 thus also black carbon). The draft *NPAP* focuses on key actions at national, regional and local level covering strategic, legislative and financial efforts.

The main actions leading to improvement of air quality standards:

- ✓ emphasizing air quality issues' significance by consolidated actions at the national level and building strategic partnership with key public and private stakeholders dedicated to the air quality improvement;
- ✓ establishment of legally binding framework for efficient actions aimed at air quality improvement;
- ✓ encouraging society participation in actions aimed at air quality improvement by increasing awareness and creating a dialogue platform with non-governmental organizations in order to boost public involvement;
- ✓ development and promotion of technologies enabling air quality improvement:
 - ❖ Increasing the availability of high-efficiency boilers, which pass most stringent emission requirements, while simultaneously replacing and modernizing old, low power facilities/installations, used to generate heating or heating and electricity for non-commercial recipients as well as micro and small companies;
- ✓ improvement of emission controlling system of small and medium combustion installations;
- ✓ development of financial mechanisms contributing to air quality improvement.

- **Recommendations of the Economic Committee of the Council of Ministers – Clean Air programme**

Recommendations were approved by Council of Ministers on 25 April 2017. There are 15 actions which should be undertaken to improve air quality (i.a. PM10, PM2,5).

Those actions are:

- 1.** Maximum acceleration of the work on the regulation on the requirements for solid fuel boilers, which should be adopted by the end of April 2017 at the latest, so that its provisions enter into force before the start of the heating season 2017/2018;
- 2.** Urgent introduction of the regulation on the quality standards for solid fuels, which should be adopted as early as in the first quarter of 2017, after introducing amendments to the Act on the system for monitoring and controlling the fuel quality;
- 3.** Prioritisation of the funds of the National Fund for Environmental Protection and Water Management on the activities leading to the fastest possible improvement in the air quality in such a way so as to get the maximum effect for the air quality from each PLN of inputs;
- 4.** Introduction of the requirement of gradual connecting buildings located in urban and suburban areas to heating systems, unless they have an effective source of heat, in such a way so as to minimize the associated costs and provide financial support to persons in need of it;
- 5.** Significant reduction in rates for electricity during periods of reduced demand for it, including through amendments to the energy and construction legislation, in order to encourage to install electric heaters or heat pumps in areas where there is no possibility of connecting to centralized heating systems or gas networks;
- 6.** Development of a network of measuring stations forming the air monitoring system, which will enable, in particular, the identification of sources of pollution and a more effective fight against harmful practices in the use of boilers and industrial installations;
- 7.** Inclusion of social workers of social assistance centres into information activities as part of social work in the field of the efficient use of energy in houses/flats, possibility of acquiring funds for the replacement of boilers, obtaining energy allowances, funds for co-financing heating of a house/flat as part of housing allowances;
- 8.** Development and then implementation of a comprehensive public policy that ensures the optimal protection of vulnerable social groups against „energy poverty”;
- 9.** Carrying out educational campaigns, including those on optimal ways of making fire in boilers and related health effects;
- 10.** Introduction of an obligation to document the quality of exhaust gases by vehicle control stations and a requirement to examine exhaust gases during road;
- 11.** Use of tax mechanisms, in order to introduce incentives for low-carbon transport, including low rates of excise duty for hybrid cars and the exemption from excise duty for electric cars;
- 12.** Introduction of solutions allowing to create low-carbon zones and periodic reduction in the number of cars in motion within the urban areas;
- 13.** Introduction of regulations preventing blocking green wedges of the city and considering solutions improving the prestige of the profession of urban planner in the context of spatial management;
- 14.** Establishment, within the National Centre for Research and Development, a facility dedicated to supporting the development of low-carbon technologies, in particular geared towards improving the air quality;

15. Development and wide public consultation of the „Clean Air” Programme and strengthening the Steering Committee for the National Air Protection Programme and entrusting it with a task to safeguard the urgent and effective implementation of these recommendations and to regularly monitor the progress in the work of the Council of Ministers.

Those actions are at different stages. Some are already in place (1, 3, 4, 5, 11, 12, 15), some are under development (2, 8, 10, 13), and some will be continued (6, 7, 9, 14).

- **Quality of solid fuels and boilers for solid fuels**

On 5 September 2017 Regulation of Minister of Development and Finance on solid fuels boilers was published. It is in force since 1 October 2017.

When drawing up the provisions of the proposed regulation, it was taken into account that from 1 January 2020 the provisions of Commission Regulation (EU) 2015/1189 of 28 April 2015 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for solid fuel boilers will come into force. Therefore, the provisions of the proposed regulation are preparing the Polish market for the requirements of EU law in this area.

The provisions of the PN-EN 303-5: 2012 *Heating boilers - Part 5: Boilers for solid fuels with manual and automatic fuel hopper with a nominal power up to 500 kW - Terminology, requirements, tests and marking* standard were also taken into account in the development of the proposed regulation. The norm provides, among others, limit requirements for solid fuel boilers for three classes of these devices (class 3, class 4 and class 5). The proposed regulation uses the requirements for boilers that meet the requirements of class 5.

There are also requirements for solid fuels being prepared. The draft act amending the act on the fuel quality monitoring and control system was submitted to the Parliament on March 2018. The above mentioned draft act is accompanied by three draft regulations of the Minister of Energy regarding:

1. quality requirements for solid fuels,
2. method of sampling solid fuels,
3. methods for testing the quality of solid fuels.

Those provisions should be published by the end of 2018.

- **Financial programmes run by National Fund for Environmental Protection and Water Management**

National Fund for Environmental Protection and Water Management (NFEPWM), at the request of the Minister of the Environment, carried out a cross-section analysis of the instruments implemented to support activities in the field of air protection. The financing of activities in this area is a priority of the NFEPWM, and is part of the Operational Program Infrastructure and Environment for 2014-2020 (OPIE) and other financial priority programs of the NFEPWM.

By the end of 2018 there are still implemented actions resulting from the commitments made earlier under the KAWKA programme. On the basis of agreements concluded with the

voivodship environmental protection and water management funds (VEPWM) approximately PLN 34 thousand old heat sources fired with solid fuel will be modernized for 258 million PLN.

In the years 2015-2018, over 2.4 billion PLN was spent from the OPIE first priority axis financial resources.

Additionally, in the period from April 1, 2017 to April 30, 2018, NFEPWM signed a total of 245 contracts for the amount of 2 128 964 380 PLN for activities related to air protection.

On June 7 2018, an agreement was signed on the "Clean Air" Programme between NFEPWM and 16 VEPWM and Environmental Protection Bank. The agreement aims at improvement of energy efficiency and reducing the emission of dust and other pollutants into the atmosphere by existing or newly built detached houses.

The program will generally concern the replacement of old-generation heat sources fired with coal for heat centers, solid fuel boilers, electric heating systems, gas condensing boilers, heat pumps and their assembly, as well as thermomodernisation of residential buildings.

It is planned that the program will be implemented in 2018-2029. The budget of the program is 103 billion PLN.

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- **Operational Programme Infrastructure and Environment 2014-2020 in Poland**

The *Operational Programme Infrastructure and Environment 2014-2020* envisages a set of concrete measures to support the further shift of Poland towards a more competitive and low-carbon economy that makes efficient use of natural resources, favours low power consumption and advocates a significant reduction of CO₂ emissions. Projects are cofinanced by National Fund for Environmental Protection and Water Management. Important investments in more sustainable transport and energy networks, environmental protection, climate adaptation and mitigation techniques as well as health and culture will nurture a more pro-business environment.

The programme defines a number of ambitious goals to be achieved by the end of the programming period, in particular reduction of greenhouse gas emission by 20.6% compared to 1990 levels.

- **Education on air quality**

Poland is successively undertaking activities to reduce emissions of air pollutants in Poland, including conducting an educational campaign promoting clean heat from solid fuels used in household heating installations. The campaign is addressed both to the overall public and various target groups, such as decision-makers, local government administration and people of different economic and social status. Therefore appropriate educational and informative materials were prepared in 2016 in the form of a guidebook, information brochure and a leaflet of a differentiated level of detail.

The campaign fits into the countrywide "Clean Air" Programme. The goal of the campaign „Clean heat from solid fuels in my house” is to raise awareness of the effects of decision-making on household heating, to broaden the knowledge on good practices in this respect and provide information on various incentives. The campaign should contribute to the changing of undesirable public behaviour patterns and to public engagement in air quality improvement by making use of available financial support. The use of good practices in heating leads not only

to emission reduction of air pollutants, including PM_{2,5}, PM₁₀, BaP, NO_x and black carbon but also to money savings (in the longer period of time).

Various methods of information dissemination and promotion of prepared materials were used to reach the highest possible number of people that might be interested in proposed solutions and implementation of air protection measures, which include the following channels:

- Commonly available website of the Ministry of the Environment,
- Thematic events, such as “Air Quality” panel during the International Environmental Protection Trade Fair: POL-EKO SYSTEM 2017 (Poznan, 18 October 2017), Stop-Smog Conference (Torun, 18 November 2017),
- Training courses for social aid workers, teachers and meetings with journalists,
- Informative campaigns in countrywide, regional and local mass media (press articles, radio and TV programmes),
- Distribution of materials to the Social Aid Centres where social workers are involved in further dissemination of informative materials among the poorest groups of people, including those threatened by energetic poverty.

Around 2500 meetings are planned in *gminas* (communities) for the citizens to inform them about possible activities contributing to air quality improvement. The meetings are to be conducted by experts from Voivodeship Funds for Environmental Protection and Water Management, Voivodeship Inspectorates for Environmental Protection and the Environmental Protection Bank (BOS Bank).

4. Projects relevant for the Arctic

- **Climate and Clean Air Coalition (CCAC)**

In February 2012, *the Climate and Clean Air Coalition to Reduce Short-Lived Climate Pollutants (CCAC)* was launched by six governments and the UN Environment Programme (UNEP) as the first global effort to address short-lived climate pollutants (SLCPs).

The Coalition, a voluntary international framework for concrete and substantial action, aims to reduce emissions of methane, black carbon, and many hydrofluorocarbons (HFCs) in order to protect the environment and public health, promote food and energy security and address near-term climate change. Poland is a member of the CCAC since March 2013.

The Coalition has approved ten high-impact initiatives to catalyse and scale-up action to reduce SLCPs: seven addressing sectors and three that are cross-cutting.

Sector-based initiatives

1. Accelerating Methane and Black Carbon Reductions from Oil and Natural Gas Production
2. Addressing SLCPs From Agriculture
3. Mitigating SLCPs and Other Pollutants from Brick Production
4. Mitigating SLCPs from Municipal Solid Waste
5. Promoting HFC Alternative Technology and Standards
6. Reducing Black Carbon Emissions from Heavy-Duty Diesel Vehicles and Engines
7. Reducing SLCPs from Household Cooking and Domestic Heating

Cross-cutting initiatives

8. Financing Mitigation of SLCPs
9. Regional Assessments of SLCPs
10. Supporting National Planning for Action on SLCPs Initiative (SNAP)

Further information on the initiatives is available on <http://www.ccacoalition.org/>.

Poland is particularly involved in the initiative regarding Domestic Heating (black carbon reduction) and HFC.