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REPORT ON THE STATE OF CURRENT NATIONAL LEGISLATION AND POLICIES TO IMPROVE THE AIR QUALITY

AIR TRITIA CE 1101

Version 2
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Content

1. Executive Summary

Introduction

This Report on the state of current national legislation and policies to improve the air quality includes the results of detailed analysis of air related policies and legal provisions of the Czech Republic, Poland and the Slovak Republic (mutual comparison, comparison with the EU policies and legislation, country specific issues) and subsequent recommendations.

Policies

An overview of relevant policy documents in the AIR TRITIA project countries is presented in the following table:

Table 1: Policy documents overview

Country	Existence	Title
National level - general environment		
CS	Yes	State Environmental Policy of the Czech Republic 2012 – 2020, update 2016
PL	No	
SK	No	
National level - air		
CS	Yes	2015 Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic 2015 National Emission Reduction Program of the Czech Republic
PL	Yes	National Air Protection Program till 2020 (with outlook till 2030) National Environmental Monitoring Programme 2016 – 2020
SK	Partial	PM_{10} Emission Reduction Strategy Regional Program for Air Quality Improvement for Ground-level Ozone for the whole Territory of Slovakia (2010)
Regional level, zones and agglomerations		
CS	Yes	Program for the Improvement of Air Quality in Agglomeration Ostrava/Karviná/Frýdek-Místek Program for the Improvement of Air Quality in zone Moravia-Silesia
PL	Yes	Environmental Protection Program for Silesian Voivodship up to 2019 taking into account the perspective until 2024 The Air Protection Program for the Silesian Voivodship aiming to reach the air quality standards and the exposure concentration obligation Program of air protection for the City of Opole zone, due to exceeding the limit values for PM_{10} and target values for benzo(a)pyrene together with the Short-term action plan, Opole 2013 Program of air protection for the Opolska zone, due to exceeding the limit values for PM_{10} and target values for $PM_{2.5}$ and benzo(a)pyrene together with the Short-term action plan, Opole 2013 Air Protection Program for Małopolskie Voivodship. Małopolska in a healthy atmosphere
SK	No	

Country	Existence	Title
Local level		
CS	Yes	Short-term Program to Improve Air Quality in Ostrava (3rd update 2017)
PL	Yes	Low Emission Economy Plans prepared for 283 municipalities in the AIR TRITIA project area Low emission reduction program, Opole 2010
SK	Yes	Air Quality Improvement Program – Territory of the City of Žilina Air Quality Improvement Program – Territory of Town Ružomberok and Municipality Likavka Air Quality Improvement Program – Territory of Towns Martin and Vrútky
Air quality action plans		
CS	Yes	Smog warning and regulatory systems (regions, municipalities)
PL	Yes	Included in the programs at regional level
SK	Yes	Action Plan Žilina Action Plan Ružomberok and Likavka Action Plan Martin and Vrútky

Policies conclusions:

- Actual national environmental policy document is in place in the Czech Republic only.
- Complex air protection policy at the national level is in place in the Czech Republic and in Poland
- Partial air protection policy documents at the national level are in place in Poland (monitoring) and in the Slovak Republic (PM10, ground level ozone).
- Air protection policies at the regional level are in place in the Czech Republic and Poland.
- Air protection policies at local/municipal levels are in place in all three AIR TRITIA project countries
- Short-term action plans are in place in all three countries.
- Poland has developed Low Emission Economy Plans for almost 300 municipalities within the AIR TRITIA project region.
- Programs and plans in all three countries are focused on the reduction of emissions to comply with the air quality standards, however quantified national, sectoral or areal emission ceilings are applied in the Czech Republic only.
- Reduction of emissions of particulate matter (PM10 and PM2.25) and of benzo(a)pyrene are priority for all three countries.
- Emissions of PM (PM10 and PM2.5) and benzo(a)pyrene from local heating and road transport and fugitive emissions of PM10 are considered priority of plans/programs in all three countries.

Policy recommendations:

- It is recommended to the Slovak Republic to adopt air protection strategies at the national level (preferably extended national air pollutant control programs which are to be prepared by 1 April 2019 in accordance with the requirements of Article 6 of the Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants).

International Conventions and Protocols

Status of ratification of relevant international conventions and protocols by the AIR TRITIA project countries is presented in the following table:

Table 2: Ratification status of relevant international conventions and protocols

	EU	Czech Republic	Poland[1]	Slovak Republic
Convention on Long-range Transboundary Air Pollution (CLRTAP)	1982	1993	1985	1993
Protocol EMEP	1986	1993	1988	1993
Protocol on Heavy Metals (Protocol on HMs)	2001	2002		2002
Protocol on Persistent Organic Pollutants (Protocol on POPs)	2004	2002		2002
Gothenburg protocol to abate acidification, eutrophication and ground-level ozone (Gothenburg Protocol)	2003	2004		2005
Espoo Convention on Environmental Impact Assessment (EIA) in a Transboundary Context	1997	2001	1997	1999
Kyiv Protocol on Strategic Environmental Assessment (SEA)	2008	2005	2011	2008
Stockholm Convention on Persistent Organic Pollutants (POPs)	2004	2002	2008	2002
Minamata Convention on Mercury	2017	2017		2017

Conventions and protocols conclusions:

- Poland has not yet ratified three important protocols under the UNECE Convention on Long-range Transboundary Air Pollution. Poland has also not yet ratified the Minamata Convention on Mercury.

Conventions and protocols recommendations:

- It is recommended to Poland to consider ratification of the Protocol on HMs, the Protocol on POPs, the Gothenburg Protocol and the Minamata Convention.

Legislation:

Structure of air quality related legislation in the AIR TRITIA project countries differs in the following way:

- Czech Republic
  - Act on air protection accompanied by implementing ministerial decrees
  - Act on integrated pollution prevention and control (IPPC)
  - Act on EIA/SEA
- Poland
  - One general act on environment (Environmental Law) accompanied by implementing ministerial regulations

[1] Poland signed Protocols on HM and POPs, however not yet ratified.

- Slovak Republic
    - Act on air accompanied by implementing ministerial decrees
    - Act on air pollution charges
    - Act on integrated pollution prevention and control (IPPC)
    - Act on EIA/SEA
    - Act on eco-design

Legislation conclusion:

- All three countries have sufficient legal background for efficient air quality assessment and management system.
- Structure of legislation in the Czech Republic and the Slovak Republic is similar (several special acts) while the Polish legislation is based on different philosophy (general environmental).
- Directives on air quality (2008/50/EC and 2004/107/EC are transposed completely in all 3 countries;
- Directive 2010/75/EU on industrial emissions is transposed completely: In Poland by one act and implementing regulations, in the Czech Republic and the Slovak Republic by the air related acts (Article 28-70 and Annexes IV-VIII) and act on IPPC (Articles 1-27, 71-83 and Annexes I-3)
- All three countries have prepared transitional national plans in accordance with Article 32 of the Directive 2010/75/EU on industrial emissions
- Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants is transposed completely in all 3 countries
- Directive on EIA and SEA are transposed completely by one act in all 3 countries
- Transposition of newly adopted EU directive (Directive 2016/2284 on the reduction of national emissions) and of the Commission Regulation 2015/1189 (eco-design requirements for solid fuel boilers) is in progress in all 3 countries.

Zones and Agglomerations:

Czech Republic - In total 3 agglomerations + 7 zones; Air TRITIA project area: Agglomeration Ostrava/Karviná/Frýdek-Místek and Zone Moravia-Silesia

Slovak Republic - In total 2 agglomerations + 8 zones; Air TRITIA project area: Zone Žilinský kraj (actual areas of air quality management: Territories of municipalities Žilina, Ružomberok, Likavka)

Poland - In total: 12 agglomerations with population over 250 thousand, 18 zones with population over 100 thousand, 16 zones constituting the remainder of the voivodship, not included in cities over 100 thousand inhabitants and in agglomerations. AIR TRITIA project area:

- Silesian Voivodship: agglomeration górnośląska, agglomeration rybnicko-jastrzębska, zone miasto Bielsko-Biała, zone miasto Częstochowa, zone śląska
- Opolskie Voivodship: zone miasto Opole, zone opolska
- Malopolskie Voivodship: agglomeration krakowska, zone miasto Tarnów, zone małopolska

Conclusion: All 3 countries have introduced agglomerations and zones which cover whole country´s territory. Within permanent zones and agglomerations, temporary areas of air quality management are being established in the Slovak Republic.

Air quality Standards:

All 3 countries have transposed all provisions of directives:

- Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe as amended.
- Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air.

Beyond the requirements of these directives, all 3 countries have set additional information thresholds (public must be informed) and alert threshold (immediate short term actions must be taken) for particulate matter PM10 and the Czech Republic also information thresholds for sulphur dioxide (SO2) and nitrogen dioxide (NO2).

Table 3: Information and Alert thresholds in Czech Republic, Slovakia and Poland

	Pollutant	Unit	Czech Republic	Poland	Slovak Republic
Information threshold	PM_{10}	µg/m³	100	200	100
Information threshold	SO_2	µg/m³	250	-	-
Information threshold	NO_2	µg/m³	200	-	-
Alert threshold	PM_{10}	µg/m³	150	300	150

Directives 2008/50/EU and 2004/107/EC provide for 2 types of air quality standards:

- limit value (LV): fixed level (concentration) to be attained everywhere within a given period and not to be exceeded once attained (sulphur dioxide, nitrogen dioxide, particles PM10, carbon monoxide, lead, benzene)
- target value (TV): fixed level (concentration) to be attained where possible over a given period (particles PM2.5, ozone, arsenic, cadmium, nickel, benzo(a)pyrene)

Czech legislation sets limit values for above all listed pollutants and more stringent limit value for PM2.5 (20 ¤g/m³ instead of 25 ¤g/m³).

It is recommended to Poland to harmonize information and alert thresholds for PM10 with those applied in the Czech Republic and the Slovak Republic (i.e. to change information threshold from 200 ¤g/m³ to 100 ¤g/m³ and alert threshold from 300¤¤g/m³ to 150 ¤g/m³).

National emission reduction commitments

Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants establishes for the AIR TRITIA project countries the following national emission reduction commitments:

Table 4: Emission reduction in % compared with 2005 emissions

	Emission reduction in % compared with 2005 emissions					
	Czech Republic		Poland		Slovak Republic	
Pollutant	2020-2029	2030 -	2020-2029	2030 -	2020-2029	2030 -
SO_2	45	66	59	70	57	82
NO_X	35	64	30	39	36	50
NMVOC	18	50	25	26	18	32
NH_3	7	22	1	17	15	30
$PM_{2.5}$	17	60	16	18	36	49

Note: The national emission reduction commitments for the period 2020 - 2029 are identical with those adopted under the updated UNECE CLRTAP Protocol to abate acidification, eutrophication and ground level ozone (Gothenburg Protocol)

Czech Republic has set national emission ceilings till 2020 for SO_2, NO_x, NMVOC, NH_3 and PM2.5 which are more stringent than those required by Directive 2016/2284 (see National Emission Program of the Czech Republic).

Emission limit values

All 3 countries have transposed emission limit values laid down by the Directive 2010/75/EU on industrial emissions (large combustion plants, waste incinerators, and installations using organic solvents) and Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants. In addition, Czech Republic and Slovak Republic have introduced emission limit values for carbon monoxide for all types of large combustion plants regardless fuel used.

Czech Republic and Slovak Republic have laid down specific (technology based) emission limit values and technical requirements for a wide range of defined air pollution sources as well as generally binding emission limit values (applicable in the case that specific emission limit value does not exist for particular source/installation).

Poland has introduced emission limit values for carbon monoxide for certain types of large combustion plants which used liquid fuel and gas fuel.

Categorization of stationary pollution sources

Systems applied in the Czech Republic, Poland and Slovak Republic are different and incompatible.

Compensation measures

Czech Republic and Poland have introduced compensation (emission reduction) measures to be applied by operator/owner when new air pollution source is being built (or existing source changed substantially) in the area with exceeded air quality standards (of if such activity would lead to the exceedance). Slovak Republic is recommended to consider introduction of compensation measures.

Air pollution charges

All three countries have introduced air pollution charges, however in quite different ways:

- Czech Republic: 4 pollutants (SO2, NOX, TSP, VOC) with differentiated rates of charge based on health impacts of pollutants (EUR 66/ton to EUR 243/ton)
- Poland: 67 pollutants with differentiated rates of charge based on health impacts of pollutants (from EUR 26/ton to EUR 91 000/ton)
- Slovak Republic: 5 main pollutants (TSP, SO2, NOx, CO, VOC) and 115 other pollutants divided among 4 groups in accordance with their risk for human health more than with differentiated rates of charge (from EUR 166/ton to EUR 1238/ton)

Environmental Funds

Environmental funds at national level exist in all countries. In Poland, environmental funds have been also established at regional (voivodships), district (powiats) and municipal levels (gminas).

Permitting authorities

Czech Republic

- Integrated permits and air pollution permits (for more emitting sources) are mostly granted at regional level (regional offices)
- Permits for less emitting air pollution sources are granted at municipal level (municipalities with extended administrative power)
- EIA binding statements are mostly granted at the regional level (regional offices)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program
- Ministry of Environment grants permits/binding statements in the case of transboundary/trans-regional character of activity to be permitted/assessed

Poland

- Integrated permits are granted at the district (powiat) level and regional level (Voivodship Marshal)
- Air pollution permits are granted at district level (powiat)
- EIA binding statements are mostly granted at the municipal level and regional level (Regional Director for Environmental Protection) and national level (General Director for Environmental Protection)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program and depending on it's kind.

Slovak Republic

- Integrated permits are granted by the Slovak Environmental Inspectorate
- air pollution permits (for more emitting sources) are mostly granted at district level (district offices)
- • Permits for less emitting air pollution sources are granted at municipal level (municipal offices)
- EIA binding statements are mostly granted at the semi/regional level (district offices in regional capitals)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program

2. Introduction

In accordance with the Project Proposal, this deliverable should include "Analysis of current national policies and legislature, including imminent changes, with particular focus on limiting pollution in the individual countries and the authority at national, regional and local level."

National policies

Analysis of relevant strategies, policies and plans in the AIR TRITIA project countries (Czech Republic, Poland and Slovak Republic) at national, regional and local levels includes their mutual comparison and comparison with relevant EU documents. Analysis is structured in the following way:

Czech Republic

- National level
- Regional level (Moravian-Silesian Region)
- Local level (Ostrava, Opava)

Poland

- National level
- Regional level (Silesian Voivodship, Opole Voivodship, Malopolskie Voivodship)
- Local level (Opole, Katowice)

Slovak Republic

- National level
- Regional level (Zilina Region)
- Local level (Zilina, Ruzomberok)

Conclusions and recommendations related to policies

Legislation

Analysis of relevant legal provisions in the AIR TRITIA project countries (Czech Republic, Poland and Slovak Republic) includes their mutual comparison and comparison with both relevant EU legislation and the requirements of relevant international conventions and protocols. Analysis is structured in the following way:

- EU Legislation (air quality, emissions, integrated environmental permitting, energy, transport, EIA /SEA)
- International conventions and protocols (mainly the UNECE Convention on Long-range Transboundary Air Pollution and its three latest protocols)
- National legislations
    - Czech Republic
    - Poland
    - Slovak Republic
- Conclusions and recommendations related to legislation.

- Analysis of compliance
    - national legislation versus EU legislation
    - mutual differences among national legislations
    - status of ratification and implementation of conventions and protocols
- Country specific issues
    - Zones and agglomerations
    - Air quality standards
    - National emission reduction commitments
    - Emission limit values
    - Categorization of stationary pollution sources
    - Compensation measures
    - Air pollution charges
    - Environmental funds
    - Permitting authorities

The following annexes include links to relevant documents:

- Annex 1: List of relevant policy documents of the EU, Czech Republic, Poland and Slovak Republic
- Annex 2: Local Low Emission Economy Plans in Poland
- Annex 3: List of relevant legislation of the EU
- Annex 4: List of relevant international conventions and protocols
- Annex 5: List of relevant legislation of the Czech Republic
- Annex 6: List of relevant legislation of Poland
- Annex 7: List of relevant legislation of the Slovak Republic
- Annex 8: Studies, reports and other sources of information

3. Policies

3.1. EU (general environment, air, energy, transport)

Note: List of all relevant policy documents of the EU is presented in Annex 1 together with links to websites.

Environmental policy of the EU till 2020 is formulated in the **7th Environment Action Program (EAP) "Living well, within the limits of our planet"**[2]**.** Under Priority objective 3 (To safeguard EU citizens from environment-related pressures and risks to health and wellbeing) implementation of updated EU policy on air quality, aligned with the latest scientific knowledge, and measures to combat air pollution at source is required by 2020.

The actual EU strategy on air quality is formulated in the **2013 Clean Air Program for Europe**[3]**.** The measures in this new strategy build on those presented in the 2005 Thematic Strategy on Air Pollution and will deliver further progress towards long term objectives of the 6th and 7th Environmental Action Programmes. The Strategy is accompanied by a legislative proposal for a revised National Emission Ceilings Directive[4], and a proposal for a Directive which will for the first time control emissions from Medium sized Combustion Plants[5] and contribute significantly to the achievement of the necessary emissions reductions. The strategy also contains non-regulatory support measures to enhance capacity and co-operation at all political levels, with priority areas including urban air pollution, research and innovation, and the international dimension of air policy.

This Program sets new air policy objectives for 2030 relative to 2005:

- To reduce human health impacts (premature mortality due to particulate matter and ozone) by 52 %
- To reduce ecosystem area exceeding eutrophication limits by 35 %

In order to achieve these policy objectives several measures are proposed in Strategy both for the short and long terms. **Fostering enhanced technical and management capabilities and broadening the local and regional air quality management toolbox are the most relevant measures for the AIR TRITIA project.**

Energy policy of the EU as expressed in several documents[6] is, besides energy security and competitiveness, mainly focused on the reduction of greenhouse gases (GHG) emissions, however many proposed measures

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[2] Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a **General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D1386

[3]Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: **Clean Air Programme for Europe** (COM/2013/0918 final)

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0918

[4] Proposal has been adopted in 2016 as Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC

[5] Proposal has been adopted in 2015 as Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants

[6] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: **Energy 2020 A strategy for competitive, sustainable and secure energy** (COM/2010/0639 final)

Link: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1409650806265&uri=CELEX:52010DC0639

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: **A policy framework for climate and energy in the period from 2020 to 2030** (COM/2014/015 final)

Link: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52014DC0015

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: **Energy Roadmap 2050** (COM/2011/0885 final)

will contribute to the reduction of pollutants into the air and the improvement of air quality. However, it should be taken into account that certain measures to reduce GHG emissions may have negative impact on air quality. In any case, **energy efficiency measures[7] are the most relevant ones for the AIR TRITIA project.**

Transport policy of the EU[8] provides for measures to reduce fossil fuelled road vehicles and replace them by low/no emission ones which will bring about not only reduction of CO_2 emissions but also substantial reduction of air pollutants exhaust emissions, especially particulate matter $PM_{2.5}$ and nitrogen oxides (NO_X). Moreover, measures in the field of road transport organisation in cities will contribute to the reduction of non-exhaust emissions of particulate matter. **All measures in the road transport sector are relevant for the AIR TRITIA project.**

3.2. Czech Republic

Since 2000, the Czech Republic has been divided into thirteen regions (Czech: kraje, singular kraj) and the capital city of Prague. Every region has its own elected regional assembly (krajské zastupitelstvo) and hejtman (a regional governor). In Prague, the assembly and presidential powers are executed by the city council and the mayor. Former counties (okresy) remained as statistical units without elected assemblies or state administration powers.

Number of municipalities with its own elected assembly is 6 246[9], of which 26 biggest municipalities (population above 40 thousand) have special status of statutory city (statutární město), 205 have extended administrative power (obce s rozšířenou působností) and 393 have appointed municipal office (obce s pověřeným obecním úřadem).

3.2.1. National level

National Environmental Policy

National environment policy of the Czech Republic is formulated in the document "State Environmental Policy of the Czech Republic 2012 – 2020", as updated in 201610. Improvement of air quality in areas where air quality standards are exceeded is stated as high priority followed by meeting the national emission ceilings for emissions of sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (VOCs), ammonia (NH3) and fine suspended particles (PM2.5) and reduction of the emissions of heavy metals and persistent organic pollutants. Thematic area "Climate protection and air quality improvements" includes several concrete measures majority of which is relevant for the AIR TRITIA project11:

- By 2020, to reduce the emissions of PM2.5 and other pollutants (in particular PAH) by replacing combustion sources in homes and to ensure their proper operation and effective checks

Link: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0885

[7]Communication from the Commission to the European Parliament and the Council: **Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy** (COM(2014) 520 final)

Link: https://ec.europa.eu/energy/sites/ener/files/documents/2014_eec_communication_adopted_0.pdf

[8] WHITE PAPER **Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system** (COM/2011/0144 final)

Link: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0144

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: **A European Strategy for Low-Emission Mobility** (COM(2016) 501 final)

Link: https://ec.europa.eu/transport/sites/transport/files/themes/strategies/news/doc/2016-07-20-decarbonisation/com%282016%29501_en.pdf

[9] The Czech language uses a single word for cities and towns as official nomenclature for fourth-level administrative country subdivisions of settlements in the Czech Republic.

[10] **State Environmental Policy of the Czech Republic 2012 - 2020** (as updated in 2016)

Link (EN): https://www.mzp.cz/C125750E003B698B/en/sep_cz/$FILE/SOPSZP-SEP2012-2020(2016)-170404.pdf

[11] Official translation

- To take into account traffic problems in the transport development plans of Regions and municipalities for attaining the limit values, for example by construction of bypasses and establishing low emission zones
- To increase the percentage of vehicles with alternative propulsion in the sector of public and private transport through the National Action Plan for Clean Mobility
- By 2020 to reduce the emissions of NOx and PM2.5 from the road transport sector by renewing the vehicle fleet of the Czech Republic
- To replace the car fleet of the public administration with alternatively powered vehicles
- By 2020, to reduce emissions of SO2 and NOx by applying the best available techniques in the public energy sector
- By 2020, to reduce the emissions of NH3 by 18% (compared to 2005) through the application of measures in the agricultural sector
- By 2020, to further reduce emissions of pollutants (dust, NOx, SO2, VOCs, CO), emitted from other stationary sources, on the basis of voluntary agreements negotiated between operators and the MoE in areas with persistently poor air quality (e.g. by using the best available techniques (BAT) and measures beyond the BAT
- To harmonise national and regional policies in the energy sector, industry, transport, spatial planning and environmental protection in order to improve air quality
- To effectively cooperate with neighbouring countries with a view to eliminating transboundary transfers of air pollutants and improving air quality in border regions
- To implement the National Emission Reduction Programme of the Czech Republic (NERP)
- To facilitate support for implementation of measures arising from air quality improvement programmes drawn up for zones and agglomerations
- To reduce the increase of emissions by reducing the intensity of motorised road transport (support for public transport, for non-motorised transport, etc.)
- To implement in practice the Air Protection Act and its implementing regulations and the amended Act on integrated prevention, which constitutes a broader legal framework for the authorisation of major industrial facilities and also contains rules for the application of BAT
- To ensure long-term operation of the national network of air pollution monitoring in relation to the requirements of the European and national legislation on air protection
- Following the adoption of the new Air Protection Act to draw up new programmes to improve air quality for zones and agglomerations where limit values are being exceeded
- To update the programmes on improving air quality at three-year intervals
- To provide quality information on pollution levels for the purpose of decision-making under the Air Protection Act
- To increase awareness among the public and operators of the relevant industrial activities of the issue of BAT, developments in this area and the issues of applicability
- To draw up a new National Emission Reduction Programme of the Czech Republic based on the new legislation and to update it in four-year intervals
- To promote the dissemination of information on the adverse effects of combustion of low quality fuels on air quality and human health and on the possibilities of environmentally friendly heating

- To promote research aimed at reducing the energy intensity of technologies, or at the technological procedures and facilities reducing the emissions of pollutants into the air (potential BATs)
- To include the conditions of air protection in the public procurement of municipalities and Regions
- To promote awareness of the options to use subsidies for reducing the emissions of air pollutants, and for implementing measures to improve air quality
- To develop bilateral cooperation with the neighbouring countries of the Czech Republic and strive to improve the environment in cross-border areas, especially in the quality of air, water, and nature and landscape protection, and to fulfil the obligations arising from the already ratified bilateral agreements in all areas of the environment

Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic

Detailed national policy of the Czech Republic in the field of air quality assessment and management is formulated in the "2015 Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic"12 which has created strategic framework for the "2015 National Emission Reduction Program of the Czech Republic"13 and for programs of air quality improvement in zones and agglomerations14 adopted in 2016.

Based on detailed analysis of all available data and information, the Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic sets the following priorities:

- Priority pollutants
  - PM_{10} and $PM_{2.5}$ (with special attention paid to "black carbon")
  - Benzo(a)pyrene
  - Ground-level ozone and its precursors
  - Ammonia
- Priority areas
  - Agglomeration Ostrava/Karviná/Frýdek-Místek (area of AIR TRITIA project)
  - Agglomerations Prague and Brno
  - Zones North-west, Central Bohemia and Middle Moravia
- Priority sectors
  - Local (household) heating (NFR category 1A4bi)
  - Road transport (NFR category 1A3b)

[12] **Střednědobá strategie (do roku 2020) zlepšení kvality ovzduší v ČR**

Link (CS):

https://www.mzp.cz/C1257458002F0DC7/cz/strategie_zlepseni_kvality_ovzdusi/$FILE/OOO-Strategie_ochrany_ovzdusi-20170505.pdf

[13] **Národní program snižování emisí České republiky**

Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/narodni_program_snizovani_emisi/$FILE/OOO-NPSE_final-20151217.pdf

[14] In accordance with Article 4 of Directive 2008/50/EC on ambient air quality and cleaner air for Europe 3 permanent agglomerations and 7 permanent zones have been established which in total cover the whole territory of the Czech Republic.

The specific objectives set by the Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic are:

- To achieve flat compliance with all air quality limit values by 2020
- To comply with the national emission ceilings (as set by the National Emission Reduction Program) by 2020
- To create conditions for the achievement of national emission reduction commitments in 2025 and 2030
- To further develop national air quality assessment and management system (equipment, knowledge base, human resources)

In order to achieve these specific objectives priority measures are specified for energy, industry, road transport and agriculture sectors. Besides generally applicable measures, local emission ceilings for defined areas are introduced (separately for stationary emission sources and for road transport). Moreover, catalogue of all relevant emission reduction measures (in total 82 measures) is prepared as a background to be used for National Emission Reduction Program and for air quality improvement programs in zones and agglomerations.

National Emission Reduction Program of the Czech Republic

National Emission Reduction Program of the Czech Republic15 (NERP) formulates the rules for implementation of air pollutants emission reduction requirements as set by the updated Gothenburg Protocol to abate acidification, eutrophication and ground-level ozone16 and subsequent Directive 2016/2284/EU on the reduction of national emissions of certain atmospheric pollutants17. As such, priority pollutants of NERP are particulate matter PM2.5, sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (VOC) and ammonia (NH3). However, appropriate attention is also paid to other air pollutants for which regulation (air quality limit or target values) is in place (heavy metals, polycyclic aromatic hydrocarbons, persistent organic pollutants). National Emission Reduction Program has been approved by the Czech Government on 2 December 2015.

NERP covers the following items:

- detailed analysis (carried out in accordance with the DPSIR18 concept) of emission relevant sectors, national emissions, air quality and its impacts on human health, policies and legislation, economic consequences
- analysis of existing emission scenarios and projections (both national projections and internationally recognized GAINS model19 projections)
- detailed SWOT analysis
- principles
- objectives and targets including deadlines
- newly formulated scenario with additional measures

[15] Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/narodni_program_snizovani_emisi/$FILE/OOO-NPSE_final-20151217.pdf

[16] The 1999 UNECE CLRTAP Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended on 4 May 2012

Link: http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE.EB.AIR.114_ENG.pdf

[17] Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC

Link: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.344.01.0001.01.ENG

[18] DPSIR = Driving forces – Pressures – State – Impact - Response

[19] GAINS = Greenhouse Gas - Air Pollution Interactions and Synergies model developer by IIASA is being used by the European Commission as a background for drafting air quality relevant policies and legislation

- national emission ceilings till 2020
- sectoral emission ceilings till 2020
- economic assessment and potential sources of financing

Strategic objective of NERP is to reduce health and environmental risks caused by air pollution through reduction of emissions and subsequent compliance with limit values and other requirements. Agglomeration Ostrava/Karviná/Frýdek-Místek (area of AIR TRITIA project) is the top priority of NERP.

Specific objectives of NERP include:

- Compliance with national emission ceilings for particulate matter PM2.5, sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (VOC) and ammonia (NH3) to be achieved by 2020

Table 5: National emission ceilings of the Czech Republic till 2020

	SO_2	NO_X	VOC	NH_3	$PM_{2.5}$
National emission ceiling 2020 (kt/year)	92	143	129	64	19

- Compliance with sectoral emission ceilings for particulate matter PM2.5, sulphur dioxide (SO2), nitrogen oxides (NOx), volatile organic compounds (VOC) and ammonia (NH3) to be achieved by 2020

Table 6: Sectoral emission ceilings of the Czech Republic till 2020 – SO2

NFR Sector	Ceiling 2020 (kt/year)
1A1a - Public electricity and heat production	57
1A2c - Stationary combustion in manufacturing industries and construction: chemicals	
1A2a - Stationary combustion in manufacturing industries and construction: iron and steel	
1A2f - Stationary combustion in manufacturing industries and construction: other	
1B2c - Venting and flaring (oil, gas, combined oil and gas)	
1A4bi - Residential (heating): stationary plants	16

Table 7: Sectoral emission ceilings of the Czech Republic till 2020 - NOX

NFR Sector	Ceiling 2020 (kt/year)
1A1a - Public electricity and heat production	64
1A2f - Stationary combustion in manufacturing industries and construction: other	
1A2c - Stationary combustion in manufacturing industries and construction: chemicals	
1A2a - Stationary combustion in manufacturing industries and construction: iron and steel	
1A1c - Manufacture of solid fuels and other energy industries	
1A3biii - Road transport: heavy-duty vehicles	20
1A3bi - Road transport: passenger cars	
1A4cii - Agriculture/forestry/fishing: off-road vehicles and other machinery	34

Table 8: Sectoral emission ceilings of the Czech Republic till 2020 - VOC

NFR Sector	Ceiling 2020 (kt/year)
1A3biii - Road transport: heavy-duty vehicles	15
1A3bi - Road transport: passenger cars	
1A3bv - Road transport: gasoline evaporation	
2D3a - Domestic solvent use including fungicides	30
2D3e,f - Degreasing and chemical cleaning	40
2D3g - Chemical products	
2D3i - Other solvent use	
1A4bi - Residential (heating): stationary plants	26

Table 9: Sectoral emission ceilings of the Czech Republic till 2020 - NH3

NFR Sector	Ceiling 2020 (kt/year)
3Da1 - N-fertilizers (includes also urea application)	17
3B1a - Manure management - Dairy cattle	44
3B3 - Manure management - Swine	
3B1b - Manure management - Non-dairy cattle	
3B2, 3B4 - Manure management - sheep, goats, horses, rabbits)	
3B4 - Manure management (poultry)	

Table 10: Sectoral emission ceilings of the Czech Republic till 2020 - PM2.5

NFR Sector	Ceiling 2020 (kt/year)
1A4bi - Residential (heating): stationary plants	10

- Compliance with the national exposure reduction target of 18 ¤g/m$_3$ for $PM_{2.5}$ to be achieved by 2020
- Compliance with limit values[20] for PM_{10}, $PM_{2.5}$, ozone and benzo(a)pyrene to be achieved by 2020
- Reduction of ecosystem areas with exceeded eutrophication limits to the value lower than 2 100 km^2 by 2020
- Reduction of forest areas with exceeded acidification limits to the value lower than 1 900 km^2 by 2020

In order to achieve these specific objectives scenario with additional measures (NPSE-WaM scenario) has been developed which takes into account all existing measures (measures in progress, future measures provided for by legislation in force) and proposes additional priority measures in the following categories:

- Sector-specific measures (23 measures) – economic, technical, organisational measures in energy, industry, transport and infrastructure
- Investment measures in transport infrastructure (36 individual measures) – mostly bypasses of cities and towns
- Cross-cutting measures (7 measures) – energy efficiency in all sectors

[20] Czech legislation has not introduced „target values“, air quality standards for PM , O , As, Cd, Ni and benzo(a)pyrene are set in terms more stringent „limit values“.

- Supporting measures (16 measures) – further development of air quality assessment and management system

Implementation of the NPSE-WaM scenario could bring about compliance with the requirements of the updated UNECE CLRTAP Gothenburg Protocol to abate acidification, eutrophication and ground level ozone and of the Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants and develop conditions for the future compliance with the requirements of the Directive (EU) 2006/2284 set for 2020 and 2030.

3.2.2. Regional level (Moravian-Silesian Region)

Under the framework of the Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic regional programs for the improvement of air quality have been prepared for each of 3 agglomerations and 7 zones in 2016. All programs have been issued by the Ministry of Environment in the form of special legal act (opatření obecné povahy) and include the following items:

- Local emission ceilings for defined groups of stationary emission sources/installations
- Local emission ceilings for road transport for defined areas of municipalities
- List of stationary sources for which revision of permits should be carried out
- Lists of concrete measures to be implemented by municipalities

Program for the Improvement of Air Quality in Agglomeration Ostrava/Karviná/Frýdek-Místek[21]

Local emission ceilings (include both direct emissions and fugitive emissions) for dust (TSP) for defined groups of stationary emission sources (production and processing of metals and plastics) to be complied with by 2020 are presented in the following table:

Table 11: Local emission ceilings for dust (TSP) for defined groups of stationary emission sources - Agglomeration Ostrava/Karviná/Frýdek-Místek

Administrative area	Emission ceiling 2020 (t/year)	Operator (number of sources / installations)
Ostrava	1 740	ArcelorMittal Ostrava a.s. (22)
		EVRAZ VÍTKOVICE STEEL a.s. (8)
		VÍTKOVICE HEAVY MACHINERY a.s (2)
		VÍTKOVICE POWER ENGINEERING a.s. – ENVI (1)
		Vítkovické slévárny, spol. s r.o. - divize Slévárna barevných kovů Tryskání III (1)
Třinec	1 773	TŘINECKÉ ŽELEZÁRNY, a.s. (23)
		Slévárny Třinec a.s. (4)

Newly built installations must not cause the increase of emissions above the emission ceiling.

[21] Link (CS) – General measure: https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_ostrava_karvina_frydekmistek_2016/$FILE/OOO-OOP_PZKO_CZ08A-20160623.pdf

Link (CS) – Program: https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_ostrava_karvina_frydekmistek_2016/$FILE/OOO-OOP_PZKO_CZ08A-20160623.pdf

Local emission ceilings for PM10 for road transport for the defined areas of municipalities expressed as emission reduction in per cent to be achieved by 2020 against the 2011 emissions are presented in the following table:

Municipality	Emission ceiling 2020 (% of 2011 emissions)	Municipality	Emission ceiling 2020 (% of 2011 emissions)
Bohumín	70	Ostrava	60
Bystřice	60	Petrovice u Karviné	80
Český Těšín	75	Petřvald	60
Frýdek-Místek	60	Rychvald	95
Frýdlant nad Ostravicí	70	Šenov	85
Havířov	70	Třinec	65
Jablunkov	60	Vratimov	80
Karviná	60		
Orlová	70		

Revision of permits in accordance with § 13 of the Act on Air Protection is proposed for the following operators whose sources/installations contribute to the increase of concentrations of PM10 by more than 4 ¤g/m^3 (10 % of annual limit value):

- Třinecké železárny a.s. Koksochemická výroba[22] (13 sources/installations)
- ArcelorMittal a.s. závod Koksovna[23] (7 sources/installations)
- OKK Koksovna a.s. – Koksovna[24] Svoboda (8 sources/installations)
- OKD a.s., Důl Paskov – Úpravna uhlí[25] (2 sources/installations)
- Mayr-Melnhof Pellets Paskov Ltd. (1 source/installation)

List of measures to be implemented is presented in the following table (together with NPSE codes and responsibilities):

Table 12: List of measures - Agglomeration Ostrava/Karviná/Frýdek-Místek

NPSE Code[26]	Measure	Responsibility
AA1	Parking policy (limitation of parking in city centres, charging)	municipalities
AA2	Subsidies to public transport	municipalities, regional government
AB1	Completion of backbone road network	Ministry of Transport (MoT)
AB2	Construction of priority road bypasses of cities and towns	municipalities, regional government MoT
AB3	Elimination of local bottlenecks on road network	
AB4	Construction/reconstruction of railroads	MoT
AB5	Construction/reconstruction of infrastructure for trams and trolleybuses	municipalities

[22] Coke oven plant, chemical production

[23] Coke oven plant

[24] Coke oven plant

[25] Coal treatment plant

[26] Measure listed in the National Emission Reduction Program of the Czech Republic

NPSE Code[26]	Measure	Responsibility
AB6	Construction of parking lots, introduction of Park + Ride systems	
AB7	Introduction of low-emission zones	
AB8	Introduction of selective or full no entry zones	
AB9	Integrated public transport systems	municipalities, regional government MoT
AB10	Improvement of public transport quality	
AB11	Preference of public transport	
AB12	Support to the use of alternative fuels in public transport	municipalities, regional government
AB13	Support to cyclo transport	
AB14	Support to walking	
AB15	Increase of fluency of road transport in cities	
AB16	Clean up and maintenance of road communications	municipalities, regional government MoT
AB17	Reduction of dust concentrations through plants around roads	
AB18	Reduction of emissions from vehicles in public sector	municipalities, regional government
AB19	Preference for low-emission/zero-emission vehicles	
AC1	Support to car-sharing	
BB1	Reduction of impact of existing stationary sources on air quality	regional government
BB2	Reduction of fugitive dust emissions in industrial grounds	
BD1	Revision of technical requirements on operation of sources	
BD2	Reduction of emissions from newly built stationary sources	
BD3	Reduction of dust emissions from construction activities	municipalities, regional government
CB2	Reduction of wind erosion	municipalities
DB1	Support to fuel switch in households	municipalities, regional government, Ministry of Environment (MoE)
DB2	Energy savings	municipalities, regional government
DB3	Development of environment-friendly energy infrastructure	
EA1	Emission reduction requirements in public tenders	
EB1	Improvement of road surface, increase of the share of green areas in cities	
EB2	Reduction of impact of long-term deposits of mined matter and of industrial grounds on air quality	municipalities, regional government, Ministry of Industry
EC1	Public awareness raising	municipalities, regional government, MoE
ED1	Land use planning	municipalities, regional government, Ministry of Regional Development, MoE

NPSE Code[26]	Measure	Responsibility
ED2	Regular participation of representatives of the region in working groups established by the Ministry of Environment	regional government

Program for the Improvement of Air Quality in zone Moravia-Silesia[27]

Local emission ceilings (include both direct emissions and fugitive emissions) for dust (TSP) for defined groups of stationary emission sources are not set for this zone.

Local emission ceilings for PM_{10} for road transport for the defined areas of municipalities expressed as emission reduction in per cent to be achieved by 2020 against the 2011 emissions are presented in the following table:

Table 13: Local emission ceilings for PM_{10} for road transport - zone Moravia-Silesia

Municipality	Emission ceiling 2020 (% of 2011 emissions)	Municipality	Emission ceiling 2020 (% of 2011 emissions)
Bílovec	60	Nový Jičín	60
Bruntál	65	Odry	60
Frenštát pod Radhoštěm	75	Opava	60
Fulnek	60	Příbor	65
Hlučín	70	Rýmařov	60
Hradec nad Moravicí	70	Studénka	75
Kopřivnice	80	Vítkov	60
Kravaře	60	Vrbno pod Pradědem	70
Krnov	65		

Revision of permits in accordance with § 13 of the Act on Air Protection is proposed for the following operators whose sources/installations contribute to the increase of concentrations of PM10 by more than 4 ¤g/m^3 (10 % of annual limit value):

- Tafonco a.s. (36 sources/installations)[28]
- EUROVIA LOM Jakubčovice Ltd. (1 source/installation)[29]
- BOOL a KRÝSL – SILNICE MORAVA Ltd. – Kamenolom Tisová (1 source/installation)[30]
- JHF Heřmanovice Ltd. – Kamenolom (1 source)[31]

Measures to be implemented are identical with those listed for Agglomeration Ostrava/Karviná/Frýdek-Místek in Table 12.

[27] Link (CS) - General measure: https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_moravskoslezsko_2016/$FILE/OOO-OOP_PZKO_CZ08Z-20160623.pdf
Link (CS) - program: https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_moravskoslezsko_2016/$FILE/OOO-Priloha_1_k_OOP_CZ08Z-20160623.pdf

[28] Foundry

[29] Quarry

[30] Quarry

[31] Quarry

3.2.3. Local level (Ostrava, Opava)

Short-term Action plans in the meaning of Article 24 of Directive 2008/50/EC on ambient air quality and cleaner air for Europe are not required explicitly. However, regional governments prepare "smog warning and regulatory plans" to be applied in the case that alert threshold is exceeded. These plans include the list of stationary pollution sources which may be regulated (temporary limitation of operation) during the smog period. Municipalities may prepare "smog regulatory plans" which allow them to limit road transport during the smog period.

The list of operators and stationary air pollution sources subject to regulation under the Smog Warning and Regulatory Plan of the Moravian-Silesian Region is presented in the following table:

Table 14: The list of and stationary sources subject to regulation under the Smog Warning and Regulatory Plan of the Moravian-Silesian Region

Operator	Installation/group of sources	Type
ArcelorMital Ostrava a.s.	Závod 10 - Koksovna	coke oven
ArcelorMital Ostrava a.s.	Závod 13 - Ocelárna	steelworks
ArcelorMittal Ostrava a.s.	Závod 12 – Vysoké pece	blast furnace
ČEZ, a.s. (former Energetika Vítkovice, a.s.)	Teplárna Vítkovice	heating plant
Elektrárna Dětmarovice, a.s. (former ČEZ, a.s.)	Elektrárna Dětmarovice	power plant
ENERGETIKA TŘINEC, a.s.	Teplárna E 3	heating plant
OKK Koksovny, a.s.	Koksovna Svoboda	coke oven
TAMEH Czech s.r.o. (former ArcelorMittal Energy)	Závod 4 - Energetika	power+heating plant
TŘINECKÉ ŽELEZÁRNY, a.s.	Kyslíková konvertorová ocelárna	steelworks
TŘINECKÉ ŽELEZÁRNY, a.s.	VK - Koksochemická výroba	coke oven
TŘINECKÉ ŽELEZÁRNY, a.s.	zařízení Aglomerace	ore agglomeration
TŘINECKÉ ŽELEZÁRNY, a.s.	zařízení Vysoké pece	blast furnace
Veolia Energie ČR, a.s. (former Dalkia ČR, a. s.)	Teplárna ČSA	heating plant
Veolia Energie ČR, a.s. (former Dalkia ČR, a. s.)	Teplárna Karviná	heating plant

Municipalities may prepare their air quality improvement programs:

Short-term Program to Improve Air Quality in Ostrava (3rd update 2017)[32]

This Program is complementary to the Program for the Improvement of Air Quality in Agglomeration Ostrava/Karviná/Frýdek-Místek. It includes two categories of measures which are under the competence of the Ostrava Municipality:

- Green planting projects (8 projects in progress, 13 projects in preparation)
- Technical measures to reduce emissions from road transport
  - Extended cleaning of roads
  - Support to public transport (renewal of vehicle fleet – purchase of low-emission buses, subsidies to fare)

[32] Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1/kratkodoby-program-ke-zlepseni-kvality-ovzdusi-iii-aktualizace

- Measures in transport infrastructure (preparation of concrete projects in all categories of measures listed in Table 9 above)

- Energy savings in public buildings (68 projects in preparation)

Local Program to Reduce Emissions and Improve Air Quality for the City of Opava (2006)[33]

This program adopted in 2006 is not actual.

3.3. Poland

Note: List of all relevant policy documents of Poland is presented in Annex 1 together with links to websites.

Poland's current voivodships (provinces) are largely based on the country's historic regions, whereas those of the past two decades (to 1998) had been centred on and named for individual cities. The new units range in area from less than 10,000 square kilometres for Opole Voivodship to more than 35,000 square kilometres for Masovian Voivdeship. Administrative authority at voivodship level is shared between a government-appointed voivode (governor), an elected regional assembly (sejmik) and an executive elected by that assembly.

The voivodeships are subdivided into powiats (often referred to in English as counties), and these are further divided into gminas (also known as communes or municipalities). Major cities normally have the status of both gmina and powiat. Poland has 16 voivodships, 379 powiats (including 65 cities with powiat status), and 2,478 gminas.

3.3.1. National level

Special environmental policy document does not exist at the national level. Existing general strategic documents: 2020 Development Strategy and Long-Term National Development Strategy. Poland 2030 do not pay sufficient attention to the air quality issues. Within chapter Energy security and the environment of the 2030 Strategy, it is stated that:

- The scale of commitments and implementation costs is of particular importance for the reduction of CO2 emissions and air pollution (e.g nitrogen oxides, sulfur oxides and dust)
- Poland will also be a country that effectively limits greenhouse gas emissions, water and air pollution, …

National Air Protection Program till 2020 (with outlook till 2030)[34]

The goal of the National Air Protection Program (KPOP) is to improve air quality throughout Poland, especially in particular areas with the highest concentrations of air pollutants and areas with high population density. Improvement of air quality should be at least to the extent that it does not endanger the health of people in line with the requirements of the EU legislation and in the perspective of 2030 with the objectives set by the World Health Organization (WHO).

To achieve the intended goals an effective implementation of the following actions proposed to be taken at the national, voivodship and local levels:

- raising the issue of air quality by consolidating national action and by establishment of Partnership for improving air quality,
- creating a legal framework for the implementation of effective measures to improve air quality,

[33] Link (CS): http://www.opava-city.cz/cs/nastroje-ochrany-ovzdusi

[34] Link (PL): https://www.mos.gov.pl/srodowisko/ochrona-powietrza/krajowy-program-ochrony-powietrza/

- Incorporate public into action to improve air quality by raising public awareness and the creation of permanent platforms for dialogue with social partners,
- development and dissemination of technologies leading to improving air quality,
- development of mechanisms to control emission sources,
- oromotion of financial mechanisms conducive to improving air quality.

Specification of the most important (priority) measures to be implemented at national level in the short-term (till 2018), medium-term (till 2020) and long-term (2030) time horizons is presented in the following table:

Table 15: Priority measures of the National Air Protection Program till 2020 (national level)

Timing	Measure	Responsibility
Raise the issue of improving air quality by consolidating actions at national level		
2018	Establishing a Partnership for Improving Air Quality in Poland	Ministry of Environment (MoE)
2018	Give priority to improving air quality - in activities of environmental funds	MoE, National Environmental Fund (NEF), regional environmental funds
2018	Include actions and recommendations of the National Air Protection Program during the update of other policies, strategies or priority programs, including above all establishing a priority for improving air quality in the National Health Program	Cabinet of Ministers
2018	Strengthening the air quality assessment system by: • Standardization of air quality assessments across all zones in the country using one mathematical model • Preparation of Guidelines for developing voivodship and municipal emission inventories, including the development of unified emission factors to ensure consistent data within individual voivodships	Chief Environmental Inspectorate
2020	Develop and implement a unified reporting system for transmission data on the emissions of air pollutants together with the definition of calculation rules of ecological effect in the whole country	MoE
2030	Include air quality issues, including the need for new standards air quality for so far non-normalized air pollution, in the national strategic documents	Cabinet of Ministers
Creating a legal framework for the implementation of effective measures aimed at improving air quality		
2018	Amending the act the Act on the Environmental Protection (creation of the possibility of introduction limitations on the quality of fuels used in a given area, flexibility of the compensation mechanism by creating opportunities for compensation of emissions involving more entities, including the solid fuel combustion plants operated by natural persons.	MoE, Parliament
2018	Develop a draft regulation on seasonal requirements on energy efficiency and admissible emissions from combustion plants fuels with a thermal input up to 0.5 MW	MoE, Ministry of Economy
2018	Amendment of the Act on the monitoring and control system of fuel quality by extending the scope of qualitative requirements on solid	MoE, Ministry of Economy, Parliament

	fuels with differentiation of quality parameters of fuels with respect to their use in combustion	
2018	Quality requirements for solid fuels used in combustion plants with thermal input of no more than 1.0 MW	MoE, Ministry of Economy
2020	Amendment of the Act on Environmental Protection, in particular by: • Introduction of definition of emissions from household heating and other small sized stationary sources and zones with exceeded air quality standards • Extending the tasks of voivodship environmental inspectors for preparation of full analysis of exceedances of air quality standards in zones • introduction of the possibility of establishing emission-restricted zones from transport and of principles their establishment • Specify preferences for the location of the air pollution station working within the framework of the State Environmental Monitoring for the purpose of documentation of effectiveness of corrective actions in areas of with exceeded air quality standards	MoE, Parliament
Inclusion of the public in actions to improve air quality		
2018	Carrying out media and information campaigns on environmentally friendly behaviours conducive to improving air quality	MoE
2018	Conducting information programs on the impact of emissions from household heating and other small-sized pollution sources on health and the environment	MoE
2030	Informing the public about the current status of air quality based on various tools, including GIOŚ portal, information boards	Chief Environmental Inspectorate (CEI)
Development and dissemination of technologies conducive to improving air quality		
2018	Development of technology for the production of boilers meeting the EU requirements, including EcoDesign (ecodesign requirements)	Ministry of Economy
2018	Launch of research on the development of reliable measurement methods of composition of TSP, PM_{10} and $PM_{2.5}$ particles emitted from different sources	Ministry of Environment
2020	Development of new technologies for production low- and zero-emission fuels	Ministry of Economy, Ministry of Agriculture and Rural Development
Development of mechanisms for controlling small-sized emission sources conducive to improving air quality		
2018	Preparation of Uniform Guidelines for Waste Incineration Methodology in small heat sources	MoE
Promote financial mechanisms conducive to improving air quality		
2018	Promotion of NEF priority programs: COFFEE, LEMUR, SOWA, STOCKS, PROSUMENT, RIS and other programs that have an indirect impact on improvement air quality	NEF
2018	Financial support for the modernization of urban public transport in the direction of development environmentally friendly transport	Ministry of Infrastructure and Transport
2020	Support for low-emission hybrid solutions that combine several mutually balancing sources such as biogas plants and wind farms or co-operation of wind farms with combined heat and power plants equipped with heat storage tanks.	Ministry of Infrastructure and Transport

Specification of the most important (priority) measures to be implemented at regional and local levels in the short-term (till 2018), medium-term (till 2020) and long-term (2030) time horizons is presented in the following table:

Table 16: Priority measures of the National Air Protection Program till 2020 (regional and local level)

Timing	Measure	Responsibility
Raise the issue of improving air quality by consolidating actions at regional and local level		
2018	Joining the Partnership for Improving Air Quality in Poland	Regional governments (RG)
2018	Giving priority to improving air quality - in activities of REFs	Regional Environmental Funds (REF)
2018	Preparation of Low Emission Economy Plans	Municipalities
Creation of a legal framework for the implementation of effective measures to improve air quality		
2018	Development and adoption of outstanding assumptions for plans or programs on supply of municipalities by heat, electricity and gas fuel	Municipalities
Inclusion of the public in actions to improve air quality		
2018	Raising public awareness about positive aspects of increase energy efficiency of residential buildings and utilities by deep renovation of buildings, development of cogeneration and utilization of renewable energy sources (NEF: COFFEE, STOCKS, RICE, PROSUMENT, ROP 2014-2020)	Municipalities
2018	Information actions to make people aware of the health risks connected with air pollution	Municipalities
2018	Notifications by the chimney services of the advantages of a top-down chimney coal combustion and the use of adequate quality solid fuels	Chimney services
Development and dissemination of technologies conducive to improving air quality		
2018	Dissemination of high efficiency boilers meeting the highest requirements in the field emissions for replacement and modernization of old appliances / low power installations serving to produce heat energy or heat and electricity for individual consumers and micro and small enterprises	Municipalities
2018	Increasing the energy efficiency of residential buildings and utilities by carrying out deep thermal modernization of buildings, the development of cogeneration and the use of renewable energy source	Municipalities
Development of mechanisms for controlling emissions from small-sized pollution sources conducive to improving air quality		
2018	Strengthening controls of the conformity of the installed heating system with the system included in the construction project	Construction inspection offices
Promote financial mechanisms conducive to improving air quality		
2018	Financial support for the replacement and upgrading of old equipment / low power installations Used to generate heat or heat and electricity for individual consumers and micro and small enterprises	NEF, regional environmental funds, ROP 2014-2020
2018	Co-financing of activities related to the implementation of deep thermal modernization of buildings, the development of cogeneration and the use of renewable energy sources in order to increase energy efficiency of residential buildings and public utilities	NEF, regional environmental funds, ROP 2014-2020

National Environmental Monitoring Programme 2016 – 2020[35]

Within the air quality monitoring subsystem, 15 tasks will be carried out in 2016-2020, including:

- tasks related to the examination and assessment of air pollution in accordance with the Act - transposing the requirements of Directive 2008/50/EC on air quality and cleaner air for Europe and Directive 2004/107/EC on arsenic, cadmium, nickel, mercury and polycyclic aromatic hydrocarbons in ambient air which include:
  - examination and assessment of air quality in zones and agglomerations,
  - support for the annual quality assessment system Air by mathematical modelling methods,
  - five-year air quality assessment for determining the appropriate way to perform annual air quality assessments,
  - monitoring of urban background concentrations of polycyclic aromatic hydrocarbons,
  - measurement of air pollution by PM2.5 to monitor the process of achieving the national exposure reduction target,
  - monitoring of particulate matter PM10 and PM2.5, mercury in the gaseous state and deposition of heavy metals and polycyclic aromatic hydrocarbons at regional monitoring stations
  - ozone precursors monitoring,
  - determination of representativeness of measuring stations functioning within the framework of the State Environmental Monitoring;
- tasks related to the forecasting of air pollution and analyses of pollutant smog episodes:
  - long-term forecasts of PM10 and PM2.5 concentrations and the background of pollution,
  - short-term forecasts of air pollution,
  - analysis of selected episodes of high concentrations of PM10;
- research programs on global and continental phenomena implemented at national level by the CIEP under the obligations resulting from Poland's ecological conventions:
  - background monitoring of atmospheric pollution at stations in Łeba, Jarczew, Borecka and Pniecza, according to EMEP, GAW / WMO and COMBINE / HELCOM,
  - monitoring of precipitation chemistry and assessment of deposition of pollutants on the ground,
  - measurements of the ozone layer over Poland and measurements of UV-B intensity;
- task of obtaining information on the sources and loads of substances emitted into the air for the purpose of carrying out evaluations and forecasts in the field of air quality monitoring.

[35] Link (PL): www.gios.gov.pl/pl/stan-srodowiska/pms

3.3.2. Regional level (Silesian Voivodship, Opole Voivodship, Malopolskie Voivodship)

3.3.2.1. Silesian Voivodship

Environmental Protection Program for Silesian Voivodship up to 2019 taking into account the perspective until 2024[36]

The long-term objectives of this Program until 2024 are:

- Significant improvement of air quality in the Silesian region connected with implementation of measures
- Introduction of rational energy management combining energy efficiency with modern technologies

Short-term goals (PAX) until 2019 and related measures (PAX.X) are:

- PA1. Successful implementation of plans and programs to protect the air at local and regional levels by achieving the assumed environmental effects
  - PA1.1. Implementation of the current air protection program with verification of assumed effects (continuous task)
  - PA1.2. Updating the Air Protection Program (2017)
  - PA1.3. Monitoring and management of activities by introducing a system of reporting on remedial actions at local and regional level (continuous task)
  - PA1.4. Develop and implement low-emission economy plans and programs to reduce local emissions (2020)
  - PA1.5. Implementation of air quality monitoring tasks under the State Environmental Monitoring together with the development of the network of mobile measurement stations (2020)
- PA2. Implementation of mechanisms to limit the negative impact of transport on air quality through efficient transport policy to a level that does not adversely affect air quality
  - PA2.1. Include in the transport development plans actions affecting air quality through, inter alia, elimination of high-polluting vehicles, construction of bypass roads, and restrictions on the movement of heavy vehicles on city roads (continuous task)
  - PA2.2. Public transport development based on modern low-emission bus fleet and the creation of an integrated public transport system (tram / bus / train) to support the change from individual cars to public transport (continuous task)
  - PA2.3. Implementation of Intelligent Traffic Management Systems and mechanisms to assist traffic and transport management, such as interchanges, logistical plans at city outskirts, BUSPS, road markings, urban restricted areas (Continuous)
  - PA2.4. Support to the development of bicycle transport and implementation of solutions for its integration with urban transport systems through the development and modernization of infrastructure and change of organization of mobility (continuous task)
- PA3. Successive reduction of pollutant emissions from the municipal sector to a level that does not adversely affect air quality
  - PA3.1. Reduction of emissions from combustion sources up to thermal input of 1 MW by converting to low-emission heating systems and by installing emission reduction filters (continuous operation)

[36]Link (PL): https://www.slaskie.pl/zdjecia/2015/08/31/1441024347.pdf

- PA3.2. Quality control of fuels on the market based on the provisions of the Fuel Quality Monitoring and Control Act (continuous task)
- PA3.3. Implementation of plans for comprehensive modernization of public utility buildings (continuous task)
- PA 3.4. Development and implementation of a system for collection of information on the type of solid fuels used in individual heating appliances (2020)

- PA4. Implement incentive mechanisms to introduce modern industry solutions that reduce emissions of pollutants
  - PA4.1. Conduct regular monitoring of compliance of business entities with legal regulations and issued permit (continuous task)
  - PA4.2. Execution of investments aimed at reducing emissions of pollutants from power and industrial installations, and limiting especially "low emission" and fugitive emissions (continuous task)
  - PA4.3. Execution of investments in the production of low-carbon fuels and biofuels (continuous task)
  - PA4.4 Creating preferences for the development of power generation equipment in a zero-emission way (continuous task)
- PA5. Strengthening of interregional cooperation in the field of common air protection policy, especially with the Moravian-Silesian region and Małopolskie Voivodship through annual meetings
  - PA5.1. To plan and undertake interregional actions and strengthening cross-border co-operation, particularly with the Moravian-Silesian region, to develop a common action strategy for emission reduction independent of local factors (continuous task)
  - PA5.2. To plan and undertake interregional actions in the area of cooperation with Małopolskie Voivodship in order to undertake joint actions for legislative changes supporting actions in air protection and to work out joint strategic corrective actions to improve air quality in southern Poland (continuous task)
- PA6. Strengthening the environmental education system of society aimed at promoting attitudes towards air protection
  - PA6.1. Development of an information system for air quality monitoring and for local air quality (continuous task)
  - PA6.2. Conducting educational campaigns aimed at identifying correct attitudes towards air protection as well as precautions regarding the negative effects of poor air quality (continuous task)
  - PA6.3. Conducting control activities on the ban on waste incineration in individual heating systems as a part of changes in public awareness on preventive measures (Continuous task)
- A7. Financial and technological support for investment in technologies for the efficient use of energy
  - PA7.1. Improving energy efficiency in public buildings, including through their comprehensive thermo-modernization (continuous Task)
  - PA7.2. Improving energy efficiency in residential buildings through their comprehensive thermo-modernization (continuous task)
- PA8. Strengthening the system of using renewable energy sources in the Silesian Voivodship
  - PA8.1. Realization of investments in renewable energy sources in Silesian Voivodship (continuous task)

- PA8.2. Updated assumptions for plans for supply of heat, electricity and gaseous fuels with the determination of the possibility of using renewable energy sources (2018)

- PA9. Shaping attitudes for efficient use of energy
  - PA9.1. Implementation of pro-efficiency measures (including energy efficiency building activities) by individuals, communities and housing cooperatives and companies (continuous)
  - PA9.2. Shaping social attitudes towards implementing energy efficiency principles through environmental education, as well as through benchmarks (continuous task)

The Air Protection Program for the Silesian Voivodship aiming to reach the permissible levels in the air and the exposure concentration obligation[37]

The main objective, set in the Air Protection Program for the Silesian Voivodship, is to protect the health of the inhabitants of the voivodship.

The air protection program has been developed for the following parts of the Silesian Voivodship in which air quality standards are being exceeded:

- for **the Upper Silesian agglomeration** (aglomeracji górnośląskiej) due to exceeding: annual limit value for PM_{10}, maximum number of exceedances of daily limit value for PM_{10} ,target values for $PM_{2.5}$ and benzo (a) pyrene and annual limit value for nitrogen dioxide,
- for **the Rybnik-Jastrzebie agglomeration** (aglomeracji rybnicko-jastrzębskiej), due to exceeding: annual limit value for PM_{10}, maximum number of exceedances of daily limit value for PM_{10}, target value for benzo (a) pyrene and the maximum number of exceedances of daily limit value for sulphur dioxide,
- for **the city of Bielsko-Biała** due to exceeding: annual limit value for PM_{10}, maximum number of exceedances of daily limit value for PM_{10} ,target values for $PM_{2.5}$ and benzo (a) pyrene,
- for **the city of Czestochowa** due to exceeding: annual limit value for PM_{10}, maximum number of exceedances of daily limit value for PM_{10} ,target values for $PM_{2.5}$ and benzo (a) pyrene and annual limit value for nitrogen dioxide,
- for **the Silesian zone** (strefy śląskiej), due to exceeding: annual limit value for PM_{10}, maximum number of exceedances of daily limit value for PM_{10} ,target values for $PM_{2.5}$ and benzo (a) pyrene and the maximum permitted number of exceedances of daily limit value for sulphur dioxide and air quality standards for ground-level ozone.

The set of measures required to achieve the quality of air required by law has been developed on the basis of the results of legal analysis and of feasibility assessment of a given measure as well as on the basis of economic and environmental analyses. The selected measures must:

- get the maximum effect with minimal cost
- have the legal basis for their implementation - competence, organization and control,
- enable the individuals involved in the implementation to take flexible solutions within the framework of the measure, but with concrete environmental effect.

The set of activities is divided among the following categories:

- Limitation of emissions from combustion plants with thermal input up to 1 MW
- Reduction of emissions from transport
- Limitation of emissions from point sources

[37] Link (PL): https://bip.slaskie.pl/dokumenty/2015/01/29/1422520775.pdf

- Spatial planning
- Supportive activities
- Implementation and management of the Air Protection Program
- Supportive activities resulting from other Programs implemented

Description of the most important categories of activities is presented in the following table:

Table 17: Measures included in the Air Protection Program for the Silesian Voivodship

Limitation of emissions from combustion plants up to 1 MW
This operation involves the exchange of inefficient equipment used in individual heating systems with thermal input of up to 1 MW in public utilities, in the communal-housing sector and in the service and trade sectors as well as in small and medium-sized enterprises. PRIORITY 1: Replacement of solid fuel equipment. PRIORITY 2: Replacement of inefficient devices powered by other fuels PRIORITY 3: Thermo-modernization
Local governments should make changes to heating systems in public utilities if they are heated by low-efficiency heating appliances. A low-efficiency heating device is a device whose efficiency is lower than that required in accordance with EN 303-5: 2012
As a part of the exchange of heat sources, the priority should be to connect to the district heating network (if there is a specific area) or to gas (if the connection to the district heating network is economically or technically unjustified). The connection to the gas network must be technologically feasible and economically justified. The district heating network should meet the requirements of reducing heat loss and should also be fed from a high-efficiency combustion source.
Local governments should provide financial support, e.g. in the form of targeted subsidies, for inhabitants and individuals inscribed in local funding regulations in line with the established guidelines and set priorities for action. The amount of funding must depend on the type and location of action.
Priorities for thermo-modernization: 1) Thermo-modernization of objects heated by solid fuel which may be combined with the exchange of a source using solid fuels, 2) Thermo-modernization of objects heated by other fuels than solid fuels,
Reduction of emissions from transport
Improvement of the organization of vehicle traffic in agglomerations The action is to modernize the communication system in agglomerations that improves vehicle traffic flow by using intelligent traffic control systems, such as green waves, time signals, and planning traffic to optimize the speed of movement of vehicles.
Improvement of road signs and setting alternative routes in order to reduce traffic in areas vulnerable to the occurrence of exceedances of limit values for particulate matter and other substances.
Include in the spatial plans logistics centers on the outskirts of cities aimed at indirect elimination of a part of heavy transport from cities
Introducing additional measures to reduce the impact of road traffic such as pedestrian zones, restricted traffic areas, development of cycle paths, development of bicycle infrastructure or bus lanes.
The investment plans for the development of the communication system between cities and agglomerations must also take into account the impact of investment on air quality and should be consistent with those of the Air Protection Program.
Introduction of charged parking zones in new areas.

Public transport development - replacement of rolling stock for environmentally-friendly vehicles powered by LPG, LNG or CNG, or hybrid or electric. Include in the terms of the procurement specifications energy efficiency guidelines such as the purchase of energy efficient trams, eco vehicles that meet the EURO 6 quality standards.
Creation of integrated public transport in the poviats and modernization of the urban transport infrastructure in order to make it more attractive (bus stops, bus station reconstruction, communication systems).
Limitation of emissions from point sources
Review of integrated permits in the Silesian Voivodship, after the entry into force of the amendment to the Act of Public Procurement Law Implementing the IED (Directive 2010/75/EU on industrial emissions)
Absolute enforcement of compensation obligation (Article 225 of the Environmental Protection Act) at the stage of issuance of permits for the emissions of gases or dust into the air or integrated permits for new and significantly changed installations located in the areas of exceedance of air quality standards.
Conduct regular monitoring of compliance with permit requirements by installations located in areas of exceedance of air quality standards with respect to compliance with emission reduction rules.
Spatial planning
Necessity of having new or revised spatial development plans with due attention paid to air quality including conservation of green areas and all specific requirements of air protection.

3.3.2.2. Opole Voivodship

At the territory of the Opole Voivodship, two zones were established – the Opole zone and the City of Opole zone - and two programs have been prepared accordingly:

- Program of air protection for the Opolska zone, due to exceeding the limit values of PM_{10} and target values for $PM_{2.5}$ and benzo (a) pyrene together with the Short-term action plan, Opole 2013[38]
- Program of air protection for the City of Opole zone, due to exceeding the limit values of PM_{10} and target value for benzo (a) pyrene together with the Short-term action plan, Opole 2013[39]

Program of air protection for the Opolska zone, due to exceeding the limit values for PM_{10} and target values for $PM_{2.5}$ and benzo (a) pyrene together with the Short-term Action Plan, Opole 2013[40]

Very detailed and well developed program includes the following measures. For fugitive emissions:

- Preparation and implementation of Emission Reduction Plans
- Establishment of co-financing system for replacing obsolete heating sources by low-emission ones - developing the system and providing funds
- Modernization of coal heating systems in public buildings in the counties of the Opole Voivodship
- Taking measures to reduce air pollution by the municipalities of the Opolskie Voivodship located outside the areas designated under the Air Protection Program
- Modernization of coal heating systems by means of co-financing schemes for boiler replacement in buildings of individuals in municipalities and cities not subject to Emission Reduction Plans

[38] Link (PL): http://archiwum.opolskie.pl/docs/pop_strefa_opolska5.pdf

[39] Link (PL): http://archiwum.opolskie.pl/docs/wnioski/pop_strefa_miasto_opole_1.pdf

[40] Link (PL): http://archiwum.opolskie.pl/docs/pop_strefa_opolska5.pdf

- Continuation of coal heating modernization through co-financing schemes for boiler replacement in buildings of natural persons
- Construction and reconstruction of district heating networks to connect new customers and eliminate low emissions
- Modernization of heating nodes and networks to limit heat loss
- Implementing Emission Reduction Plans by creating an incentive system for exchanging heating systems to achieve the required ecological effect

For emissions from transport

- Construction, reconstruction or modernization of road infrastructure (19 concrete measures)

For emissions from point sources

- The increase of the total efficiency of the equipment reducing emission of particulate matter
- Modernization of municipal boilers and large combustion plants to reduce emissions: modernization of boilers, automation of combustion, conversion of solid fuel to gas, oil or alternative energy sources, construction / modernization of exhaust gas treatment systems.
- Introduction of modern and environmentally friendly technologies, encapsulation of technological systems, modernization of installations to meet BAT and emission standards
- Watering of storage yards and construction sites during dry periods

Supporting measures

- Carry out activities promoting the reduction of air pollution and educational activities (e.g. leaflets, events, school actions, broadcasts and others) in order to raise public awareness of the impact of air pollution on health
- Taking into account in the spatial development plans the requirements for the supply of flats with heat from non-over-emission carriers and the design of building lines, taking into account the "ventilation" of the city, with particular regard to dense areas
- Taking into account in public procurement air pollution problems through the proper preparation of public procurement specifications that take into account the need to protect air from pollution

Short-term Action Plan: Criteria for the implementation of the Short-term Action Plan is the cumulative fulfilment of the following conditions:

- 24-hr concentration of PM_{10} exceeds 300 µg/m^3;
- The 8-hour rolling average from 1 hour to 7:00 including the day following the alarm exceeds 260 µg / m^3;
- Weather forecast indicates persistence (or deterioration) over the following hours and days of unfavourable meteorological conditions

The Short-term Action Plan includes the following possible measures: For fugitive emissions:

- Recommendation of limiting heating in fireplaces if they are not the sole source of heating of flats during the heating period,
- temporary reduction of the nuisance of construction works during periods of work, or the use of preventive measures such as water curtain,
- restriction of fugitive emissions of dust (control of compliance with construction permits),

- spraying of bulk materials and dusty surfaces, especially on construction sites, open mines and rock processing plants in autumn and spring seasons,
- ban on burning plant residues on the ground during autumn and spring.

For emissions from transport:

- reinforcing the control of vehicles leaving the construction site to reduce road contamination leading to fugitive dust emissions,
- transferring the nuisance traffic to alternative routes, designated by road managers in the area, including the installation of information boards on detours,
- possibility of free use of public transport, especially in urban areas,
- Increase of fluency traffic flow through intelligent traffic management (creating green waves),
- wet street cleaning (especially in the case of occurrence or prognosis of exceedance of alert threshold forPM_{10}),
- absolute ban on entry of trucks with payload over 3,5 tonnes for designated city routes,
- temporary increase of parking fee (multiple of normal rate) in city centres.

For emissions from point sources:

- voluntary cessation of activities in the local industries and services that can increase the particulate matter concentration in the air during the smog period,
- the reduction of technological processes

3.3.2.3. Malopolskie Voivodship

Air Protection Program for Małopolskie Voivodship. Małopolska in a healthy atmosphere[41]

The reason for preparation of this Program is that within the Małopolskie Voivodship, limit values for PM_{10} and nitrogen dioxide (Cracow agglomerations) and target values for $PM_{2.5,}$ benzo (a) pyrene and ground-level ozone are still being exceeded.The Air Protection Program for Voivodship includes a set of following concrete long-term measures:

- Reduction of emissions from stationary sources
  - Reduction of emissions from housing sector:
  - Introducing restrictions on the use of solid fuel fired installations
  - The implementation of municipal Emission Reduction Plans - elimination of inefficient heating equipment using solid fuels
  - Expansion and modernization of district heating networks to connect new users
  - Extension of gas networks to connect new users
  - Use of renewable energy sources to reduce the cost of operating low-carbon heating
  - Thermo-modernization of buildings and support of energy-efficient buildings for housing
  - Eliminating waste incineration and limiting the combustion of plant residues on the ground of the earth
- Reduction of emissions from transport

[41] Link (PL): http://powietrze.malopolska.pl/wp/wp-content/uploads/2017/02/POP_Malopolska_2017.pdf

- Extension of the restricted traffic area and limited paid parking area together with the Park and Ride parking systems
- Improving the organization of car traffic in cities
- Maintaining roads in a way that reduces secondary emissions by regular washing, repairs, and improvement of road pavement.
- Development of public transport and implementation of energy-efficient and low emission solutions in public transport
- Development of bicycle transport
- Reinforcement of control at vehicle diagnostic stations

- Reduction of industrial emissions
  - Special supervision of industry activities in the areas with poor air quality
- *Other measures*
  - Strengthening role of the Voivodship Self-Government as coordinator of actions towards improving air quality
  - Corrective implementation of the air quality management system in the voivodship
  - Environmental education of the inhabitants
  - Coherent policy at local level, taking into account the priorities for improving air quality
  - Improving the conditions for ventilation and protection of urban green areas

The Air Protection Program for Małopolskie Voivodeship also includes **short-term measures** to be applied in the case of exceedance of alert threshold for PM_{10}:

- Operational measures
  - Home furnace inspections to comply with the ban on waste incineration
  - Controls on the ban on the burning of plant residues on the ground of the earth
  - Wet cleaning of streets
  - Warrant spraying piles of bulk materials
  - Move the traffic intensity of vehicles to alternative routes
  - Prohibition of entry of trucks into city centers
  - Temporary stopping of technological processes
- Organizational measures
  - Promote the use of better quality fuel
  - Limitation of the use of fireplaces
  - Promotion of carpooling
  - Recommendations for using public transport instead of individual transport
  - Recommendations for walking or cycling on short stretches of road
  - Vehicle inspection for flue gas quality
  - Temporary suspension of construction work

- Checks on the cleanliness of outbound roads from construction sites
- Limitation of leaf blowers and firing fires
- Strengthening the control of buildings in compliance with the provisions of construction law

3.3.3. Local level (example Katowice)

4. Low Emission Economy Plans

PGN - Low Emission Economy Plans (PGN) have been prepared, inter alia, on the basis of surveys conducted in individual municipalities among residents and entrepreneurs and passed by individual local governments. Project of PGNs development was co-financed by the EU from the Cohesion Fund under the Infrastructure and Environment Program. Developing a PGN plan is essential for obtaining EU funding for environmental and energy efficiency tasks, such as subsidies for thermal modernization of facilities, boiler replacement.

Summary of Low Emission Economy Plans in AIR TRITIA voivodships is presented in the following table:

Table 18: Summary of Low Emission Economy plans for relevant Polish municipalities

Voivodship	Number of local government units	PGN Plans			
		Existing	To be prepared	In progress	Will not be prepared
Śląskie (Silesian)	177	166	4	3	4
Opolskie	71	67	1	-	3
Małopolskie (western part only)	58	50	2	1	5
Total	306	283	7	4	12

Links to all Low Emission Economy Plans (PGN) are presented in Annex 2.

Low Emission Economy Plan for Katowice[42]

The Low Emission Economy Plan for Katowice sets the following strategic objectives:

- Striving to maintain zero-emission economic growth and to meet the needs of society, i.e. the economic and social development of Katowice until 2030 without increasing the demand for primary and final energy
- Implementation of the vision of the city managed in a sustainable and environmentally friendly way
- **Reduce emissions from stationary installations as well as emissions from transport to meet air quality standards**
- Compliance with air quality standards is one of the main goals of PGN. At present, the city of Katowice, as well as other municipalities located in the Upper Silesian agglomeration area, is faced with the problem of exceedances of air quality standards for particulate matter (PM_{10} and $PM_{2.5}$) and benzo(a)pyrene. The aim of the plan is to improve air quality in the city by reducing emissions of these pollutants. In addition, the second major environmental goal is to reduce CO_2 and other greenhouse gases emissions in line with European Climate Policy. Projects should take into account activities in all sectors existing in the city, including the transport sector. In addition, the actions undertaken by the city should

[42] Plan PGN (PL): http://www.katowice.energiaisrodowisko.pl/plan-gospodarki-niskoemisyjnej

take into account, to a large extent, information and education projects aimed at the people, with a view to their most intensive involvement in initiatives to improve air quality and reduce pollutant emissions.

- Increasing the use of renewable energy
- Increasing the efficiency of energy use / generation and the use of renewable energy sources
- Development of innovative, low-carbon economy based on knowledge and modern technologies
- Improvement of spatial order, development of sustainable public space, and revitalization of degraded areas

The Low Emission Economy Plan for Katowice proposes 46 concrete projects for which co-financing from the EU funding instruments is expected. Examples of projects mostly relevant for the improvement of air quality are presented below:

Sector Public utility / municipal infrastructure

- Purchase and implementation of a sustainable energy and environmental management system in Katowice
- Purchase and implementation of an interactive energy monitoring system together with the possibility of exploitation in public buildings in the city of Katowice
- Reconstruction of thermal power sources together with automatic weather and time regulation in selected buildings of the city of Katowice
- Installation of a high-efficiency cogeneration system together with the reconstruction of the heat recovery unit from the exhaust gases in the process of thermal neutralization of waste in the ZUO[43] in Katowice
- Modernization and expansion of district heat distribution network to external customers of heat generated in the process of thermal neutralization of waste in ZUO in Katowice
- Improving energy efficiency through a comprehensive thermo-modernization of public utility buildings in Katowice (7 projects)
- Thermo-modernization of public buildings

Housing sector

- Limitation of emissions in the city of Katowice - continuation of activities related to co-financing of heat sources exchange in residential buildings
- Connection of multi-family residential buildings to the heating network together with their thermal modernization
- Reduction of emissions in the city of Katowice - continuation of activities related to the exchange of heat sources in multi-family buildings owned or jointly owned by Katowice municipality by connecting to the district heating or gas network including microgeneration, solar collectors and heat pumps
- Construction of heating and gas networks in the city
- Thermo-modernization of buildings in the city of Katowice

Commerce, services, businesses

- Construction of energy efficient and passive commercial buildings

[43] ZUO: Waste utilization plant.

Transport

- Replacing the fleet of vehicles used by the City of Katowice and its subordinate units for the energy-efficient vehicles
- Reduce the negative impact of public transport on the environment and improve public transport quality by purchasing new buses
- Katowice System of Integrated interchanges
- Modernization of tram infrastructure along with accompanying infrastructure
- Intelligent Traffic Management System in the KZK GOP[44] area
- Dynamic Passenger Information System

4.1. Slovak Republic

Note: List of all relevant policy documents of the Slovak Republic is presented in Annex 1 together with links to websites.

As for administrative division, Slovakia is subdivided into 8 krajov (usually translated as "region"), each of which is named after its principal city. Regions have enjoyed a certain degree of autonomy since 2002. Their self-governing bodies are referred to as Self-governing (or autonomous) Regions (samosprávny kraj) or Upper-Tier Territorial Units (vyšší územný celok, abbr. VÚC).

The "kraje" are subdivided into many “okresy” (usually translated as counties or districts). Slovakia currently has 79 districts.

The okresy are further divided into obce (usually translated as "municipality"). There are currently 2,891 obcí.

4.1.1. National level

PM_{10} Emission Reduction Strategy[45]

This Program sets five priority areas:

- Air quality monitoring
- Local (household) heating
- Transport
- Fugitive emissions from unpaved surfaces
- Health impacts and public awareness raising

Proposed measures for each priority area are presented in the following table:

[44] KZK GOP: Municipal Transport Union of the Upper Silesian Industrial District

[45] Link (SK):
http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/strategia_pre_redukciu_pm10.pdf

Table 19: PM10 Emission Reduction Strategy of Slovakia – Measures

	Responsibility	Deadline
Monitoring		
Optimization of monitoring stations in terms of location (including possible relocation) and equipment including mobile use (to be supplemented by at least two mobile AMSs). Upgrading the equipment and providing the required AMS equipment service.	Slovak Hydrometeorological Institute (SHMI) Ministry of Environment (MoE)	2013-2014
Estimation of emission inputs for high-resolution model tools, mainly for domestic local furnaces and transport.	SHMI, MoE, regional authorities, Slovak Road Administration (SRA)	2013-2015
Ensure monitoring of the chemical composition of PM_{10} in particular areas in order to identify potential sources and their shares in measured concentrations.	SHMI, MoE	2013-2015
Quantification of contributions of particular sources to measured concentrations of PM_{10} - including cross-border and regional transfer of pollution.	SHMI	2013-2014
Closer cooperation of ministries and sectoral organizations in the modelling of PM_{10} emissions from transport.	MoE, Ministry of Transport, SHMI, National Motorway Company, SRA	2013-2014
Local heating		
Continue to financially support higher use of solar energy in households (a measure adopted in the Slovak Republic's Energy Security Strategy).	Ministry of Economy	Long-term
Ensure a 2% share of electricity in environmentally-polluted areas to cover local heat supply using innovative technologies like solar panels, heat pumps etc. (A measure adopted in the Energy Security Strategy of the Slovak Republic)	Ministry of Economy	Long-term
To support research, development and implementation projects aimed at the use of geothermal waters for energy purposes (a measure adopted in the Slovak Republic's Energy Security Strategy).	Ministry of Economy	Long-term
The optimization of the type and quality of fuels in boilers for domestic heating and co-financing the exchange of boilers to support exclusively equipment with low emissions of dust (20 mg / m^3).	Ministry of Economy, MoE	Long-term
Introduce legislative tools to control home heating, small sources in such a way as it is in the case of large and medium-sized sources, and provide local heating records.	MoE, municipalities	2013
Transport		
Monitor and evaluate compliance with Act no. 158/2011 Coll., on the promotion of energy-efficient and environmentally-friendly motor vehicles.	Ministry of Economy	Continuing
Through the legislation on road tolls for trucks influence indirectly the reduction of PM_{10} emissions from transport, i.e. to impose higher rates according to emission classes.	Ministry of Transport, Construction and Regional Development (MTCRD)	2013
Ensure, particularly in cities, the regulation of transport by intelligent transport systems, regulated by the Directive 2010/40/EU.	MTCRD	Continuing

	Responsibility	Deadline
Establishment of low emission zones if local communications allow, especially in areas with higher population density, mainly in cities and where road transport is mainly responsible for poor air quality.	Regional governments, municipalities	2013 -
In the framework of municipal transport planning, combine pricing regimes, efficient public transport services and cycling infrastructure (completion of a sufficient network of cyclo paths) and other non-motorized transport as well as infrastructure for charging /refueling of environmentally friendly vehicles.	Regional governments, municipalities	2013-
Introduce mandatory, progressively tightening low-emission criteria for public procurement of means of transport such as vans, taxis, buses and related services.	Regional governments, municipalities	2013-
Submission of Winter Maintenance Operations Plans to the relevant air protection authority and to update it on its implementation.	Regional governments, municipalities, National Motorway Company, SRA	
Search for new technological processes and solutions for the measurement of nitrogen oxides (NOx) and performance checks of particulate matter filters during emission controls.	MTCRD	2014-
Reduce emission control intervals for older diesel engine vehicles in accordance with the requirements of the European Parliament and Council Regulation on the Regular Technical Inspection of Motor Vehicles	MTCRD	according to the Regulation
Increase the use of mobile emission control stations in the roadside technical inspections carried out by the Police Force in overseeing the safety and flow of road traffic.	Police	Continuing
Fugitive emissions from unpaved surfaces		
Control and evaluation of compliance with the principles and conditions laid down for agricultural land management such as afforestation of part of agricultural land, non-disturbance of landscape features such as alleys, windlasses, soil protection by appropriate measures against erosion, new methods of soil cultivation (e.g. green ploughing)	Ministry of Agriculture and Rural Development	Continuing
Evidence and control of observance of conditions of construction activity in towns and municipalities by building authorities.	Municipalities	Continuing
Support for green planting, including substitute planting	Municipalities	Continuing
Health impacts and public awareness raising		
Collaboration in the development of regional studies of the impact of dust particles on public health in the areas of air quality management.	Public health authorities	Continuing
Creating a comprehensive and interactive Air Quality Portal of the SR with the ability to filter and combine air quality data with meteorological data.	SHMI	2013

	Responsibility	Deadline
Ensure an educational and information campaign for particular categories of air pollution sources on air quality issues and opportunities for improvement in regions, including local heating issues.	MoE, SHMI, Slovak Environment Agency	2013-2014
Elaboration of the PM_{10} emission reduction guide for municipalities and towns as an example of good practice for using local heating systems (best available technique, fuel preparation, combustion modes).	MoE, SHMI, Slovak Environment Agency	2013-2014
Keep up-to-date air quality information in the media (in general and also for the purposes of action plans and smog warning and regulatory systems.	SHMI, regional and local authorities.	Long-term

Regional Program for Air Quality Improvement for Ground-level Ozone for the whole Territory of Slovakia (2010)[46]

Measures to improve air quality regarding ground-level ozone are implemented at national level through implementation of the national air protection legislation and implementation of strategic documents adopted by the Government of the Slovak Republic. Various measures to reduce emissions of ground-level ozone precursors are and will be implemented at national level for the following categories of measures:

- Planning
  - VOC emission reduction plans
  - Emission reduction programs
  - National Program to Support Biomass
  - Regional energy policies
  - Regional energy concepts of using agricultural and forestry biomass
  - Transport Policy of the Slovak Republic
  - National Program of Reforms
- Normative measures
  - EIA/SEA
  - Integrated environmental permits
  - Emission limit values
  - Product standards
  - Fuel quality standards
  - Requirements related to road transport
- Organizational measures
  - Preference of Environmentally Friendly Products

[46] Link (SK) – Program:
http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_2010.pdf
Link (SK) – Annex I:
http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_p1-2010.pdf
Link SK – Annex II:
http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_p2-2010.pdf

- The inclusion of air quality criteria in public procurement

- Economic measures
  - Air pollution charges
  - Support for projects aimed at reducing emissions of pollutants from the state budget through the budget chapters of the relevant Ministry
  - Financial support from the EU funds
  - Financial support from the Environmental Fund
  - Financial support to energy savings and introduction of renewables
- Information measures
  - Collection and processing of information
  - Dissemination of information, environmental education and awareness raising
- Institutional measures
  - Optimization of institutional arrangement of state administration
  - Optimization of institutional arrangement of supporting institutions
- Voluntary measures
  - Environmental management systems (ISO 14000, EMAS)
  - Voluntary agreements between state administration and operators

4.1.2. Regional level (Zilina Region)

Strategic documents related to emission reduction and air quality are not available at the level of regions.

4.1.3. Local level (Zilina, Ruzomberok)

At the local levels two types of documents are in place:

- Air Quality Improvement Programs (prepared in accordance with Article 23 and Annex XV of Directive 2008/50/EC on ambient air quality and cleaner air for Europe)
- Action plans (prepared in accordance with Article 24 of the Directive 2008/50/EC on ambient air quality and cleaner air for Europe); generally legally binding instruments

Air Quality Improvement Program – Territory of the City of Žilina[47]

All included measures are focused on the reduction of emissions of dust (TSP). The most important concrete long-term / planned measures are as follows:

- Industry
  - reduction of TSP emissions in Dolvap Ltd. (limestone mining)
  - Reduction of TSP emissions in Zilinská teplatenska Co. (heating plant)
- Transport
  - Completion of missing parts of D1 and D3 highways
  - Upgrade and extension of trolleybus network

[47] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/PZKO_Za_2013.pdf

- Local heating
    - Support to fuel switch from coal to other media
- Other
    - Clean up of roads
    - Planting green
    - Restructuring brownfields

Action Plan Žilina[48]

Action Plan sets short term measures to be implemented by local competent authorities (municipality, regional public health office, district environmental office) in the case that average 24-hours concentration of PM_{10} in three consecutive days exceeds 45 $\mu g/m^3$ and poor dispersion conditions are likely to continue. The short-term measures include:

- Information of public / warning of public
- Clean up of roads
- Recommendation to avoid combustion of low grade fuels in household boilers
- Recommendations to business community to reduce polluting activities.

Air Quality Improvement Program – Territory of Town Ružomberok and Municipality Likavka[49]

All included measures are focused on the reduction of emissions of dust (TSP). The most important concrete long-term / planned measures are as follows:

- Industry
    - reduction of TSP emissions in Mondi SCP a.s. (pulp and paper production)
- Transport
    - Completion of missing parts of D1 highway including city bypass
    - Improved organisation of road transport
- Local heating
    - Support to fuel switch from coal to other media
- Other
    - Clean up of roads
    - Green planting

Action Plan Ružomberok and Likavka[50]

Action Plan sets short term measures to be implemented by local competent authorities (municipalities, regional public health office, and district environmental office) in the case that average 24-hours concentration of PM_{10} in three consecutive days exceeds 45 $\mu g/m^3$ and poor dispersion conditions are likely to continue. The short-term measures include:

[48] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-zilina.pdf

[49] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/Ruz_Lik%20prg_2013_.pdf

[50] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-ruzomberok-likavka.pdf

- Information of public / warning of public
- Clean up of roads
- Recommendation to avoid combustion of low grade fuels or waste in household boilers
- Recommendations to business operators to reduce polluting activities.

Air Quality Improvement Program – Territory of Towns Martin and Vrútky[51]

All included measures are focused on the reduction of emissions of dust (TSP). The most important concrete long-term / planned measures are as follows:

- Industry
  - reduction of TSP emissions in ŽOS Vrútky Co. (production of rail vehicles)
  - Reduction of TSP emissions in Martinská teplatenska Co. (heating plant)
- Transport
  - Completion of missing parts of D1 highway
- Local heating
  - Support to fuel switch from coal to other media
- Other
  - Clean up of roads
  - Green planting

Action Plan Martin and Vrútky[52]

Action Plan sets short term measures to be implemented by local competent authorities (municipalities, regional public health office, and district environmental office) in the case that average 24-hours concentration of PM_{10} in three consecutive days exceeds 45 $\mu g/m^3$ and poor dispersion conditions are likely to continue. The short-term measures include:

- Information of public / warning of public
- Clean up of roads
- Recommendation to avoid combustion of low grade fuels or waste in household boilers
- Recommendations to business operators to reduce polluting activities.

[51] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/Mt_Vrutky_PZKO_2013.pdf

[52] Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-martin-vrutky.pdf

5. Legislation

5.1. EU Legislation (air quality, emissions, energy, transport, EIA/SEA)

Note: List of all relevant legal acts of the EU is presented in Annex 3 together with links to websites.

Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe[53] as amended[54]

Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air[55]

These directives establish air quality objectives, including ambitious, cost-effective targets for improving human health and environmental quality up to 2020. They also specify ways of assessing these and of taking any corrective action if the standards are not met and provide for the public to be kept informed.

These directives include the following key elements:

- Thresholds, limit values and target values are set to assess each pollutant covered: sulphur dioxide, nitrogen dioxide, particulate matter (PM_{10} and $PM_{2.5}$), lead, benzene, carbon monoxide, ozone, arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (expressed as benzo(a)pyrene).
- Where pollution levels in any particular area are higher than the thresholds, **air quality plans** must be introduced to correct the situation. These may include specific measures to protect sensitive groups, such as children.
- If there is a risk that pollution levels may exceed the thresholds, **short-term action plans** to reduce road traffic, construction works or certain industrial activities, for instance, must be implemented to head off the danger.

The directives distinguish among several types of air quality standards:

- **limit value (LV)** shall mean a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained
- **critical level (CL)** shall mean a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans
- **target value (TV)** shall mean a level fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained where possible over a given period
- **alert threshold (AT)** shall mean a level beyond which there is a risk to human health from brief exposure for the population as a whole and at which immediate steps are to be taken by the Member States

[53] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0050

[54] Commission Directive (EU) 2015/1480 of 28 August 2015 amending several annexes to Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council laying down the rules concerning reference methods, data validation and location of sampling points for the assessment of ambient air quality; Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32015L1480

[55] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0107

- **information threshold (IT)** shall mean a level beyond which there is a risk to human health from brief exposure for particularly sensitive sections of the population and for which immediate and appropriate information is necessary
- **long-term objective (LTO)** shall mean a level to be attained in the long term, save where not achievable through proportionate measures, with the aim of providing effective protection of human health and the environment
- **In the case of $PM_{2.5}$ 3 interim standards are set: average exposure indicator[56], exposure concentration obligation[57]** and **national exposure reduction target[58]**

An overview of the air quality standards laid down by the above mentioned directives is presented in the following table:

Table 20: Overview of the EU air quality standards

Pollutant	Formula	Type of standard	Value	Unit	Averaging period	Permitted exceedance
Protection of human health						
Sulphur dioxide	SO_2	LV	350	$\mu g/m^3$	One hour	24 times per year
Sulphur dioxide	SO_2	LV	125	$\mu g/m^3$	One day	3 times per year
Sulphur dioxide	SO_2	AT	500	$\mu g/m^3$	3 consecutive hours	
Nitrogen dioxide	NO_2	LV	200	$\mu g/m^3$	One hour	18 times per year
Nitrogen dioxide	NO_2	LV	40	$\mu g/m^3$	Calendar year	0
Nitrogen dioxide	SO_2	AT	400	$\mu g/m^3$	3 consecutive hours	
Benzene	C_6H_6	LV	5	$\mu g/m^3$	Calendar year	0
Carbon monoxide	CO	LV	10	mg/m^3	Calendar year	0
Lead	Pb	LV	0.5	$\mu g/m^3$	Calendar year	0
Ozone	O_3	TV	120	$\mu g/m^3$	Maximum daily 8- hour mean	25 days per year averaged over 3 years
Ozone	O_3	LTO	120	$\mu g/m^3$	Maximum daily 8- hour mean within a year	0
Ozone	O_3	IT	180	$\mu g/m^3$	1 hour	
Ozone	O_3	AT	240	$\mu g/m^3$	1 hour	
PM_{10}	PM_{10}	LV	50	$\mu g/m^3$	One day	35
PM_{10}	PM_{10}	LV	40	$\mu g/m^3$	Calendar year	0
$PM_{2.5}$	$PM_{2.5}$	LV	25	$\mu g/m^3$	Calendar year	0

[56] **Average exposure indicator** shall mean an average level determined on the basis of measurements at urban background locations throughout the territory of a Member State and which reflects population exposure. It is used to calculate the national exposure reduction target and the exposure concentration obligation

[57] **exposure concentration obligation** shall mean a level fixed on the basis of the average exposure indicator with the aim of reducing harmful effects on human health, to be attained over a given period

[58] **national exposure reduction target** shall mean a percentage reduction of the average exposure of the population of a Member State set for the reference year with the aim of reducing harmful effects on human health, to be attained where possible over a given period

$PM_{2.5}$ after 1.1.2020	$PM_{2.5}$	LV	20	µg/m³	Calendar year	0
$PM_{2.5}$	$PM_{2.5}$	TV	25	µg/m³	Calendar year	0
Arsenic	As	TV	6	ng/m³	Calendar year	0
Cadmium	Cd	TV	5	ng/m³	Calendar year	0
Nickel	Ni	TV	20	ng/m³	Calendar year	0
benzo(a)pyrene	BaP	TV	1	ng/m³	Calendar year	0
Protection of vegetation						
Sulphur dioxide	SO_2	CV	20	µg/m³	Calendar year and winter	0
Nitrogen dioxide	SO_2	CV	30	µg/m³	Calendar year	0
Ozone[59]	O_3	TV	18000	µg/m³.h	May to July averaged over 5 years	0
Ozone[58]	O_3	LTO	6000	µg/m³.h	May to July	0

Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC[60]

In order to move towards achieving levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment, this Directive establishes the **emission reduction commitments**[61] for the Member States' **anthropogenic atmospheric emissions of sulphur dioxide (SO_2), nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC), ammonia (NH_3) and fine particulate matter ($PM_{2.5}$)** and requires that **national air pollution control programmes** be drawn up, adopted and implemented and that emissions of those pollutants and the other pollutants referred to in Annex I[62], as well as their impacts, be monitored and reported.

National emission reduction commitments for the AIR TRITIA project countries are presented in the following table:

Table 21: National emission reduction commitments for the AIR TRITIA project countries

	Emission reduction in % compared with 2005 emissions					
	Czech Republic		Poland		Slovak Republic	
Pollutant	2020-2029	2030 -	2020-2029	2030 -	2020-2029	2030 -
SO_2	45	66	59	70	57	82
NO_X	35	64	30	39	36	50
NMVOC	18	50	25	26	18	32

[59] AOT40 calculated from one hour values

[60] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.344.01.0001.01.ENG

[61] **national emission reduction commitment** means the Member States' obligation in the reduction of emissions of a substance; it specifies the emission reduction that as a minimum has to be delivered in the target calendar year, as a percentage of the total of emissions released during the base year (2005)

[62] Other pollutants which must be monitored and reported: TSP, PM_{10} ,CO, black carbon (BC), heavy metals (As, Cd, Cr, Cu, Hg, Pb, Se, Zn), POPs (total PAHs, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, dioxins/furans, PCBs, HCB)

	Emission reduction in % compared with 2005 emissions					
NH_3	7	22	1	17	15	30
$PM_{2.5}$	17	60	16	18	36	49

Note: The national emission reduction commitments for the period 2020 - 2029 are identical with those adopted under the updated UNECE CLRTAP Protocol to abate acidification, eutrophication and ground level ozone (see https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-1-k&chapter=27&clang=_en)

Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control); IED

To control industrial emissions, the EU has developed a general framework based on integrated permitting. This means the permits must take account of a plant's complete environmental performance to avoid pollution being shifted from one medium - such as air, water and land - to another. Priority should be given to preventing pollution by intervening at source and ensuring prudent use and management of natural resources. As a recast of 7 earlier pieces of legislation, it lays down rules to prevent and control pollution into the air, water and land and to avoid generating waste from large industrial installations. Key points are as follows:

- The legislation covers the following industrial activities: energy, metal production and processing, minerals, chemicals, waste management and other sectors such as pulp and paper production, slaughterhouses and the intensive rearing of poultry and pigs.
- All installations covered by the directive must prevent and reduce pollution by applying the **best available techniques (BATs)**, efficient energy use, waste prevention and management and measures to prevent accidents and limit their consequences.
- The installations can only operate possessing a permit and have to comply with the conditions set therein.
- The BAT conclusions adopted by the Commission are the reference for setting the permit conditions. Emission limit values must be set at a level that ensures pollutant emissions do not exceed the levels associated with the use of BATs. However they may extended if it is proven that this would lead to disproportionate costs compared to environmental benefits.
- Competent authorities need to conduct regular inspections of the installations.
- The public must be given an early opportunity to participate in the permitting process.

BAT conclusions are available for the following industrial and agricultural activities:

- Production of large volume organic chemicals[63]
- Large combustion plants[64]
- intensive rearing of poultry or pigs[65]

[63] Commission Implementing Decision (EU) 2017/2117 of 21 November 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for **the production of large volume organic chemicals**

Link (EN, CS, PL, SK): https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D2117

[64]Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for **large combustion plants**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1503383091262&uri=CELEX:32017D1442

[65] Commission Implementing Decision (EU) 2017/302 of 15 February 2017 establishing best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council, for the **intensive rearing of poultry or pigs**

- common waste water and waste gas treatment/management systems in the chemical sector[66]
- non-ferrous metals industries[67]
- production of wood-based panels[68]
- production of pulp, paper and board[69]
- refining of mineral oil and gas[70]
- tanning of hides and skins[71]
- production of cement, lime and magnesium oxide[72]
- production of chlor-alkali[73]
- manufacture of glass[74]
- iron and steel production[75]

Besides the common rules for all activities stated above, Directive 2010/75/EU includes special provisions (emission limit values, technical requirements for operation, monitoring requirements) for certain categories of activities:

- Large combustion plants (combustion plants with rated thermal input of 50 MW or more)

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.043.01.0231.01.ENG&toc=OJ:L:2017:043:FULL

[66] Commission Implementing Decision (EU) 2016/902 of 30 May 2016 establishing best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council, for **common waste water and waste gas treatment/management systems in the chemical sector**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.152.01.0023.01.ENG

[67] Commission Implementing Decision (EU) 2016/1032 of 13 June 2016 establishing best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council, for the **non-ferrous metals industries**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.174.01.0032.01.ENG

[68] Commission Implementing Decision (EU) 2015/2119 of 20 November 2015 establishing best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council, for the **production of wood-based panels**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.306.01.0031.01.ENG

[69] 2014/687/EU: Commission Implementing Decision of 26 September 2014 establishing the best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council, for the **production of pulp, paper and board**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_284_R_0017

[70] 2014/738/EU: Commission Implementing Decision of 9 October 2014 establishing best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the **refining of mineral oil and gas**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_307_R_0009

[71] 2013/84/EU: Commission Implementing Decision of 11 February 2013 establishing the best available techniques **(BAT) conclusions** under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the **tanning of hides and skins**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.045.01.0013.01.ENG

[72]2013/163/EU: Commission Implementing Decision of 26 March 2013 establishing the best available techniques **(BAT) conclusions** under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the **production of cement, lime and magnesium oxide**

Link (EN, CS, PL, SK):

http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.100.01.0001.01.ENG&toc=OJ:L:2013:100:TOC

[73] 2013/732/EU: Commission Implementing Decision of 9 December 2013 establishing the best available techniques **(BAT) conclusions**, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the **production of chlor-alkali**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.332.01.0034.01.ENG

[74] 2012/134/EU: Commission Implementing Decision of 28 February 2012 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the manufacture of glass

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2012.070.01.0001.01.ENG

[75] 2012/135/EU: Commission Implementing Decision of 28 February 2012 establishing the best available techniques **(BAT) conclusions** under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for **iron and steel production**

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32012D0135

- Waste incineration and co-incineration plants
- Installations and activities using organic solvents
- Installations producing titanium dioxide

In the case of existing large combustion plants[76] the Directive provides for two options: either to achieve compliance with newly set stringent emission limit values (ELVs) or to participate in the Transitional National Plan (Article 32 of the Directive) which leads to the same emission reduction effect using more flexible concept of emission ceilings instead of compliance with ELVs[77].

All three AIR TRITIA countries (Czech Republic[78], Poland[79], Slovak Republic[80]) decided for preparation of Transitional National Plans due to economic reasons.

Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants[81]

This Directive lays down rules (emission limit values, technical requirements on operation) to control air emissions of sulphur dioxide (SO_2), nitrogen oxides (NOx) and dust (particles) from medium combustion plants[82] , as well as rules to monitor carbon monoxide (CO) emissions from these plants.

Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products[83]

This Directive provides for the setting of requirements which the energy-related products covered by implementing legislation must fulfil in order to be placed on the market and/or put into service. Ecodesign parameters of products required by this Directive include emissions to air (greenhouse gases, acidifying agents, volatile organic compounds, ozone depleting substances, persistent organic pollutants, heavy metals, fine particulate and suspended particulate matter).

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[84]

This Regulation, **which is of high importance for AIR TRITIA Project**, establishes ecodesign requirements for placing on the market and putting into service solid fuel boilers with a rated heat output of 500 kilowatt

[76] combustion plants which were granted the first permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003

[77] 2012/115/EU: Commission Implementing Decision of 10 February 2012 laying down rules concerning the transitional national plans referred to in Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012D0115

[78] 2015/C 117/03 Commission decision of 10.4.2015 on the notification by the Czech Republic of a transitional national plan referred to in Article 32 of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

Link (EN):

https://circabc.europa.eu/webdav/CircaBC/env/ied/Library/TNPs/_Commission%20Decisions/Czech%20Republic%20TNP%20-%20Commission%20Decision%2010-04-2015%20(EN).pdf

Link (CS): http://www.mzp.cz/C1257458002F0DC7/cz/prechodny_narodni_plan_cr/$FILE/OOO-PNP_CR_2017-20170214.pdf

[79] Commission decision of 3.3.2016 on the notification by the Republic of Poland of a modified transitional national plan referred to in Article 32(6) of Directive 2010/75/EU on industrial emissions Link (EN):

https://circabc.europa.eu/sd/a/23b38752-939c-46e9-8762-7022eb133c6b/Poland%20TNP%20-%20Commission%20Decision%2003.03.2016%20(EN).pdf

[80] 2014/25/EU: Commission Decision of 17 January 2014 on the notification by the Slovak Republic of a transitional national plan referred to in Article 32 of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32014D0025

[81]Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L2193

[82] **Medium combustion plant**: a plant which burns fuel and uses the heat generated, with a rated thermal input equal to or greater than 1 MW and less than 50 MW, irrespective of the type of fuel it uses.

[83] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0125

[84] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.193.01.0100.01.ENG

('kW') or less, including those integrated in packages of a solid fuel boiler, supplementary heaters, temperature controls and solar devices. Ecodesign requirements are as follows:

From 1 January 2020 solid fuel boilers shall comply with the following requirements:

- seasonal space heating energy efficiency for boilers with a rated heat output of 20 kW or less shall not be less than 75 %;
- seasonal space heating energy efficiency for boilers with a rated heat output of more than 20 kW shall not be less than 77 %;
- seasonal space heating emissions of particulate matter shall not be higher than 40 mg/m^3 for automatically stoked boilers and not be higher than 60 mg/m^3 for manually stoked boilers;
- seasonal space heating emissions of organic gaseous compounds shall not be higher than 20 mg/m^3 for automatically stoked boilers and not be higher than 30 mg/m^3 for manually stoked boilers;
- seasonal space heating emissions of carbon monoxide shall not be higher than 500 mg/m^3 for automatically stoked boilers and not be higher than 700 mg/m^3 for manually stoked boilers;
- seasonal space heating emissions of nitrogen oxides, expressed in nitrogen dioxide, shall not be higher than 200 mg/m^3 for biomass boilers and not be higher than 350 mg/m^3 for fossil fuel boilers;

These requirements shall be met for the preferred fuel and for any other suitable fuel for the solid fuel boiler. In addition, emissions of VOCs are also regulated by special legislation in the case of the storage of petrol, its distribution from terminals to service stations[85] and during refuelling of motor vehicles at service stations[86] and in the case of use of organic solvents in certain paints and varnishes and vehicle refinishing products[87]. Certain liquid fuels (gas oil, heavy fuel oil) intended for combustion in stationary sources are regulated with respect to sulphur content by special directive[88].

Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment[89], as amended[90]

Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment[91]

Environmental impact assessment (EIA) and Strategic environmental assessment (SEA) are strong preventive tools of air quality management and are therefore of high importance for AIR TRITIA project.

[85] European Parliament and Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31994L0063

[86] Directive 2009/126/EC of the European Parliament and of the Council of 21 October 2009 on Stage II petrol vapour recovery during refuelling of motor vehicles at service stations.

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0126

[87] Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC, Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0042

[88] Directive (EU) 2016/802 of the European Parliament and of the Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32016L0802

[89] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0092

[90] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0052

[91] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042

Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC[92]

Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings[93]

Energy efficiency measures can bring about significant reduction of emissions and are therefore of high importance for AIR TRITIA project.

5.2. International concentions and protocols

Note: List of all relevant conventions and protocols is presented in Annex 4 together with links to websites.

UNECE 1979 Convention on long-range transboundary air pollution (CLRTAP)[94]

UNECE[95] CLRTAP is the most important international convention in the field of air quality management which covers the whole UNECE region[96] which set general concepts and rules for air quality management and creates a framework for implementing protocols. From the total of 8 CLRTAP protocols, the following four are actual:

- The 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)
- The 1998 Aarhus Protocol on Heavy Metals, as amended on 13 December 2012
- The 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs) as amended on 18 December 2009
- The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended on 4 May 2012

The 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)[97]

The EMEP programme relies on three main elements: (1) collection of emission data, (2) measurements of air and precipitation quality and (3) modelling of atmospheric transport and deposition of air pollutions. Through the combination of these three elements, EMEP fulfils its required assessment and regularly reports on emissions, concentrations and depositions of air pollutants, the quantity and significance of transboundary fluxes and related exceedances to critical loads and threshold levels. The combination of these components provides also a good basis for the evaluation and qualification of the EMEP estimates.

[92] Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1399375464230&uri=CELEX%3A32012L0027

[93] Link(EN,CS,PL,SK): http://eur-lex.europa.eu/legal-content/EN/ALL/;ELX_SESSIONID=FZMjThLLzfxmmMCQGp2Y1s2d3TjwtD8QS3pqdkhXZbwqGwlgY9KN!2064651424?uri=CELEX%3A32010L0031

[94] Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1979.CLRTAP.e.pdf

[95] UNECE: United Nations Economic Commission for Europe

[96] The UNECE region covers more than 47 million square kilometres. Its Member States include all countries of Europe, but also countries in North America (Canada and United States), Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and Western Asia (Israel)

[97] Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1984.EMEP.e.pdf

Guidance documents developed under EMEP:

- The EMEP/EEA air pollutant emission inventory guidebook[98]
- Guidelines for reporting emissions and projections data under the Convention on Long-range Transboundary Air Pollution[99]

The 1998 Aarhus Protocol on Heavy Metals (as amended on 13 December 2012)[100]

The Protocol on HMs targets three particularly harmful metals: cadmium, lead and mercury. According to one of the basic obligations, Parties have to reduce their emissions for these three metals below their levels in 1990 (or an alternative year between 1985 and 1995). The Protocol aims to cut emissions from industrial sources (iron and steel industry, non-ferrous metal industry), combustion processes (power generation, road transport) and waste incineration. It lays down stringent limit values for emissions from stationary sources and suggests best available techniques (BAT) for these sources, such as special filters or scrubbers for combustion sources or mercury-free processes. In addition, the Protocol requires Parties to phase out leaded petrol. It also introduces measures to lower heavy metal emissions from other products, such as mercury in batteries, and proposes the introduction of management measures for other mercury-containing products, such as electrical components (thermostats, switches), measuring devices (thermometers, manometers, barometers), fluorescent lamps, dental amalgam, pesticides and paint.

The 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs) as amended on 18 December 2009[101]

The Protocol on POPs focuses on a list of 16 substances that have been singled out according to agreed risk criteria. The substances comprise eleven pesticides, two industrial chemicals and three by-products/contaminants. The ultimate objective is to eliminate any discharges, emissions and losses of POPs. The Protocol bans the production and use of some products outright (aldrin, chlordane, chlordecone, dieldrin, endrin, hexabromobiphenyl, mirex and toxaphene). Others are scheduled for elimination at a later stage (dichlorodiphenyltrichloroethane (DDT), heptachlor, polychlorinated biphenyls (PCBs), hexaclorobenzene). The Protocol includes provisions for dealing with the wastes of products that will be banned. It also obliges Parties to reduce their emissions of dioxins, furans, polycyclic aromatic hydrocarbons (PAHs) and hexachlorobenzene (HCB) below their levels in 1990 (or an alternative year between 1985 and 1995). For the incineration of municipal, hazardous and medical waste, it lays down specific limit values.

In 2009, the Protocol on has been amended to include 7 new substances: hexachlorobutadiene, octabromodiphenyl ether, pentachlorobenzene, pentabromodiphenyl ether, perfluorooctane sulfonates, polychlorinated naphthalenes and short-chain chlorinated paraffins. Furthermore, the Parties revised obligations for DDT, heptachlor, hexachlorobenzene and PCBs as well as emission limit values (ELVs) for waste incineration.

Guidance documents developed under the Protocol on POPs:

- Guidance document on best available techniques to control emissions of persistent organic pollutants from major stationary sources[102]

[98] Link (EN): https://www.eea.europa.eu/publications/emep-eea-guidebook-2016

[99] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ece.eb.air.125_E_ODS.pdf

[100] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE.EB.AIR.115_ENG.pdf

[101] Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/ece.eb.air.104.e.pdf

[102] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/air/Guidance_document_on_BAT_to_Control_Emissions_of_POPs_from_major_stationary_sources.pdf

The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended on 4 May 2012[103]

The original Protocol set national emission ceilings for 2010 up to 2020 for four pollutants: sulphur dioxide (SO_2), nitrogen oxides (NOx), volatile organic compounds (VOCs) and ammonia (NH_3). These ceilings were negotiated on the basis of scientific assessments of pollution effects and abatement options. Parties whose emissions have a more severe environmental or health impact and whose emissions are relatively cheap to reduce had to make the biggest cuts.

The Protocol also set tight limit values for specific emission sources (e.g. combustion plant, electricity production, dry cleaning, cars and lorries) and requires best available techniques to be used to keep emissions down. VOCs emissions from such products as paints or aerosols also have to be cut. Finally, farmers have to take specific measures to control ammonia emissions. Guidance documents adopted together with the Protocol provide a wide range of abatement techniques and economic instruments for the reduction of emissions in the relevant sectors, including transport.

The Protocol was amended in 2012 to include national emission reduction commitments to be achieved by 2020 and beyond. Several of the technical annexes were revised with updated sets of emission limit values for both key stationary sources and mobile sources. The revised Protocol is also the first binding agreement to include emission reduction commitments for fine particulate matter. Also for the first time, the Parties have broken new ground in international air pollution policy by specifically including the short-lived climate pollutant black carbon (or soot) as a component of particular matter. Reducing particulate matter (including black carbon) is thus a major step in reducing air pollution, while at the same time facilitating climate co-benefits.

National emission reduction commitments for AIR TRITIA project countries are presented in the following table:

Table 22: National emission reduction commitments under the Gothenburg Protocol for AIR TRITIA project countries

Emission reduction in % compared with 2005 emissions			
	Czech Republic	Poland	Slovak Republic
Pollutant	2020	2020	2020
SO_2	45	59	57
NO_X	35	30	36
NMVOC	18	25	18
NH_3	7	1	15
$PM_{2.5}$	17	16	36

The national emission reduction commitments for 2020 are identical with those set by the Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants for the period 2020-2029.

[103] Links (EN):
Protocol: http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE.EB.AIR.114_ENG.pdf
Annex I: http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/ECE_EB.AIR_111_Add1_1_E.pdf
Annex II + III:
http://www.unece.org/fileadmin/DAM/env/documents/2017/AIR/Gothenburg_Protocol/Annex_II_and_III_updated_clean.pdf

Guidance documents developed under the Gothenburg Protocol:

- Guidelines for estimation and measurement of emissions of volatile organic compounds[104]
- Guidance Document on Emission Control Techniques for Mobile Sources[105]
- Guidance document on control techniques for emissions of sulphur, NOx, VOC, and particulate matter (including PM10, PM2.5 and black carbon) from stationary sources[106]
- Guidance document on economic instruments to reduce emissions of regional air pollutants[107]
- Guidance document on national nitrogen budgets[108]
- Guidance document for preventing and abating ammonia emissions from agricultural sources[109]
- Guidance document on health and environmental improvements using new knowledge, methods and data[110]
- United Nations Economic Commission for Europe Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions[111]

Status of ratification of CLRTAP and its protocols by the AIR TRITIA project countries is presented in the following table:

Table 23: Status of ratification of CLRTAP and its protocols by the AIR TRITIA project countries

	EU	Czech Republic[112]	Poland[113]	Slovak Republic[114]
CLRTAP	1982	1983/1993	1985	1983/1993
Protocol EMEP	1986	1986/1993	1988	1986/1993
Protocol on Heavy Metals	2001	2002		2002
Protocol on POPs	2004	2002		2002
Gothenburg protocol	2003	2004		2005

UNECE 1991 Espoo Convention on Environmental Impact Assessment in a Transboundary Context[115]

The Espoo (EIA) Convention sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries.

[104] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2016/AIR/WGSR/Docs_December/E_ECE_EBAIR_WG5_2016_4.pdf

[105] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2016/AIR/Publications/ECE_EB.AIR_138_En.pdf

[106] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE.EB.AIR.117_AV.pdf

[107] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE_EB.AIR_118_ENG_01.pdf

[108] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE_EB.AIR_119_ENG.pdf

[109] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE_EB.AIR_120_ENG.pdf

[110] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ece.eb.air.124_E_ODS.pdf

[111] Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2015/AIR/EB/ECE_EB.AIR_129_ENG.pdf

[112] CLRTAP and EMEP ratified by former Czechoslovakia, then succeeded by the Czech Republic

[113] Protocols on POPs and HMs signed but not yet ratified

[114] CLRTAP and EMEP ratified by former Czechoslovakia, then succeeded by the Slovak Republic

[115] Link (EN): http://www.unece.org/fileadmin/DAM/env/eia/Publications/2015/ECE.MP.EIA.21_Convention_on_Environmental_Impact_Assessment.pdf

Status of Ratification: EU (1997), CS (2001), PL (1997), SK (1999)

UNECE Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (Kyiv, 2003)[116]

The Kyiv (SEA) Protocol requires its Parties to evaluate the environmental consequences of their official draft plans and programmes. Strategic environmental assessment (SEA) is undertaken much earlier in the decision-making process than project environmental impact assessment (EIA), and it is therefore seen as a key tool for sustainable development.

Status of Ratification: EU (2008), CS (2005), PL (2011), SK (2008)

The 2001 Stockholm Convention on Persistent Organic Pollutants[117]

The Stockholm Convention aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). Key elements of the Convention include the requirement that developed countries provide new and additional financial resources and measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally sound manner.

Status of ratification: EU (2004), CS (2002), PL (2008), SK (2002)

Guidance documents developed under the Stockholm Convention:

- Guidance for National Implementation Plans (NIPs)[118]
- Guidance on Best available techniques and best environmental practices[119]

The 2013 Minamata Convention on Mercury[120]

Major highlights of the Minamata Convention include a ban on new mercury mines, the phase-out of existing ones, the phase out and phase down of mercury use in a number of products and processes, control measures on emissions to air and on releases to land and water, and the regulation of the informal sector of artisanal and small-scale gold mining. The Convention also addresses interim storage of mercury and its disposal once it becomes waste, sites contaminated by mercury as well as health issues.

Status of ratification: EU (2017), CS (not yet ratified), PL (not yet ratified), SK (2017)

Guidance documents developed under the Minamata Convention (16 documents)[121]

5.3. National legislations

5.3.1. Czech Republic

Note: List of all relevant legal acts of the Czech Republic is presented in Annex 5 together with links to websites.

Law of the Czech Republic

Sources of Czech law are (in this hierarchical order):

- the Constitution (Ústava) and constitutional acts (ústavní zákony)

[116] Link (EN): http://www.unece.org/fileadmin/DAM/env/eia/documents/legaltexts/protocolenglish.pdf

[117] Link (EN): http://chm.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx

[118] Link (EN): http://chm.pops.int/Implementation/NationalImplementationPlans/Guidance/tabid/2882/Default.aspx

[119] Link (EN): http://chm.pops.int/Implementation/BATandBEP/Guidance/Overview/tabid/5121/Default.aspx

[120] Link (EN): http://mercuryconvention.org/Portals/11/documents/Booklets/Minamata%20Convention%20on%20Mercury_booklet_English.pdf

[121] Link (EN): http://mercuryconvention.org/Implementationsupport/Formsandguidance/tabid/5527/language/en-US/Default.aspx

- international treaties ratified by the Parliament (mezinárodní smlouvy ratifikované parlamentem)
- statutes adopted by the Parliament (zákony přijaté parlamentem), published decisions of the Constitutional Court
- derived legislation: government orders or government regulations (nařízení vlády) and notifications of ministries or decrees (vyhlášky ministerstev); legislative acts of territorial self-government bodies: regional ordinances or decrees (krajské vyhlášky) and municipal ordinances or decrees (obecní vyhlášky)

Air Quality Assessment and Management

Legal background of the air quality assessment and management system of the Czech Republic is created by one law, two ministerial decrees and one government regulation:

- Act No. 201/2012 Coll. of 2 May 2012 on Air Protection, as amended[122]
- Decree No. 330/2012 Coll. of 8 October 2012 on the method of assessing and evaluating the level of air pollution (*air quality*), the scope of public information on the level of pollution and in the case of smog situations, as amended[123]
- Decree No. 415/2012 Coll. Of 21 November 2012 on the permissible level of air pollution (*emissions*) and its assessment and on the implementation of certain other provisions of the Act on Air Protection, as amended[124]
- Government Regulation No. 56/2013 Coll. of 6 February 2013 on the establishment of rules for the inclusion of road motor vehicles in emission categories and emission plates[125]

This legal package transposes Directive 2008/50/EC on ambient air quality and cleaner air for Europe, Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, Directive 2010/75/EU (special provisions: Article 28 – Article 70, Annexes IV- VIII), Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants and Commission Regulation (EU) 2015/1189 implementing Directive 2009/125/EC with regard to ecodesign requirements for solid fuel boilers.

The most important provisions of the **Act 201/2012 on Air Protection** are listed below:

- Acceptable level air quality (air quality standards)
- Acceptable level of air pollution from stationary sources (emission limit values, technical requirements, emission ceilings)
- Zones and agglomerations
- Rules of air quality and emission monitoring and assessment
- Tools of air quality management (national emission reduction program, air quality plans, smog warning and regulatory system)
- Permitting (statements, permits for installations outside the scope of integrated permitting, compensation measures)
- Low emission zones
- Air pollution charges

[122] Link (CS): https://portal.gov.cz/app/zakony/zakon.jsp?page=0&nr=201~2F2012&rpp=15#seznam

[123] Link (CS): https://portal.gov.cz/app/zakony/zakon.jsp?page=0&nr=330~2F2012&rpp=15#seznam

[124] Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=78575&nr=415~2F2012&rpp=15#local-content

[125] Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=79556&nr=56~2F2013&rpp=15#local-content

- Obligations of operators of stationary sources of air pollution
- Obligations of producers, distributors and importers of fuels (including biofuels) and products containing organic solvents
- Corrective measures and penalties in the case administrative offenses (legal persons) and offenses (natural persons). Penalty for non-compliance with legal provisions may be imposed up to EUR 400 thousand.
- State administration (competent authorities, authorization of certain activities, access to information)
- Categorization of stationary sources of pollution
- Emission limit values for combustion units with thermal input of 0.3 MW and lower

Decree No. 330/2012 on the method of assessing and evaluating the level of air pollution, the scope of public information on the level of pollution and in the case of smog situations lays down detailed rules for air quality assessment (transposition of relevant provisions and annexes of Directives 2008/50/EC and 2004/107/EC) and specifies national reference methods for air quality modelling (national models ATEM and SYMOS97 and international model AEOLUS).

Decree No. 415/2002 on the permissible level of air pollution and its assessment and on the implementation of certain other provisions of the Act on Air Protection includes the following provisions:

- Emission limit values (technology based ELVs, generally binding ELVs)
- Detailed rules of emission assessment (periodic and continuous monitoring)
- Rules for calculation of emission ceilings
- Detailed requirements related to quality of fuels
- Detailed requirements related to products containing VOCs
- Detailed obligation of operators of stationary sources (operation records, measurement of emissions, dispersion studies,..)
- Implementation of compensation measures

Government Regulation No. 56/2013 on the establishment of rules for the inclusion of road motor vehicles in emission categories and emission plates sets rules for the introduction of low emission zones.

Air Quality Standards

An overview of the air quality standards laid down by the Czech legislation is presented in the following table in which the differences from the EU air quality standards (Table 16) are presented in bold letters:

Table 24: Overview of the Czech air quality standards

Pollutant	Formula	Type of standard	Value	Unit	Averaging period	Permitted exceedance
Protection of human health						
Sulphur dioxide	SO_2	LV	350	µg/m³	One hour	24 times per year
Sulphur dioxide	SO_2	LV	125	µg/m³	One day	3 times per year
Sulphur dioxide	**SO_2**	**IT**	**250**	**µg/m³**	**3 consecutive hours**	
Sulphur dioxide	SO_2	AT	500	µg/m³	3 consecutive hours	
Nitrogen dioxide	NO_2	LV	200	µg/m³	One hour	18 times per year
Nitrogen dioxide	NO_2	LV	40	µg/m³	Calendar year	0
Nitrogen dioxide	**NO_2**	**IT**	**200**	**µg/m³**	**3 consecutive hours**	
Nitrogen dioxide	SO_2	AT	400	µg/m³	3 consecutive hours	
Benzene	C_6H_6	LV	5	µg/m³	Calendar year	0
Carbon monoxide	CO	LV	10	mg/m³	Calendar year	0

Lead	Pb	LV	0.5	µg/m³	Calendar year	0
Ozone	**O_3**	**LV**	**120**	**µg/m³**	**Maximum daily 8- hour mean**	**25 days per year averaged over 3 years**
~~**Ozone**~~	~~**O_3**~~	~~**LTO**~~	~~**120**~~	~~**µg/m³**~~	~~**Maximum daily 8- hour mean within a year**~~	~~**0**~~
Ozone	O_3	IT	180	µg/m³	1 hour	
Ozone	O_3	AT	240	µg/m³	1 hour	
PM_{10}	PM_{10}	LV	50	µg/m³	One day	35
PM_{10}	PM_{10}	LV	40	µg/m³	Calendar year	0
PM_{10}	**PM_{10}**	**IT**	**100**	**µg/m³**	**12 hours (moving aver.)**	
PM_{10}	**PM_{10}**	**AT**	**150**	**µg/m³**	**12 hours (moving aver.)**	
~~**$PM_{2.5}$**~~	~~**$PM_{2.5}$**~~	~~**LV**~~	~~**25**~~	~~**µg/m³**~~	~~**Calendar year**~~	~~**0**~~
$PM_{2.5}$ ~~**after 1.1.2020**~~	**$PM_{2.5}$**	**LV**	**20**	**µg/m³**	**Calendar year**	**0**
~~**$PM_{2.5}$**~~	~~**$PM_{2.5}$**~~	~~**TV**~~	~~**25**~~	~~**µg/m³**~~	~~**Calendar year**~~	~~**0**~~
Arsenic	**As**	**LV**	**6**	**ng/m³**	**Calendar year**	**0**
Cadmium	**Cd**	**LV**	**5**	**ng/m³**	**Calendar year**	**0**
Nickel	**Ni**	**LV**	**20**	**ng/m³**	**Calendar year**	**0**
benzo(a)pyrene	**BaP**	**LV**	**1**	**ng/m³**	**Calendar year**	**0**
Protection of vegetation						
Sulphur dioxide	SO_2	LV	20	µg/m³	Calendar year and winter	0
Nitrogen dioxide	SO_2	V	30	µg/m³	Calendar year	0
Ozone	O_3	LV	18000	µg/m³.h	May to July averaged over 5 years	0
~~**Ozone**~~[58]	~~**O_3**~~	~~**LTO**~~	~~**6000**~~	~~**µg/m³.h**~~	~~**May to July**~~	~~**0**~~

It can be concluded that the Czech air quality standards are more stringent than those of the EU due to the following facts:

- All "target values[126]" are replaced by more stringent "limit values[127]"
- Limit value for $PM_{2.5}$ is 20 µg/m³ rather than 25 µg/m³
- Information thresholds are set also for SO_2, NO_2 and PM_{10} and alert threshold also for PM_{10}

Zones and Agglomerations

For the purpose of air quality assessment and management 3 permanent agglomerations and 7 permanent zones have been established by the Act on Air Protection which cover the whole territory of the Czech Republic. List of agglomerations and zones is presented in the following table:

Table 25: List of agglomerations and zones in the Czech Republic

Name	NUTS 2 code
Agglomeration Prague	CZ01
Zone Central Bohemia	CZ02
Zone South-West	CZ03
Zone North-West	CZ04
Zone North-East	CZ05
Zone South-East	CZ06Z[128]

[126] **target value** (TV) is a level fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, **to be attained where possible** over a given period

[127] **limit value** (LV) is a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, **to be attained within a given period and not to be exceeded once attained**

[128] The territory of the zone equals to the territory of CZ06 minus the NUTS code CZ0622

Name	NUTS 2 code
Agglomeration Brno	CZ06A[129]
Zone Central Moravia	CZ07
Zone Moravia-Silesia	CZ08Z[130]
Agglomeration Ostrava/Karviná/Frýdek-Místek	CZ08A[131]

Emission Limit Values

Besides emission limit values (ELVs) transposed from the EU directives, the Czech legislation lays down two types of ELVs: Specific (technology based) ELVs and Generally binding ELVs.

Specific ELVs are set for high number of stationary air pollution sources which include combustion devices of thermal input below 1 MW (starting from 0.3 MW) and all important technology sources (waste management, energy, production and manufacturing of plastics, processing of mineral resources, chemical industry, food industry, wood processing, paper and pulp production, animal farms). In the case of large combustion plants and medium combustion plants, ELVs for CO are laid down for all types of fuel.

Generally binding ELVs (laid down for SO_2, NO_2, CO, NH_3, total C, hydrogen sulphide, carbon disulphide, chlorine and its compounds and fluorine and its compounds) are applied in the case of installations for which specific ELVs are not in place.

Categorization of stationary air pollution sources

With respect to expected impact on air quality, stationary sources/installations listed in Annex 2 to the Act on Air Protection in accordance with the type of activity are divided among four categories in which none, one, two or all three of the following requirements are applied: Dispersion study, compensation measure, detailed Operating rules.

Emission ceilings

Emission ceilings may be set for a stationary source, a group of stationary or mobile sources, an installation or a defined territory. Emission ceilings are laid down in National Emission Reduction Program as well as in program for the Improvement of air quality in zones and agglomerations.

Emission ceilings supplement the emission limit values except for the stationary sources using organic solvents for which the emission limit for VOC can be replaced by an emission ceiling.

Air Pollution Charges

Air pollution charges are paid by operators of stationary sources/installations for the emissions of dust, sulphur dioxide, nitrogen oxides and VOC. The rates of charges are set to increase progressively between 2013 and 2021, in 2017 range between EUR 66/ton of NOx and EUR 243/ton of dust. In the case that the sum of charges in one installation is lower than EUR 2000, payment is suspended. Revenue from charges is divided among the State Environmental Fund (65 %), regions (25 %) and state budget (10 %).

Compensation measures

Compensation measure is imposed, as a part of permit, in the case that intended installation or road infrastructure is likely to lead to exceedance of at least one air quality limit value. In the case that limit

[129] The territory of the agglomeration is identical with the territory of the Brno-city district and is defined by the NUTS code CZ0622

[130] The territory of the zone equals to the territory of CZ07 minus the NUTS codes CZ0806, CZ0803 and CZ0802

[131] The territory of the agglomeration is the same as the territory of the districts of Ostrava - city, Karviná and Frýdek - Místek and is defined by the NUTS codes CZ0806, CZ0803 and CZ0802.

value in this area has already been exceeded, a permit can only be issued with the simultaneous imposition of measures to at least maintain the current level of pollution for the pollutant concerned.

Competent Authorities[132]

Ministry of Environment

- Drafting of legislation
- Responsibility for air quality assessment including state monitoring network and air quality information (via Czech Hydro-meteorological Institute)
- Preparation of National Emission Reduction Program and of programs of air quality improvement in zones and agglomerations
- Initiation of start of smog warning and regulatory system
- Issues an opinion on spatial development policy and the principles of territorial development during their acquisition
- Issues binding opinion on the location of the road construction in the built-up area of the municipality with the estimated traffic intensity of 15 thousand and more vehicles in 24 hours during the design period of at least 10 years
- Decides on the qualification of a stationary source using technology that has not yet been operated in the Czech Republic
- Decides on imposing of compensation measures
- Grants authorization for certain activities (emission measurement, development of dispersion studies,…)

Czech Environmental Inspectorate

- Responsible for enforcement
- Imposes corrective measures and penalties in the case of offence by natural or legal persons (administrative offence)

Region/regional government

- Implementation of smog warning and regulatory system
- Issues opinion on the land use plan and the municipal development plan during its acquisition,
- Issues a binding opinion on the location of the stationary source listed in Annex No. 2 to the Act on Air Protection for proceedings pursuant to another legal regulation
- Issues a binding opinion on the construction of a stationary source listed in Annex 2 to the Act on Air Protection for proceedings under another legal regulation
- Issues operating permits for stationary sources listed in Annex 2 to the Act on Air Protection

Municipality with extended administrative powers

- Issues a binding opinion on the location, construction and use of the construction of a stationary source not listed in Annex 2 to the Act on Air Protection pursuant to another legal regulation

[132] Selected competences are listed which are most the relevant ones for the AIR TRITIA project.

Certain limited competences are granted to the Ministry of Agriculture, Ministry of Health, Czech Trade Inspection, customs authorities and municipalities.

Environmental funds

State Environmental Fund of the Czech Republic[133] provides financial support in the form of subsidies, loans and contributions to partial interest coverage. The fund obtains financial resources from the European Union, namely the Cohesion Fund and the European Regional Development Fund, from the state budget and fees collected from polluters - including waste water discharge fees, fees for reclassifying agricultural land, air pollution fees and fees under the Act on Waste.

Separate environmental funds are not institutionalized at regional levels, however regions and bigger cities have special budget lines to support environmental activities, including air protection.

Integrated prevention (IPPC)

Legal background of the integrated environmental system of the Czech Republic is created by one law and one ministerial decree:

- Act No. 76/2002 Coll. Of 5 February 2002 concerning integrated pollution prevention and control, the Integrated Pollution Register and the amendment of certain laws (the Integrated Prevention Act), as amended[134]
- Provisions related to the Integrated Pollution Register were withdrawn from this act in 2008 to be included in a separate act[135]
- Decree No. 288/2013 Coll. Of 6 September 2013 on the implementation of certain provisions of the Integrated Prevention Act[136]

Act No. 76/2002 and Decree No 288/2013 fully transposes general provisions of Directive 2010/75/EU (Articles 1 – 27 and Articles 71 – 83, Annexes I - III).

Main decision making power according to this Act is given to **the regional governments** (regional offices) which:

- Decide on an application for an integrated permit, except for installations whose operation can significantly affect the environment of the other state,
- review the binding conditions of an integrated permit, with the exception of an integrated permit for an installation the operation of which may significantly affect the environment of the other state,
- decide on administrative offenses and imposes corrective measures
- invite the installation operator to submit an application for an integrated permit or an application for a change of the integrated permit,
- evaluate the application of the best available techniques and provide information on their development to the relevant administrations and participate in the best available techniques information exchange system,
- issue a decision to limit or suspend the operation of an installation or a part thereof in the case of non-compliance with legal provisions

[133] Link (EN): http://en.sfzp.cz/sekce/585/sef/

[134] Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=53139&nr=76~2F2002&rpp=15#local-content

[135] Act No. 25/2008 Coll. Of 16 January 2008 on an integrated register of environmental pollution and an integrated system for the enforcement of environmental reporting obligations and amending certain acts, as amended. Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=66513&nr=25~2F2008&rpp=15#local-content

[136] Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=80552&nr=288~2F2013&rpp=15#local-content

- are the administrative authority concerned in proceedings under this Act in the case of an installation the operation of which may significantly affect the environment of the other state
- conduct a local investigation to determine whether an installation is subject to the obligation to have an integrated permit,
- inform the Ministry of Environment of the granting of exemptions from the emission levels associated with the best available techniques

Ministry of Environment

- decides on an application for an integrated permit for an installation the operation of which may significantly affect the environment of the other state
- decides on appeals against decisions of the regional authority,
- decides on appeals against decisions of the Czech Environmental Inspectorate
- carry out a review of the binding conditions of an integrated permit for an installation the operation of which may significantly affect the environment of the other state
- provides for the monitoring of the development of the best available techniques in terms of their impacts on the environment

Certain competences in relation to best available techniques are also give to the Ministry of Industry and Trade and the Ministry of Agriculture.

The Czech Environmental Inspectorate is responsible for enforcement. Penalty for non-compliance with legal provisions may be imposed up to EUR 400 thousand.

EIA/SEA

Legal background of environmental impact assessment (EIA) and strategic environmental assessment in the Czech Republic is created by one law, one ministerial decree and one government regulation:

- Act No. 100/2001 Coll., of 20 February 2001 on Environmental Impact Assessment, as amended[137]
- Decree No. 453/2017 Coll., of the Ministry of Environment of 6 December 2001 on professional competence and on the regulation of certain other issues related to environmental impact assessment[138]
- Government Regulation No.283/2016 Coll., of 24 August 2016 on the definition of priority transport intentions[139]

Act No.100/2001 and Decree No. 93/2004 transpose the provisions of relevant EU legislation (Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment).

Binding opinions in the case of EIA and opinions in the case of SEA are mostly being issued by regional governments (regional offices), **in specific cases by the Ministry of Environment** (project intents with mandatory EIA procedure, transboundary EIA, plans and programs at national or multi-regional levels).

Government Regulation No.283/2016 includes one road infrastructure projects relevant for the AIR TRITIA region (bypass of Frýdek-Místek).

[137] Link (CS): https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=51142&nr=100~2F2001&rpp=15#local-content

[138] Link (CS): http://aplikace.mvcr.cz/sbirka-zakonu/SearchResult.aspx?q=453/2017&typeLaw=zakon&what=Cislo_zakona_smlouvy

[139] Link (CS): https: //portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=87037&nr=283~2F2016&rpp=15#local-content

5.3.2. Poland

Note: List of all relevant legal acts of Poland is presented in Annex 6 together with links to websites.

Law of Poland – General overview

The sources of Polish law are divided into two categories, i.e. the universally binding law and the internal law. The universally binding law includes:

- the Constitution of 2 April 1997 – the supreme law in Poland
- ratified international agreements
- statutes (ustawa) – a fundamental source of Polish law passed by the Sejm
- regulations (rozporządzenie) – executive acts passed by the statutes' authorized bodies (i.e. the President, the Prime Minister, the Council of Ministers, ministers)
- the local government law – acts passed by the local government empowered by the provisions of and within the limits prescribed in the statutes; their binding force extends only to the territory of the local government's jurisdiction

The internal law, e.g. resolutions of the Council of Ministers (uchwała Rady Ministrów), orders of the President (zarządzenie Prezydenta), orders of the Prime Minister (zarządzenie Prezesa Rady Ministrów) – acts of internal character; they bind only the entities which are subordinate to the issuing authority.

Air Quality Assessment and Management - Legislative package

Legal background of the air quality assessment and management system of Poland is created by one law and 9 ministerial decrees:

General provisions

- Act of 27 April 2001 - Environmental Protection Law (Journal of Laws of 2013, item 1232, as amended) - Art. 26 and Art. 85-95[140], as amended
- Regulation of the Minister of Environment of 23 November 2010 on the method and frequency of updating of environmental information (Journal of Laws of 2010 No. 227, item 1485)[141]

The Environmental Protection Law is a complex legal act (442 Articles) which regulates all environmental issues. Part II focused on air protection (Articles 85 - 96) includes the following items:

- Empowerment of the Minister of Environment to lay down (through implementing regulations):
  - Air quality standards (limit values, alert thresholds, rules of monitoring)
  - Limit values for odorants
  - the ways, methods and scope of the assessment of the levels of substances in ambient air (number and siting of fixed sampling points, reference methods)
  - detailed requirements to be met by air protection programs
- Establishment of zones and agglomerations (including the obligations of Voivods in monitoring and assessment of air quality)
- Obligation of Voivods to prepare air protection programs and short-term action plans
- Empowerment for Voivods to limit the use of certain fuels

[140] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20130001232

[141] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20102271485

- Rules of EIA and SEA are laid down by Articles 40 - 69

Prevention of pollution of the environment is provided for by Articles 137 – 242 which include the following items:

- Obligations of operators of operations or installation with impact on the environment (compliance with emission standards)
- Empowerment of the Minister of Environment to lay down (through implementing regulations):
  - emission limit values, reference values and technical requirements on operation of polluting installation
  - list of installations which require permit and which require notification
  - list of regulated substances (including the rules for their use)
  - rules related to the production and use of certain products
  - rules of regulation of emissions from transport
  - rules of integrated permitting
- Regulation of emissions from transport
- Rules of permitting (integrated permits, air pollution permits)
- Rules of notification of installations which do not require permit
- Introduction of best available techniques
- Rules of accreditation for certain activities (e.g.measurements)
- Compensation measures
- Compliance programs

Economic and financial instruments are provided for by Articles 272 – 321 which include the following items:

- Air pollution charges
- Penalties for exceeding standards or violating the legal requirements
- Environmental funds (at all levels of state administration)

Competent authorities[142]:

- the head of the Gmina (municipality) administration, the mayor of the town or the city,
- the head of the Powiat (district/county) administration (Starost),
- the Voivode (Voivodship Marshal),
- the minister responsible for the environment.

Implementing provisions – Air

- Regulation of the Minister of Environment of 22 April 2011 on the emission standards from the installations[143] (Journal of Laws of 2011, item 558)

[142] Competences may be delegated to respective offices.

[143] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20110950558

- Regulation of the Minister of Environment of 2 August 2012 on zones where air quality is evaluated (Journal of Laws of 2012, item 914)[144]
- Regulation of the Minister Environment of 11 September 2012 on air protection programs and short-term action plans (Journal of Laws of 2012, item 1028)[145]
- Regulation of the Minister of Environment of 13 September 2012 on the method of calculating the average exposure index and the method of assessing the compliance of the exposure concentration obligation (Journal of Laws of 2012, item 1029)[146]
- Regulation of the Minister of Environment of 14 August 2012 on national exposure reduction target (Journal of Laws of 2012, item 1030)[147]
- Regulation of the Minister of Environment of 24 August 2012 on the levels of certain substances in the air (Journal of Laws of 2012, item 1031)[148]
- Regulation of the Minister of Environment of 13 September 2012 on the assessment of airborne levels (Journal of Laws of 2012, item 1032)[149]
- Regulation of the Minister of Environment of 10 September 2012 on the scope and manner of transmitting information concerning air pollution (Official Journal of 2012, item 1034)[150]
- Regulation of the Minister of Environment of 27 August 2014 on types of installations that may cause significant pollution of particular natural or environmental elements as a whole (Official Journal 2014, item 1169)[151]
- Regulation of the Minister of the Environment of 30 October 2014 on the requirements for the measurement of emissions and the measurement of water intake (Journal of Laws of 2014, item 1542)[152]
- Regulation of the Minister of the Environment of 4 November 2014 on emission standards for certain types of installations, combustion sources of fuels and devices for incineration or co-incineration of waste (Official Journal 2014, item 1546)[153]
- Regulation of the Ministry of Finance and Development of 1 August 2017 on the requirements for fuel boilers (Official Journal 2017, item 1960)[159]
- Regulation of the Minister of the Environment of March 1, 2018 on emission standards for certain types of installations, fuel combustion plants and waste incineration or co-incineration plants (Journal of Laws No. 2018, item 680) 2018[154]

This legal package transposes Directive 2008/50/EC on ambient air quality and cleaner air for Europe, Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, Directive 2010/75/EU on industrial emissions and Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants.

[144] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120000914
[145] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001028
[146] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001029
[147] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001030
[148] Link (PL): http://dziennikustaw.gov.pl/du/2012/1031
[149] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001032&min=1
[150] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001034
[151] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001169
[152] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001542
[153] Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001546
[159] Link (Pl): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20170001690
[154] Link (PL): http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180000680

Country specific issues

Poland has transposed the EU air quality standards as presented in Table 16 completely. In addition, **information threshold of 200 μg/m³** (24-hours average) and **alert threshold of 300 μg/m³** (24-hours average) **have been adopted for PM_{10}.**

For the purpose of air quality assessment and management three types of areas have been set by the Regulation of the Minister of Environment which cover the whole territory of the country:

- Agglomerations with population over 250 thousand (12 agglomerations)
- Zones with population over 100 thousand (18 zones)
- Zones constituting the remainder of the voivodship, not included in cities over 100 thousand inhabitants and in agglomeration (16 zones)

List of agglomerations and zones in the Polish part of the AIR TRITIA project area is presented is presented in the following table:

Table 26: List of agglomerations and zones in the Polish part of the AIR TRITIA project area

Voivodship	Name	Code	Note
Śląskie	agglomeration górnośląska	PL2401	
	agglomeration rybnicko-jastrzębska	PL2402	
	zone miasto Bielsko-Biała	PL2403	Zone over 100 thousand
	zone miasto Częstochowa	PL2404	Zone over 100 thousand
	zone śląska	PL2405	
Opolskie	zone miasto Opole	PL1601	Zone over 100 thousand
	zone opolska	PL1602	
Małopolskie	agglomeration krakowska	PL1201	
	zone miasto Tarnów	PL1202	Zone over 100 thousand
	zone małopolska	PL1203	

Emission limit values laid down by Directive 2010/75/EU on industrial emissions have been transposed completely. In addition, there are certain other emission limit values in place (for instance for combustion plants with thermal input below 50 MW). Polish law specifies emission limit values in place (for instance for combustion plants with thermal input below 50 MW).

Compensation measures

In an area where the ambient air quality standards have been exceeded, it shall be possible to grant a permit for the release of gases or dusts into ambient air for a new installation or a substantially changed installation provided that the quantities of gases or dusts released into ambient air from other installations localised in this area and causing these standards to be exceeded are adequately reduced (compensation procedure).

Compliance programs

The aim of the compliance programme shall be to allow for the most expedient possible achievement of compliance with the existing requirements of environmental protection by installations which are unable for technological or economic reasons to meet these requirements at the dates provided for in general legislation and where it is in the public interest to maintain the operation of such installations.

Air pollution charges

Differentiated charges for particular pollutants (in total 67 pollutants) are laid down by the Regulation of the Council of Ministers and may be updated at the annual basis. The upper limit for air pollution charge for 2017155 is PLN 388,640/kg (EUR 91 465) for 1 ton of pollutant) released into the ambient air. Air pollution charges for emissions from the operation of installations are being paid to the account of the appropriate Marshall's Office, competent due to the place of registration of the operator.

Competent authorities

Minister (Ministry) of Environment

General Directorate for Environmental Protection (+ 16 Regional/Voivodship Directorates)

- Main responsibility for EIA and SEA

Inspectorate for Environmental Protection (Chief Inspectorate + 16 Regional/Voivodship Inspectorates):

- Main responsibility for enforcement
- Operation of environmental monitoring system

Voivode (Voivodship Marshal)

- Grants integrated permits
- Grants air pollution permits

Starosta (District/county head)

- Grants integrated permits
- Grants air pollution permits

Environmental funds

The National Fund for Environmental Protection and Water Management, the Voivodship Funds for Environmental Protection and Water Management (16 funds). Funds are directly transferred to the budget of the county (Powiat) and the municipality (Gmina).

5.3.3. Slovak Republic

Note: List of all relevant legal acts of the Slovak Republic is presented in Annex 7 together with links to websites.

Law of the Slovak Republic - General overview

As a civil law jurisdiction, Slovak law recognizes only written law as a formal source of law. Based on their legal force, those formal written sources of law are assorted in a pyramidal-type structure (the Kelsenian pyramid of norms). The lower levels of the pyramid have to be compatible with the higher. The structure is as follows:

- Constitution and constitutional acts
- International treaties, to which the Parliament has expressed its assent and which were ratified and promulgated in a manner laid down by a law
- Acts adopted by the Parliament
- Derived legislation (Government regulations, generally binding legal regulations/decrees of ministries and other central state administration bodies, acts of self-governmental units, generally binding legal regulations of local bodies of state administration)

[155] Link (PL): https://www.mos.gov.pl/srodowisko/oplaty-za-korzystanie-ze-srodowiska/

Air Quality Assessment and Management -Legislative Package

Legal background of the air quality assessment and management system of the Slovak Republic is created by two laws and 8 ministerial decrees:

- Act no. 137/2010 Coll., on the Air, as amended[156]
- Act no. 401/1998 Coll., on air pollution charges, as amended[157]
- Decree of the Ministry of Environment of the Slovak Republic no. 314/2010 Coll., laying down the content of the program for the reduction of emissions from stationary sources of air pollution and the content of data and methods of informing the public[158]
- Decree of the Ministry of Environment of the Slovak Republic no. 127/2011 Coll., establishing a list of regulated products, labelling of their packaging and requirements for the reduction of emissions of volatile organic compounds when using organic solvents in regulated products[159]
- Decree of the Ministry of Environment of the Slovak Republic no. 410/2012 Coll., which implements some provisions of the Act on the Air, as amended[160]; [161]
- Decree of the Ministry of Environment of the Slovak Republic no. 411/2012 Coll., on monitoring of emissions from stationary sources of air pollution and air quality in their vicinity[162], as amended[163]
- Decree of the Ministry of Environment of the Slovak Republic no. 231/2013 Coll., on information to the European Commission, on the requirements for maintaining the operational records, on the data notified to the National Emission Information System and on the set of technical and operational parameters and technical and organizational measures, as amended.[164]
- Decree of the Ministry of Environment of the Slovak Republic no. 228/2014 Coll., which establishes requirements for fuel quality and maintenance of fuel register as amended[165]
- Decree of the Ministry of Environment of the Slovak Republic no. 195/2016 Coll., laying down the technical requirements and general conditions for the operation of stationary air pollution sources of operating equipment used for the storage, filling and transport of petrol and the method and requirements for detecting and demonstrating compliance data[166]
- Decree of the Ministry of Environment of the Slovak Republic no. 244/2016 Coll., on air quality[167], as amended[168]

This legal package transposes Directive 2008/50/EC on ambient air quality and cleaner air for Europe, Directive 2004/107/EC relating to As, Cd, Hg, Ni and polycyclic aromatic hydrocarbons in ambient air,

[156] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/137/20160101
[157] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/1998/401/20150115
[158] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/314/20100715
[159] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2011/127/20110501
[160] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/410/20161001
[161] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2017/315/20171219
[162] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/411/20130101
[163] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2017/316/20171219
[164] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2013/231/20130901
[165] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2014/228/20170101
[166] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/195/20160615
[167] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/244/20161231
[168] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2017/296/20171201

Directive 2010/75/EU (special provisions: Article 28 – Article 70, Annexes IV- VIII) and Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants.

The most important provisions of the **Act 137/2010 on the Air** and its implementing decrees are listed below:

- Definition of air pollution sources and their categorization
- Acceptable level of air pollution from stationary sources (emission limit values, technical requirements, national emission ceilings, emission quotas)
- Air quality objectives and acceptable level of air quality (air quality standards)
- Zones and agglomerations
- Rules of air quality and emission monitoring and assessment
- Tools of air quality management (national emission reduction program, air quality programs, action plans, ozone smog warning and regulatory system)
- Permitting (approvals, expert opinions)
- Low emission zones
- Obligations of operators of stationary sources of air pollution
- Corrective measures and penalties in the case of offenses
- State administration (competent authorities, authorization of certain activities, access to information)
- Emission reduction programs at the level of stationary sources
- Regulation of VOC content in certain products
- Air quality standards
- Specific (technology based) emission limit values and technical requirements on operation of sources
- Generally binding emission limit values and general technical requirements on operation of sources
- Rules for monitoring of emissions from stationary sources and assessment of air quality in their vicinity
- Reporting of air related information
- Derailed requirements related to air quality
- Requirements related to storage and distribution of petrol

Act no. 401/1998 Coll., on air pollution charges sets charges for operators of stationary sources for emissions dust, sulphur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds and 115 other pollutants divided among 4 groups in accordance with their risk for human health.

Country Specific Issues

The Slovak Republic has transposed the EU air quality standards as presented in Table 16 completely. In addition, **information threshold of 100 μg/m^3** (24-hours average) and **alert threshold of 150 μg/m^3** (24-hours average) **have been adopted for PM_{10}.**

For the purpose of air quality assessment and management, the whole territory of the Slovak Republic has been divided among 2 agglomerations and 8 zones:

Table 27: Zones and agglomerations in the Slovak Republic

Name	Territory
Agglomeration Bratislava	Capital City of Bratislava
Agglomeration Košice	City of Košice
Zone Bratislavský region	Region except the Capital City of Bratislava
Zone Trnavský region	Whole region
Zone Nitrianský region	Whole region
Zone Trenčianský region	Whole region
Zone Banskobystrický region	Whole region
Zone Žilinský region	Whole region
Zone Prešovský region	Whole region
Zone Košický region	Region except the City of Košice

Note: In the case of air quality assessment and management with respect to As, Cd, Ni, BaP, mercury and ground-level ozone, the territory of the Slovak Republic is divided among one agglomeration (Capital City of Bratislava) and one zone (the rest of country´s territory).

Within zones and agglomerations, areas of air quality management (territories of certain municipalities) are not permanent but are being updated in accordance with the actual results of air quality monitoring. The last update has been carried out in the following way[169]:

"The Slovak Hydro-meteorological Institute (SHM) on the basis of air quality assessment in zones and agglomerations in 2015, proposes, according to § 9 par. 3 of Act No. 137/2010 Coll., on Air, as amended, an update of the air quality management areas of the Slovak Republic after 2016. The pollutant will be exempted from the area of air quality management only after it is 3 years below the limit value for the next year."

Table 28: Air quality management areas of the Slovak Republic after 2016

Region	Territories of municipalities	Pollutants
Bratislava	Capital City of Bratislava	PM_{10}, NO_2, BaP
Košice, Košicky region	Košice, Bočiar, Haniska, Sokolany, Velká Ida	PM_{10}, BaP
Banskobystricky region	Banska Bystrica	PM_{10}
	Jelšava, Lubenik, Chyžné Magnezitovce, Mokrá Lúka,	PM_{10}, $PM_{2.5}$
Košicky region	Krompachy	PM_{10}, $PM_{2.5}$, BaP
Prešovsky region	Prešov, Lubotice	PM_{10}, NO_2
Trenčiansky region	Prievidza	BaP
	Bystrčany	PM_{10}
	Trenčín	PM_{10}
Trnavský rogion	Trnava	NO_2, BaP
Žilinsky region	Ružomberok, Likavka	PM_{10}
	Žilina	PM_{10}

[169] See http://www.shmu.sk/sk/?page=2186

Categorization of emission sources

- Large sources (combustion sources with thermal input 50 MW and more, the most polluting technologies)
- Medium-sized sources (combustion sources with thermal input between 0.3 MW and 50 MW, less polluting technologies)
- Small sources (combustion sources with thermal input below 0.3 MW, technologies not included among large or medium sized sources

Emission limit values

- Besides emission limit values (ELVs) transposed from the EU directives, the Slovak legislation lays down two types of ELVs: Specific (technology based) ELVs and Generally binding ELVs.
- **Specific ELVs** are set for high number of stationary air pollution sources which include combustion devices of thermal input below 1 MW and all important technology sources (waste management, energy, production and manufacturing of plastics, processing of mineral resources, chemical industry, food industry, wood processing, paper and pulp production, animal farms). In the case of large combustion plants and medium combustion plants, ELVs for CO are laid down for all types of fuel.

Generally binding ELVs (laid down for more than 150 air pollutants) are applied in the case of installations for which specific ELVs are not in place.

Emission quotas (allowances)

Emission trading system, introduced for CO_2 in accordance with the ETD[170] has been extended to be applied in the case of sulphur dioxide (SO_2). Emission quotas (maximum permissible amount of SO_2 emissions per year) is being set by the Ministry of Environment annually to for certain polluting installations (67 installations in 2015).

Air pollution charges

Charges for operators of stationary sources are set for emissions of dust, sulphur dioxide, nitrogen oxides, carbon monoxide, volatile organic compounds and 115 other pollutants divided among 4 groups in accordance with their risk for human health. Basic rates of charges range between EUR 33.19/ ton of carbon monoxide through EUR 165.97 / ton of dust to EUR 1237.76 / ton of category I pollutants (asbestos, Be, benzo(a)pyrene, dibenzo(a,h)anthracene, Cd, Hg, Tl, naphtylamine). Basic rates are multiplied by coefficients higher than 1 in the case of exceedance of emission limit value or in the case exceedance of emission quotas for sulphur dioxide.

Emission reduction programs at the level of particular stationary sources

Preparation of emission reduction programs for large or medium sized stationary sources may be required by the competent authority (district office); content of such programs is laid down by ministerial decree No 314/2010.

Competent authorities[171]

Ministry of Environment

- Drafting of legislation
- Responsibility for air quality assessment including monitoring network and air quality information (via Slovak Hydro-meteorological Institute)

[170] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC. Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0087

[171] Selected competences are listed which are most the relevant ones for the AIR TRITIA project.

- Prepares national emission inventories and projections
- Prepares National Air Pollutants Emission Reduction Program
- Grants authorization for certain activities (emission measurement, development of dispersion studies,…)

Slovak Environmental Inspectorate

- Responsible for enforcement
- Imposes corrective measures and penalties in the case of offence by natural or legal persons (administrative offence)

District offices in regional capitals

- Decide on the determination of areas of air quality management
- Prepare and adopt air quality programs and action plans

District offices

- Issue approvals for placing, construction and commissioning of large and medium-sized emission sources
- Imposes corrective measures and penalties in the case of offence by natural or legal persons (administrative offence) operating large and medium-sized sources

Municipalities

- Issue approvals for placing, construction and commissioning of small-sized emission sources
- Imposes corrective measures and penalties in the case of offence by natural or legal persons operating small-sized sources (administrative offence)
- May decide on introduction of low emission zone

Environmental funds

The Environmental Fund[172] is primarily set up to implement state support for environmental care and environmental development on the principles of sustainable development. The Fund's main mission is to provide funding to applicants in the form of subsidies or loans to support projects in the context of activities aimed at achieving national environmental policy objectives at national, regional or local levels. The fund for the financing of these activities uses its own funds, which it acquires under the legislation in force from the various (including air pollution charges). The provision and use of the Fund's resources must be in accordance with the priorities and objectives of the State Environmental Policy Strategy approved by the Government of the Slovak Republic.

Integrated prevention (IPPC)

Legal background of the integrated environmental permitting process of the Slovak Republic is created by one law and one ministerial decree:

- Act No. 39/2013 Coll., on Integrated Prevention and Control of Environmental Pollution and on the amendment of certain laws, as amended[173]

[172] Link (SK): http://www.envirofond.sk/sk/o-nas

[173] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2013/39/20160101

- Decree of the Ministry of Environment of the Slovak Republic No. 11/2016 Coll., which implements Act no. 39/2013 Coll. On Integrated Prevention and Control of Environmental Pollution and on the amendment of certain laws, as amended[174]

Act No. 39/2013 and Decree No 39/2013 fully transposes general provisions of Directive 2010/75/EU (Articles 1 – 27 and Articles 71 – 83, Annexes I - III).

Competent authorities include the Ministry of Environment and the Slovak Environmental Inspectorate. **Integrated environmental permits are being issued by the Slovak Environmental Inspectorate.**

EIA/SEA

Legal background of the environmental impact assessment (EIA) and strategic environmental assessment (SEA) processes of the Slovak Republic is created by one law and one ministerial decree:

- Act No. 24/2006 Coll. , on Environmental Impact Assessment and on Amendments to Certain Acts as amended[175]
- Decree of the Ministry of Environment of the Slovak Republic No. 113/2006 Coll., which sets out the details for environmental impact assessment[176]

Act No.24/2006 and Decree No. 113/20064 transpose the provisions of relevant EU legislation (Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment).

District offices in regional capitals represent the most important authority in the case of EIA at national level (issue binding statements). EIA in transboundary context is under the responsibility of the Ministry of Environment. Competences in SEA process are divided among several levels of state administration depending on scope and/or sectoral focus of particular plan or program.

Ecodesign

Act No. 529/2010 Coll., on Environmental Design and Use of Products (Ecodesign Act)[177]: This law transposes the Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products.

[174] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/11/20160101
[175] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2006/24/20170101
[176] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2006/113/20060301
[177] Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/529/20101229

6. Conclusions and recommendatios

6.1. Policies

An overview of relevant policy documents in the AIR TRITIA project countries is presented in the following table:

Table 29: Overview of relevant policy documents in the AIR TRITIA countries

Country	Existence	Title
National level - general environment		
CS	Yes	State Environmental Policy of the Czech Republic 2012 – 2020, update 2016
PL	No	
SK	No	
National level - air		
CS	Yes	2015 Mid-term strategy (till 2020) for the improvement of air quality in the Czech Republic 2015 National Emission Reduction Program of the Czech Republic
PL	Yes	National Air Protection Program till 2020 (with outlook till 2030) National Environmental Monitoring Programme 2016 – 2020
SK	Partial	PM_{10} Emission Reduction Strategy Regional Program for Air Quality Improvement for Ground-level Ozone for the whole Territory of Slovakia (2010)
Regional level, zones and agglomerations		
CS	Yes	Program for the Improvement of Air Quality in Agglomeration Ostrava/Karviná/Frýdek-Místek Program for the Improvement of Air Quality in zone Moravia-Silesia
PL	Yes	Environmental Protection Program for Silesian Voivodship up to 2019 taking into account the perspective until 2024 The Air Protection Program for the Silesian Voivodship aiming to reach the air quality standards and the exposure concentration obligation Program of air protection for the City of Opole zone, due to exceeding the limit values for PM_{10} and target values for benzo(a)pyrene together with the Short-term action plan, Opole 2013 Program of air protection for the Opolska zone, due to exceeding the limit values for PM10 and target values for PM2.5 and benzo(a)pyrene together with the Short-term action plan, Opole 2013 Air Protection Program for Małopolskie Voivodship. Małopolska in a healthy atmosphere
SK	No	
Local level		
CS	Yes	Short-term Program to Improve Air Quality in Ostrava (3rd update 2017)
PL	Yes	Low Emission Economy Plans prepared for 283 municipalities in the AIR TRITIA project area Low emission reduction program, Opole 2010
SK	Yes	Air Quality Improvement Program – Territory of the City of Žilina

		Air Quality Improvement Program – Territory of Town Ružomberok and Municipality Likavka Air Quality Improvement Program – Territory of Towns Martin and Vrútky
Air quality action plans		
CS	Yes	Smog warning and regulatory systems (regions, municipalities)
PL	Yes	Included in the programs at regional level
SK	Yes	Action Plan Žilina Action Plan Ružomberok and Likavka Action Plan Martin and Vrútky

Conclusions

- Actual national environmental policy document is in place in the Czech Republic only
- Complex air protection policy document at the national level is in place in the Czech Republic and in Poland
- Partial air protection policy documents at the national level are in place in Poland (monitoring) and in the Slovak Republic (PM_{10}, ground level ozone)
- Air protection policies at the regional level are in place in all three AIR TRITIA project countries
- Air protection policies at local/municipal levels are in place in all three AIR TRITIA project countries
- Short-term action plans are in place in Poland and the Slovak Republic
- Poland has developed Low Emission Economy Plans for almost 300 municipalities within the AIR TRITIA project region
- Programs and plans in all three countries are focused on the reduction of emissions to comply with the air quality standards, however quantified national, sectoral or areal emission ceilings are applied in the Czech Republic only
- Reduction of emissions of particulate matter (PM_{10} and $PM_{2.25}$) and of benzo(a)pyrene are priority for all three countries
- Emissions of PM (PM_{10} and $PM_{2.5}$) and benzo(a)pyrene from local heating and road transport and fugitive emissions of PM_{10} are considered priority of plans/programs in all three countries.

Recommendations

It is recommended to the Slovak Republic to adopt air protection strategy at the national level (preferably extended national air pollutant control programs which are to be prepared by 1 April 2019 in accordance with the requirements of Article 6 of the Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants).

6.2. International Conventions and Protocols

Status of ratification of relevant international conventions and protocols by the AIR TRITIA project countries is presented in the following table:

Table 30: Status of ratification of international conventions and protocols by the AIR TRITIA project countries

	EU	Czech Republic	Poland	Slovak Republic
Convention on Long-range Transboundary Air Pollution (CLRTAP)	1982	1993	1985	1993
Protocol EMEP	1986	1993	1988	1993
Protocol on Heavy Metals (Protocol on HMs)	2001	2002		2002
Protocol on Persistent Organic Pollutants (Protocol on POPs)	2004	2002		2002
Gothenburg protocol to abate acidification, eutrophication and ground-level ozone (Gothenburg Protocol)	2003	2004		2005
Espoo Convention on Environmental Impact Assessment (EIA) in a Transboundary Context	1997	2001	1997	1999
Kyiv Protocol on Strategic Environmental Assessment (SEA)	2008	2005	2011	2008
Stockholm Convention on Persistent Organic Pollutants	2004	2002	2008	2002
Minamata Convention on Mercury	2017			2017

Conclusions

Poland has not ratified three important protocols under the UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP).

Recommendations

It is recommended to Poland to consider ratification of the Protocol on HMs, the Protocol on POPs and the Gothenburg Protocol.

6.3. Legislation

Structure of air quality related legislation in the AIR TRITIA project countries differs in the following way:

- Czech Republic
  - Act on air protection accompanied by implementing ministerial decrees
  - Act on integrated pollution prevention and control (IPPC)
  - Act on EIA/SEA
- Poland
  - One general act on environment (Environmental Act) accompanied by implementing ministerial regulations
- Slovak Republic
  - Act on air accompanied by implementing ministerial decrees
  - Act on air pollution charges
  - Act on integrated pollution prevention and control (IPPC)
  - Act on EIA/SEA
  - Act on eco-design

Conclusions

All tree AIR TRITIA project countries have sufficient legal background for efficient system of air quality assessment and management.

Structure of legislation in the Czech Republic and the Slovak Republic is similar (several special acts) while the Polish legislation is based on different philosophy (general environmental codex).

6.3.1. Analysis of compliance (with EU legislation)

Conclusion

- Directives on air quality (2008/50/EC and 2004/107/EC are transposed completely in all 3 countries;
- Directive 2010/75/EU on industrial emissions is transposed completely: In Poland by one act and implementing legal acts, in the Czech Republic and the Slovak Republic by the air related acts (Article 28-70 and Annexes IV-VIII) and act on IPPC (Articles 1-27, 71-83 and Annexes I-III)
- Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants is transposed completely in all 3 countries
- All three countries have prepared transitional national plans in accordance with Article 32 of the Directive 2010/75/EU on industrial emissions
- Directive on EIA and SEA are transposed completely by one act in all 3 countries
- Transposition of newly adopted EU directives (2016/2284 on the reduction of national emissions) and of the Commission Regulation 2015/1189 (eco-design requirements for solid fuel boilers)) is in progress in all 3 countries.

6.3.2. Zones and agglomerations

Czech Republic

In total 3 agglomerations + 7 zones; Air TRITIA project area: Agglomeration Ostrava/Karviná/Frýdek-Místek and Zone Moravia-Silesia

Slovak Republic

In total 2 agglomerations + 8 zones; Air TRITIA project area: Zone Žilinský kraj (actual areas of air quality management: Territories of municipalities Žilina, Ružomberok, Likavka)

Poland

In total: 12 agglomerations with population over 250 thousand, 18 zones with population over 100 thousand, 16 zones constituting the remainder of the voivodship, not included in cities over 100 thousand inhabitants and in agglomerations. AIR TRITIA project area:

- Silesian Voivodship: agglomeration górnośląska, agglomeration rybnicko-jastrzębska, zone miasto Bielsko-Biała, zone miasto Częstochowa, zone śląska
- Opolskie Voivodship: zone miasto Opole, zone opolska
- Malopolskie Voivodship: agglomeration krakowska, zone miasto Tarnów, zone małopolska

Conclusion

All 3 countries have introduced agglomerations and zones which cover whole country´s territory. Within permanent zones and agglomerations, temporary areas of air quality management are being established in the Slovak Republic

6.3.3. Air Quality Standards

Conclusion

All 3 countries have transposed all provisions of directives:

- Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe as amended
- Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

Beyond the requirements of these directives, all 3 countries have set additional information thresholds (public must be informed) and alert threshold (immediate short term actions must be taken) for particulate matter PM_{10} and the Czech Republic also information thresholds for sulphur dioxide (SO_2) and nitrogen dioxide (NO_2).

Table 31: Additional air quality standards in the Czech Republic, Poland and the Slovak Republic

	Pollutant	Unit	Czech Republic	Poland	Slovak Republic
Information threshold	PM10	▫g/m3	100	200	100
Information threshold	SO2	▫g/m3	250	-	-
Information threshold	NO2	▫g/m3	200	-	-
Alert threshold	PM10	▫g/m3	150	300	150

Directives 2008/50/EU and 2004/107/EC provide for 2 types of air quality standards:

- **limit value** (LV): fixed level (concentration) **to be attained everywhere within a given period and not to be exceeded once attained** (sulphur dioxide, nitrogen dioxide, particles PM_{10}, carbon monoxide, lead, benzene)
- target value (TV): fixed level (concentration) **to be attained where possible over a given period** (particles $PM_{2.5}$, ozone, arsenic, cadmium, nickel, benzo(a)pyrene)

Czech legislation sets limit values for above all listed pollutants and more stringent limit value for $PM_{2.5}$ (20 $\mu g/m^3$ instead of 25 $\mu g/m^3$).

Recommendation

It is recommended to Poland to harmonize information and alert thresholds for PM_{10} with those applied in the Czech Republic and the Slovak Republic (i.e. to change information threshold from 200 $\mu g/m^3$ to 100 $\mu g/m^3$ and alert threshold from 300 $\mu g/m^3$ to 150 $\mu g/m^3$).

6.3.1. National emission reduction commitments

Conclusion

Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants establishes for the AIR TRITIA countries the following national emission reduction commitments:

Table 32: National emission reduction commitments for the AIR TRITIA project countries

	Emission reduction in % compared with 2005 emissions					
	Czech Republic		Poland		Slovak Republic	
Pollutant	2020-2029	2030 -	2020-2029	2030 -	2020-2029	2030 -
SO_2	45	66	59	70	57	82
NO_X	35	64	30	39	36	50
NMVOC	18	50	25	26	18	32
NH_3	7	22	1	17	15	30
$PM_{2.5}$	17	60	16	18	36	49

Note: The national emission reduction commitments for the period 2020 - 2029 are identical with those adopted under the updated UNECE CLRTAP Protocol to abate acidification, eutrophication and ground level ozone (Gothenburg Protocol).

Czech Republic has set national emission ceilings till 2020 for SO_2, NOx, NMVOC, NH_3 and $PM_{2.5}$ which are more stringent than those required by Directive 2016/2284 (see National Emission Program of the Czech Republic).

6.3.2. Emission limit values

Conclusion

All 3 countries have transposed emission limit values laid down by the Directive 2010/75/EU on industrial emissions (large combustion plants, waste incinerators, and installations using organic solvents) and Directive (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants. In addition, Czech Republic and Slovak Republic have introduced emission limit values for carbon monoxide for all types of large combustion plants regardless fuel used.

Czech Republic and Slovak Republic have laid down specific (technology based) emission limit values and technical requirements for a wide range of defined air pollution sources as well as generally binding emission limit values (applicable in the case that specific emission limit value does not exist for particular source/installation).

Poland has introduced emission limit values for carbon monoxide for certain types of large combustion plants fired by liquid and gaseous fuels.

6.3.3. Categorization of stationary pollution sources

Conclusion

Systems applied in the Czech Republic, Poland and the Slovak Republic are different and incompatible.

6.3.4. Compensation measures

Conclusion

Czech Republic and Poland have introduced compensation (emission reduction) measures to be applied by operator/owner when new air pollution source is being built (or existing source changed substantially) in area with the exceeded air quality standards (of if such activity would lead to the exceedance).

Recommendation

Slovak Republic is recommended to consider introduction of compensation measures.

6.3.5. Air pollution charges

Conclusion

All three countries have introduced air pollution charges, however in quite different ways:

- Czech Republic: 4 pollutants (SO_2, NO_X, TSP, VOC) with differentiated rates of charge based on health impacts of pollutants (EUR 66/ton to EUR 243/ton).
- Poland: 67 pollutants with differentiated rates of charge based on health impacts (from EUR 26/t to EUR 91 000/t).
- Slovak Republic: 5 main pollutants (TSP, SO_2, NOx, CO, VOC) and 115 other pollutants divided among 4 groups in accordance with their risk for human health more than with differentiated rates of charge (from EUR 166/ton to EUR 1238/ton).

6.3.6. Environmental Funds

Conclusion

Environmental funds at national level exist in all countries. In Poland, environmental funds have been also established at regional (voivodships), district (powiat) and municipal (gmina) levels.

6.3.7. Permitting authorities

Czech Republic

- Integrated permits and air pollution permits (for more emitting sources) are mostly granted at regional level (regional offices)
- Permits for less emitting air pollution sources are granted at municipal level (municipalities with extended administrative power)
- EIA binding statements are mostly granted at the regional level (regional offices)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program
- Ministry of Environment grants permits/binding statements in the case of transboundary or trans-regional character of permitted/ assessed activity

Poland

- Integrated permits are granted at the district (powiat) level and regional level (Voivodship Marshal)
- Air pollution permits are granted at district level (powiat)
- EIA binding statements are mostly granted at the municipal level and regional level (Regional Director for Environmental Protection) and national level (General Director for Environmental Protection)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program and depending on it's kind.

Slovak Republic

- Integrated permits are granted by the Slovak Environmental Inspectorate
- air pollution permits (for more emitting sources) are mostly granted at district level (district offices)
- Permits for less emitting air pollution sources are granted at municipal level (municipal offices)

- EIA binding statements are mostly granted at the semi/regional level (district offices in regional capitals)
- SEA binding statements are granted at all levels depending on geographical scope of particular plan or program

List of abbreviations, formulas and symbols

	Abbreviations
AMS	Automated Monitoring Station
AT	Alert threshold
BAT	Best Available Technique
BC	Black carbon
BREF	BAT Reference document
CHMI	Czech Hydro-meteorological Institute
CIEP	Chief Inspectorate of Environmental Protection (Poland)
CL	Critical level
CLRTAP	UNECE Convention on Long-range Transboundary Air Pollution
CNG	Compressed Natural Gas
CR	Czech Republic
CS	Czech language
DPSIR	Analytical concept: Driving forces – Pressures – State – Impact - Response
EAP	Environment Action Program
EEA	European Environment Agency
EIA	Environmental impact assessment
ELV	Emission limit value
EMAS	Eco-Management and Audit Scheme
EMEP	The European Monitoring and Evaluation Programme
ETD	Emission Trading Directive (Directive 2003/87/EC)
EU	European Union
GAINS	Greenhouse Gas - Air Pollution Interactions and Synergies model
GAW	Global Atmosphere Watch
GHG	Greenhouse gas
HCB	Hydrochlorinated biphenyl
HELCOM	The Baltic Marine Environment Protection Commission
HM	Heavy metal
IED	Industrial Emissions Directive (2010/75/EU)
IIASA	International Institute for Applied System Analysis
IIR	Informative Inventory Report
IPPC	Integrated Pollution Prevention and Control
ISP	International Organization for Standardization
IT	Information threshold
KZK GOP	Municipal Transport Union of the Upper Silesian Industrial District

LCP	Large combustion plant
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LTO	Long-term objective
LV	Limit value
MCP	Medium sized combustion plant
MoE	Ministry of Environment
MTCRD	Ministry of Transport, Construction and Regional Development (Slovakia)
NEAP	National Environmental Action Program
NERP	National Emission Reduction Program
NFR	Nomenclature for reporting
NIP	National Implementation Program
NMVOC	Non-methane volatile organic compounds
NPSE	National Emission Reduction Program of the Czech Republic
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PGN	Low Emission Economy Plan (Poland)
PL	Poland, Polish language
PM	Particulate matter
POP	Persistent organic pollutant
SEA	Strategic environmental assessment
SHMI	Slovak Hydro-meteorological Institute
SK	Slovakia, Slovak language
SR	Slovak Republic
SRA	Slovak Road Administration
TSP	Total suspended particles
TV	Target value
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UV-B	Short wave ultraviolet radiation
VOC	Volatile organic compounds
WaM	Scenario with additional measures
WHO	World Health Organization
WMO	World Meteorological Organization
ZUO	Waste utilization plant (in Poland)
	Formulas
As	Arsenic

b(a)p	benzo(a)pyrene
Be	Beryllium
Cd	Cadmium
Cr	Chromium
Cu	Copper
CO	Carbon monoxide
CO_2	Carbon dioxide
Hg	Mercury
NH_3	Ammonia
Ni	Nickel
NO_X	Nitrogen oxides
NO_2	Nitrogen dioxide
O_3	Ozone
Pb	Lead
PM_{10}	Particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM_{10}, EN 12341, with a 50 % efficiency cut-off at 10 µm aerodynamic diameter
$PM_{2.5}$	Particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of $PM_{2.5}$, EN 14907, with a 50 % efficiency cut-off at 2,5 µm aerodynamic diameter
Se	Selenium
SO_2	Sulphur dioxide
Tl	Thallium
Zn	Zinc
	Symbols
kW	kilowatt
km^2	square kilometre
MW	Megawatt
m^3	cubic metre
Mg	milligram
Ng	nanogram
µg	microgram
µm	micrometre

Annexes

Annex 1: List of relevant policy documents of the EU, Czech Republic, Poland and Slovak Republic

European Union

The 7th Environment Action Programme (EAP)

Decision No 1386/2013/EU of the European Parliament and of the Council of 20 November 2013 on a General Union Environment Action Programme to 2020 'Living well, within the limits of our planet'

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32013D1386

A Clean Air Programme for Europe

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Clean Air Programme for Europe (COM/2013/0918 final)

Program - Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0918

Impact Assessment – Link (EN): http://ec.europa.eu/environment/archives/air/pdf/Impact_assessment_en.pdf

WHITE PAPER Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system (COM/2011/0144 final)

Link – White Paper (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0144

Link – Impact Assessment (EN):

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2011:0358:FIN:EN:PDF

A European Strategy for Low-Emission Mobility

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A European Strategy for Low-Emission Mobility (COM(2016) 501 final)

Link (EN): https://ec.europa.eu/transport/sites/transport/files/themes/strategies/news/doc/2016-07-20-decarbonisation/com%282016%29501_en.pdf

Energy 2020 A strategy for competitive, sustainable and secure energy

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy 2020 A strategy for competitive, sustainable and secure energy (COM/2010/0639 final)

Link (EN, PL, SK):

http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1409650806265&uri=CELEX:52010DC0639

A policy framework for climate and energy in the period from 2020 to 2030

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A policy framework for climate and energy in the period from 2020 to 2030 (COM/2014/015 final)

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52014DC0015

Energy Roadmap 2050

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy Roadmap 2050 (COM/2011/0885 final)

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0885

Energy Efficiency Plan 2011

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy Efficiency Plan 2011 (COM/2011/0109 final)

Link (EN, CS, PL, SK):

http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1407839592178&uri=CELEX:52011DC0109

Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy

Communication from the Commission to the European Parliament and the Council: Energy Efficiency and its contribution to energy security and the 2030 Framework for climate and energy policy (COM(2014) 520 final)

Link (EN):
https://ec.europa.eu/energy/sites/ener/files/documents/2014_eec_communication_adopted_0.pdf

Czech Republic

State Environmental Policy of the Czech Republic 2012 – 2020 (as amended in 2016)

Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/statni_politika_zivotniho_prostredi/$FILE/SOPSZP-Aktualizace_SPZP_2012-2020-20161123.pdf

Link (EN): https://www.mzp.cz/C125750E003B698B/en/sep_cz/$FILE/SOPSZP-SEP2012-2020(2016)-170404.pdf

Mid-term Strategy (till 2020) for the Improvement of Air Quality in the Czech Republic

Link (CS):

https://www.mzp.cz/C1257458002F0DC7/cz/strategie_zlepseni_kvality_ovzdusi/$FILE/OOO-Strategie_ochrany_ovzdusi-20170505.pdf

National Emission Reduction Program of the Czech Republic

Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/narodni_program_snizovani_emisi/$FILE/OOO-NPSE_final-20151217.pdf

Czech Republic - Regional level

Air Quality Improvement Program for Agglomeration Ostrava/Karviná/Frýdek-Místek CZ08A

Link (CS) – General measure:
https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_ostrava_karvina_frydekmistek_2016/$FILE/OOO-OOP_PZKO_CZ08A-20160623.pdf

Link (CS) – Program:
https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_ostrava_karvina_frydekmistek_2016/$FILE/OOO-OOP_PZKO_CZ08A-20160623.pdf

Air Quality Improvement Program for Zone Moravskoslezsko (Moravia-Silesia) – CZ08Z

Link (CS) – General measure:
https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_moravskoslezsko_2016/$FILE/OOO-OOP_PZKO_CZ08Z-20160623.pdf

Link (CS) – Program:
https://www.mzp.cz/C1257458002F0DC7/cz/kvalita_ovzdusi_moravskoslezsko_2016/$FILE/OOO-Priloha_1_k_OOP_CZ08Z-20160623.pdf

Czech Republic - Local level

Short-term Program to Improve Air Quality in Ostrava (3rd update 2017)

Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1/kratkodoby-program-ke-zlepseni-kvality-ovzdusi-iii-aktualizace

Local Program to Reduce Emissions and Improve Air Quality for the City of Opava

Link (CS): http://www.opava-city.cz/cs/nastroje-ochrany-ovzdusi

Transport Policy of the Czech Republic 2014-2020 with Outlook till 2050

Link (CS): http://www.mdcr.cz/getattachment/Dokumenty/Strategie/Dopravni-politika-a-MFDI/Dopravni-politika-CR-pro-obdobi-2014-2020-s-vyhled/Dopravni-politika-CR-2014---2020.pdf.aspx

Link (EN): http://www.mdcr.cz/getattachment/Dokumenty/Strategie/Dopravni-politika-a-MFDI/Dopravni-politika-CR-pro-obdobi-2014-2020-s-vyhled/The-Transport-Policy-of-the-Czech-Republic-for-2014-2020.pdf.aspx

National Clean Mobility Plan

Link (CS): http://www.mdcr.cz/getattachment/Dokumenty/Strategie/Mobilita/Cista-mobilita-(1)/Narodni-akcni-plan-ciste-mobility.pdf.aspx

State Energy Strategy of the Czech Republic

Link (CS) - Strategy: https://www.mpo.cz/assets/cz/energetika/statni-energeticka-politika/2016/12/Statni-energeticka-koncepce-_2015_.pdf

Link (CS) - Analytical Background: https://www.mpo.cz/assets/cz/energetika/statni-energeticka-politika/2016/12/Doplnujici-analyticky-material-k-SEK.pdf

National Energy Efficiency Action Plan of the Czech Republic

Link (CS): https://www.mpo.cz/assets/dokumenty/50711/63238/651838/priloha004.pdf

Poland

2020 Development Strategy

Resolution No. 157 of the Council of Ministers of 25 September 2012 on the adoption of the 2020 Development Strategy, Warsaw, 2012.

Link (PL): http://monitorpolski.gov.pl/mp/2012/882/1

Long-Term National Development Strategy. Poland 2030

Resolution No. 16 of the Council of Ministers of 5 February 2013 on the adoption of the Long-Term National Development Strategy. Poland 2030. The Third Wave of Modernity, M.P.2013, pos. 121

Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WMP20130000121

National Environmental Monitoring Programme 2016 - 2020

Link (PL): www.gios.gov.pl/pl/stan-srodowiska/pms

Poland - National level

National Air Protection Program till 2020 (with outlook till 2030)

Link (PL): https://www.mos.gov.pl/srodowisko/ochrona-powietrza/krajowy-program-ochrony-powietrza/

Poland - Regional level

The resolution of the regional council of the Silesian Voivodship No. **V/36/1/2017, 07.04.2017.** introducing in the area of the Silesian Voivodship restrictions for the use of the installations combusting fuel.

Link (PL): http://bip.slaskie.pl/dokumenty/2017/04/10/1491823372.pdf

Environmental Protection Program for the Silesian Voivodship up to 2019 with a view to 2024, Katowice, 2015.

Link (PL): https://www.slaskie.pl/zdjecia/2015/08/31/1441024347.pdf

Air Protection Program for the Silesian Voivodship aiming at reaching air quality standards, Katowice 2014

Link (PL): https://bip.slaskie.pl/dokumenty/2015/01/29/1422520775.pdf

Program of air protection for the Opolska zone, due to exceeding the limit values of PM10 and target values for PM2.5 and benzo (a) pyrene together with the Short-term action plan, Opole 2013

Link (PL): http://archiwum.opolskie.pl/docs/pop_strefa_opolska5.pdf

Program of air protection for the city Opole zone, due to exceeding the limit values of PM10 and target value for benzo (a) pyrene together with the Short-term action plan, Opole 2013

Link (PL): http://archiwum.opolskie.pl/docs/wnioski/pop_strefa_miasto_opole_1.pdf

Air Protection Program for Małopolskie Voivodship. Małopolska in a healthy atmosphere

Link: http://powietrze.malopolska.pl/wp/wp-content/uploads/2017/02/POP_Malopolska_2017.pdf

Poland - Local level

Links to all Low Emission Economy Plans (PGN) are presented in Annex 2.

State Transport Policy for the years 2006 - 2025, Ministry of Infrastructure, Warsaw, 2005

Link (PL): file:///C:/Users/MWysocka/Downloads/theme-uploadfiles-polittrans%20(1).pdf

Transport Development Strategy until 2020 (with perspective until 2030), Ministry of Transport, Construction and Maritime Affairs, Warsaw 2013,

Link (PL): http://mib.gov.pl/media/3511/Strategia_Rozwoju_Transportu_do_2020_roku.pdf

Environmental Impact Assessment for the Implementation Document for the Transport Development Strategy until 2020 (with perspective until 2030) Volume I, 2014.

Link (PL): http://mib.gov.pl/media/4075/Tom_I_prognoza_srod_DI.pdf

Polish Energy Policy Project until 2050, Ministry of Economy, 2015

Link(PL): http://www.me.gov.pl/Energetyka/Polityka+energetyczna

Slovak Republic

Strategy, Principles and Priorities of the State Environmental Policy

Link (SK): http://www.minzp.sk/dokumenty/strategicke-dokumenty/strategia-zasady-priority-statnej-environmentalnej-politiky.html

National Environmental Action Program II (NEAP)

Link (SK): http://www.minzp.sk/dokumenty/strategicke-dokumenty/narodny-environmentalny-akcny-program-ii.html

NEAP II - Sector A: Protection of the Air and the Ozone Layer

Link (SK): http://www.minzp.sk/dokumenty/strategicke-dokumenty/sektor-ochrana-ovzdusia-ozonovej-vrstvy.html

Regional Program for Air Quality Improvement for Ground-level Ozone for the whole Territory of Slovakia

Link (SK) – Program:

http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_2010.pdf

Link (SK) – Annex I:

http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_p1-2010.pdf

Link SK – Annex II:

http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/reg_program_ozon_p2-2010.pdf

PM10 Emission Reduction Strategy

Link (SK):

http://www.minzp.sk/files/oblasti/ovzdusie/ochrana-ovzdusia/dokumenty/strategia_pre_redukciu_pm10.pdf

Slovak Republic - Local level

Air Quality Improvement Program - Territory of the City of Žilina

Link (SK):
http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/PZKO_Za_2013.pdf

Action Plan Žilina

Link (SK):
http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-zilina.pdf

Air Quality Improvement Program - Territory of the Town Ružomberok and the Municipality Likavka

Link (SK):
http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/Ruz_Lik%20prg_2013_.pdf

Action Plan Ružomberok and Likavka

Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-ruzomberok-likavka.pdf

Air Quality Improvement Program - Territory of Towns Martin and Vrútky

Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/Mt_Vrutky_PZKO_2013.pdf

Action Plan Martin and Vrútky

Link (SK): http://www.minv.sk/swift_data/source/miestna_statna_sprava/okres_zilina/zivotne_prostredie/ochrana_ovzdusia/plan-martin-vrutky.pdf

Strategic Plan of the Development of Transport Infrastructure in the Slovak Republic till 2020

Link (SK): http://www.telecom.gov.sk/index/index.php?ids=75682

Strategy of the Development of Public Transport and Non-motorized Transport in the Slovak Republic till 2020

Link (SK): http://www.telecom.gov.sk/index/index.php?ids=190472

Energy Policy of the Slovak Republic

Link (SK): http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=23993

Concept of Energy Efficiency in the Slovak Republic

Link (SK): http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=8637

Energy Efficiency Action Plan of the Slovak Republic 2014-2016 with Outlook till 2020

Link (SK): http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=23721

Annex 2: Local Low Emission Economy Plans in Poland

Administrative units are municipalities (gminy): urban, urban-rural or rural. Cities can be municipalities or urban-rural municipalities. Municipalities form counties (powiaty).

Basic Air Quality Document: LOW EMISSION ECONOMI PLAN (PGN)

Silesian Voivodship (Województwo Śląskie)

1.01. City with county rights: **Bielsko-Biała**

Plan PGN: http://web2.um.bielsko.pl/projektyrm/uchwaly_2015/druk_164.pdf

1.02. City with county rights: **Bytom**

Plan PGN: http://www.bytom.pl/plan-niskoemisyjny

1.03. City with county rights: **Chorzów**

Plan PGN: http://www.chorzow.eu/images/pdf/Plan_Gospodarki_Niskoemisyjnej_dla_Miasta_Chorz%C3%B3w_-_uchwala_XXXIII.602.17.pdf

1.04. City with county rights: **Częstochowa**

PGN is not planned

Environmental Protection Plan: http://www.czestochowa.pl/data/other/file-1.pdf

Revitalization Program: https://bip.czestochowa.pl/uchwala/1154362/uchwala-nr-548-xl-2017

1.05. City with county rights: **Dąbrowa Górnicza**

Plan PGN: http://www.bip.dabrowa-gornicza.pl/BIP.aspx?Sel=5900&ident=94774

1.06. City with county rights: **Gliwice**

Plan PGN: http://bip.gliwice.eu/prawo_lokalne/uchwaly_rady_miasta,11903,1

Environmental Protection Program: http://bip.gliwice.eu/pub/html/um/files/%C5%9AR/POS_2016_2020_uchwalony.pdf

1.07. City with county rights: **Jastrzębie Zdrój**

Plan PGN: http://www.konsultacje.jastrzebie.pl/system/rich/rich_files/rich_files/000/000/050/original/plan-gospodarki-niskoemisyjnej-dla-miasta-jastrz-c4-99bie-zdr-c3-b3j.pdf

1.08. City with county rights: **Jaworzno**

Plan PGN: http://www.jaworzno.pl/pl/aktualnosci/3474/sesja_rady_miejskiej_projekty_uchwal.html

1.09. City with county rights: **Katowice**

Plan PGN: http://www.katowice.energiaisrodowisko.pl/plan-gospodarki-niskoemisyjnej

1.10. City with county rights: **Mysłowice**

Plan PGN: http://www.myslowice.pl/data/other/pgn_-_myslowice_maj_2016.pdf

1.11. City with county rights: **Piekary Śląskie**

Plan PGN: http://www.bip.piekary.pl/?a=26525

1.12. City with county rights: **Ruda Śląska**

Plan PGN: http://www.rudaslaska.bip.info.pl/dokument.php?iddok=48132&idmp=12&r=r

1.13. City with county rights: **Rybnik**

Plan PGN: http://bip.um.rybnik.eu/docs/2015/01/09/file_1598395.pdf

1.14. City with county rights: **Siemianowice Śląskie**

Plan PGN: http://bip.msiemianowicesl.finn.pl/res/serwisy/pliki/2329875?version=1.0

1.15. City with county rights: **Sosnowiec**

Plan PGN: http://www.sosnowiec.pl/_upload/PGN%20Sosnowiec%2011.09.2015%20a.pdf

Document not available.

1.16. City with county rights: **Świętochłowice**

Plan PGN: http://www.swietochlowice.pl/files/news/z_urzedu/2015/7/PGN_Swietochlowice_do%20konsultacji.pdf

1.17. City with county rights: **Tychy**

Plan PGN: http://rada.umtychy.pl/KFP_23.06.2015/08_PGN_Tychy.pdf

1.18. City with county rights: **Zabrze**

Plan PGN: http://www.um.zabrze.pl/mieszkancy/ekologia/plan-gospodarki-niskoemisyjnej-dla-miasta-zabrze

1.19. City with county rights: **Żory**

Plan PGN: http://www.bip.zory.pl/?c=14343

1.20. **County będziński**

1.20.01. Urban municipality **Będzin**

Plan PGN: http://www.bedzin.bip.info.pl/dokument.php?iddok=9117&idmp=37&r=r

1.20.02. Urban municipality **Czeladź**

Plan PGN: http://bip.czeladz.pl/zalaczniki/1455090915.pdf

1.20.03. Urban municipality **Sławków**

Plan PGN: http://bip.slawkow.pl/bipkod/13828071

1.20.04. Urban municipality **Wojkowice**

Plan PGN: http://www.wojkowice.pl/download/131

1.20.05. Urban-rural municipality **Siewierz**

Plan PGN: http://www.siewierz.pl/1/program/16/

1.20.06. Rural municipality **Bobrowniki**

Plan PGN: http://bip.bobrowniki.pl/?p=document&action=save&id=22075&bar_id=17269

1.20.07. Rural municipality **Mierzęcice**

In June 2017, a tender for the PGN plan was announced

1.20.08. Rural municipality **Psary**

Document not available.

1.21. **County bielski**

1.21.01. Urban municipality **Szczyrk**

Plan PGN: http://www.um.szczyrk.pl/urzad-miejski/ochrona-srodowiska/program-gospodarki-niskoemisyjnej/item/1322-plan-gospodarki-niskoemisyjnej-dla-gminy-szczyrk

1.21.02. Urban-rural municipality **Czechowice-Dziedzice**

Plan PGN: http://www.bip.czechowice-dziedzice.pl/bipkod/14681994

http://www.bip.czechowice-dziedzice.pl/bipkod/009/001

1.21.03. Urban-rural municipality **Wilamowice**

Plan PGN: http://wilamowice.pl/artykul/plan-gospodarki-niskoemisyjnej

1.21.04. Rural municipality **Bestwina**

Plan PGN: http://www.bestwina.pl/download/ogloszenia/2015/Projekt_Planu_gospodarki_niskoemisyjnej.pdf

1.21.05. Rural municipality **Buczkowice**

Plan PGN: http://bip.ugbuczkowice.rekord.pl/BIP.aspx?Sel=7677&Nr=1&ident=21255

1.21.06. Rural municipality **Jasienica**

Plan PGN: http://bip.jasienica.pl/BIP.aspx?Sel=7038&ident=20088&js=1

1.21.07. Rural municipality **Jaworze**

Plan PGN: http://www.jaworze.bip.info.pl/dokument.php?iddok=3259&dstr=1&txt=dWNod2HFgnk=

Environmental Protection Plan: http://www.jaworze.bip.info.pl/dokument.php?iddok=488&idmp=31&r=r

1.21.08. Rural municipality **Kozy**

Plan PGN: http://bip.kozy.pl/BIP.aspx?Sel=4738188&ident=17913&js=1

1.21.09. Rural municipality **Porąbka**

Plan PGN: http://www.bip.porabka.pl/BIP.aspx?Sel=5471&Nr=1&ident=19630

1.21.10. Rural municipality **Wilkowice**

Plan PGN: http://bip.gwwilkowice.finn.pl/res/serwisy/pliki/13635832?version=1.0

1.22. **County bieruńsko-lędziński**

1.22.01. Urban municipality **Bieruń**

Plan PGN: http://bip.bierun.pl/download/10186.pdf

1.22.02. Urban municipality **Imielin**

Plan PGN: http://bip.imielin.pl/files/fck/620/w_sprawie_Planu_gospodarki_niskoemisyjnej_dla_miasta_Imielin.pdf

1.22.03. Urban municipality **Lędziny**

Plan PGN: http://bip.umledziny.finn.pl/res/serwisy/pliki/10621158?version=1.0

EIA of plan PGN: http://bip.umledziny.finn.pl/res/serwisy/pliki/10621185?version=1.0

Environmental Protection Program: http://gmledziny.peup.pl/pobierz.seam?zbior=1&plikId=493561&zalId=456302

1.22.04. Rural municipality **Bojszowy**

Municipal Development Program: http://bip.bojszowy.pl/files/fck/634/file/Projekty_uchwal_sesja_07_09_2016/Projekt_XIX_125_2016.pdf

Environmental Protection Program: http://bip.bojszowy.pl/pl/2373/0/program-ochrony-srodowiska.html

1.22.05. Rural municipality **Chełm Śląski**

Plan PGN: http://bip.chelmsl.pl/images/niska_emisja/PGN_Che%C5%82mSl.pdf

1.23. **County cieszyński**

1.23.01. Urban municipality **Cieszyn**

Plan PGN: http://bip.um.cieszyn.pl/uchwala/4304/xvii-163-15

Update of plan PGN: http://bip.um.cieszyn.pl/uchwala/4326/xx-185-16

1.23.02. Urban municipality **Ustroń**

Plan PGN: http://www.ustron.bip.info.pl/dokument.php?iddok=14241&idmp=975&r=r

1.23.03. Urban municipality **Wisła**

Plan PGN: http://www.prawomiejscowe.pl/UrzadMiejskiwWisle/document/166556/Uchwa%C5%82a-XIX_254_2016

1.23.04. Urban-rural municipality **Skoczów**

Plan PGN: http://www.um.skoczow.pl/media/upload/P/G/PGN_dla_Gminy_Skoczow.pdf

1.23.05. Urban-rural municipality **Strumień**

Plan PGN: http://www.strumien.bip.net.pl/?a=7755 , http://www.strumien.bip.net.pl/?a=8625

1.23.06. Rural municipality **Brenna**

Plan PGN: http://www.mieszkaniec.brenna.org.pl/plan-gospodarki-niskoemisyjnej-dla-gminy-brenna

1.23.07. Rural municipality **Chybie**

Plan PGN not planned: http://www.chybie.pl/asp/pl_start.asp?

Development Strategy: http://www.chybie.pl/asp/pl_start.asp?typ=14&sub=2&menu=12&strona=1

1.23.08. Rural municipality **Dębowiec**

Plan PGN: http://www.debowiec.bip.info.pl/plik.php?id=5065

1.23.09. Rural municipality **Goleszów**

Plan PGN: http://www.goleszow.pl/media/upload/P/G/PGN_popr._09.12.2016[1].pdf

1.23.10. Rural municipality **Hażlach**

Plan PGN: http://docplayer.pl/28424279-Uchwala-nr-iii-18-2016-rady-gminy-hazlach-z-dnia-30-marca-2016-r-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-gminy-hazlach.html

1.23.11. Rural municipality **Istebna**

Plan PGN: http://www.istebna.eu/mieszkaniec/news/plan-gospodarki-niskoemisyjnej

1.23.12. Rural municipality **Zebrzydowice**

Plan PGN: http://www.zebrzydowice.bip.info.pl/dokument.php?iddok=7129&dstr=1&txt=bmlza29lbWlz

1.24. **County częstochowski**

1.24.01. Urban-rural municipality **Blachownia**

Plan PGN: http://gminablachownia.pl/wp-content/uploads/2016/01/PGN_Blachownia-ver-03-KR.pdf

1.24.02. Urban-rural municipality **Koniecpol**

Plan PGN: http://www.koniecpol.pl/index.php?c=search&kword=plan+gospodarki+niskoemisyjnej&search.x=15&search.y=14

1.24.03. Rural municipality **Dąbrowa Zielona**

Plan PGN: http://www.bip.dabrowazielona.pl/artykuly/2740

1.24.04. Rural municipality **Janów**

Plan PGN: http://powiatczestochowski.pl/wp-content/uploads/2016/02/201602040903572te1pdr9rj45.pdf

1.24.05. Rural municipalityKamienica Polska

Plan PGN: http://bip262.lo.pl/?bip_id=2354&cid=72118&q=plan+gospadarki+niskoemisyjnej

1.24.06. Rural municipality **Kłomnice**

Document not available.

1.24.07. Rural municipality **Konopiska**

Plan PGN: http://www.archiwum.konopiska.pl/zalaczniki/news/2015/11/PGN.pdf

1.24.08. Rural municipality **Kruszyna**

Plan PGN: http://www.bip.kruszyna.akcessnet.net/upload/20161130093727efda3mobvvim.pdf

1.24.09. Rural municipality **Lelów**

Plan PGN: http://www.biplelow.pl/artykuly/2200

1.24.10. Rural municipality **Mstów**

Plan PGN: http://www.mstow.pl/media/2016/2016_12_news/Projekt_Załącznik_do_Uchwały_z_dnia_17_października_2016r..pdf

1.24.11. Rural municipality **Mykanów**

Plan PGN: https://www.mykanow.4bip.pl/upload/20151208130424o3xmdrciq0m5.pdf

1.24.12. Rural municipality **Olsztyn**

Plan PGN: http://www.olsztyn-jurajski.pl/dokumenty/plan_gospodarki_niskoemisyjnej.pdf

1.24.13. Rural municipality **Poczesna**

Plan PGN: http://bip.poczesna.pl/pliki/dokumenty/2016-04-28/2802/plan-gospodarki-niskoemisyjnej-dla-gminy-poczesna

1.24.14. Rural municipality **Przyrów**

Document not available.

1.24.15. Rural municipality **Rędziny**

Plan PGN: http://www.bip.redziny.pl/upload/20161227095415qz2fsghvbeav._1_do_25-XXIII-2016_

1.24.16. Rural municipality **Starcza**

Development Strategy: http://www.gmina-starcza.pl/dokumenty/strategia_rozwoju_starcza.pdf

1.25. **County gliwicki**

1.25.01. Urban municipality **Knurów**

Plan PGN: http://www.knurow.bip.info.pl/dokument.php?iddok=21797&idmp=82&r=r

1.25.02. Urban municipality **Pyskowice**

Plan PGN: http://www.pyskowice.pl/files/pl/gospodarka-komunalna/175plangospodarkiniskoemisyjnej.pdf

Environmental Protection Program: http://www.pyskowice.pl/files/pl/gospodarka-komunalna/557uchwaapoxxvii_199_2016.pdf

1.25.03. Urban-rural municipality **Sośnicowice**

Plan PGN: http://www.sosnicowice.pl/materialy/pliki/77.pdf

1.25.04. Urban-rural municipality **Toszek**

Plan PGN: http://www.bip.toszek.pl/download/attachment/7380/pgn_gmina_toszek_ver_1.pdf

1.25.05. Rural municipality **Gierałtowice**

Plan PGN: http://bip.gieraltowice.pl/download/attachment/9588/138_plan-gospniskoemis_zalacznikdocx.pdf

1.25.06. Rural municipality **Pilchowice**

Plan PGN: https://bip.pilchowice.pl/attachments/5350_91.pdf

1.25.07. Rural municipality **Rudziniec**

Plan PGN: http://docplayer.pl/28067376-Gmina-rudziniec-aktualizacja-programu-ograniczenia-niskiej-emisji-dla-gminy-rudziniec.html

1.25.08. Rural municipality **Wielowieś**

Plan PGN: http://bip.wielowies.pl/ugwielowies/Article/get/id,18030.html

http://bip.wielowies.pl/ugwielowies/Article/id,319.html

1.26. **County kłobucki**

1.26.01. Urban-rural municipality **Kłobuck**

Plan PGN: http://bip.gminaklobuck.pl/strategie_programy_plany/Plan_gospodarki_niskoemisyjnej_dla_Gminy_Klobuck.html

1.26.02. Urban-rural municipality **Krzepice**

Plan PGN: http://bip.krzepice.pl/download/attachment/7701/zalacznik-do-uchwaly-nr-104-plan-gospodarki-niskoemisyjnej-dla-gminy-krzepice.pdf

1.26.03. Rural municipality **Lipie**

Environmental Protection Program: http://www.lipie.pl/images/stories/srodowisko/Program_Ochrony_srodowiska.pdf

1.26.04. Rural municipality **Miedźno**

Plan PGN: http://www.bip.miedzno.akcessnet.net/upload/20160607114843ahlotg7mt9t7.pdf

1.26.05. Rural municipality **Opatów**

Plan PGN: http://www.umopatow.pl/images/pgn/uchwala_186.pdf

1.26.06. Rural municipality **Panki**

Projekt planu PGN: http://www.bip.panki.pl/upload/20151105085630fam2fdri2m36.pdf

1.26.07. Rural municipality **Popów (s. Zawady)**

Plan PGN: http://www.bip.gminapopow.pl/upload/20170526102439zqy72v1zld22.pdf

1.26.08. Rural municipality Przystajń

Plan PGN: http://www.bip.przystajn.akcessnet.net/index.php?idg=3&id=783&x=62&y=9

1.26.09. Rural municipality **Wręczyca Wielka**

Plan PGN: http://www.bip.wreczyca-wielka.akcessnet.net/upload/20151208111106f5vvnbtiy6nz.pdf

1.27. **County lubliniecki**

1.27.01. Urban municipality **Lubliniec**

Plan PGN: http://www.lubliniec.bip.info.pl/plik.php?id=12231

1.27.02. Urban-rural municipality **Woźniki**

Plan PGN: http://bip-files.idcom-web.pl/sites/3137/wiadomosci/349119/files/pone_wozniki.pdf

1.27.03. Rural municipality **Boronów**

PGN in progress.

1.27.04. Rural municipality **Ciasna**

Plan PGN: http://ciasna.bipgmina.pl/wiadomosci/103/wiadomosc/330018/uchwala_nr_xxi1492016_rady_gminy_ciasna_z_dnia_27062016r_w_spraw

1.27.05. Rural municipality **Herby**

Plan PGN: http://www.herby.pl/userfiles/XIV_137.pdf

1.27.06. Rural municipality **Kochanowice**

Plan PGN in progress.

http://kochanowice.pl/

1.27.07. Rural municipality **Koszęcin**

Plan PGN: http://bip-files.idcom-web.pl/sites/3091/wiadomosci/267309/files/plan_gospodarki_niskoemisyjnej__dla_gminy_koszecin.doc

http://www.koszecin.pl/informacje/pgn

1.27.08. Rural municipality **Pawonków**

Plan PGN: http://bip-files.idcom-web.pl/sites/3109/wiadomosci/332225/files/pgn_pawonkow.pdf

1.28. **County mikołowski**

1.28.01. Urban municipality **Łaziska Górne**

Plan PGN: http://www.laziska.pl/attachment_2442.php

1.28.02. Urban municipality **Mikołów**

Plan PGN: http://bip.mikolow.eu/index.php/dokumenty/8743

1.28.03. Urban municipality **Orzesze**

Plan PGN: http://bip.orzesze.pl/upload/Plan%20Gospodarki%20Niskoemisyjnej%20dla%20Miasta%20Orzesze%20_1_.pdf

1.28.04. Rural municipality **Ornontowice**

Plan PGN: http://www.bip.ornontowice.finn.pl/res/serwisy/bip-ornontowice/komunikaty/_027_003_006_443183.pdf

1.28.05. Rural municipality **Wyry**

Plan PGN: http://bip.ugwyry.rekord.pl/BIP.aspx?Sel=3319982&ident=21104&js=1

1.29. **County myszkowski**

1.29.01. Urban municipality **Myszków**

Plan PGN: http://bip.miastomyszkow.pl/?a=5799

1.29.02. Urban-rural municipality **Koziegłowy**

Plan PGN: http://www.kozieglowy.pl/kategorie/plan_gospodarki_niskoemisyjnej

1.29.03. Urban-rural municipality **Żarki**

Plan PGN: http://www.zarki.bip.jur.pl/dokumenty/plan_niskoemisyjnej.pdf

1.29.04. Rural municipality **Niegowa**

Plan PGN: http://www.niegowa.bip.net.pl/?p=document&action=show&id=6518&bar_id=3255

1.29.05. Rural municipality **Poraj**

Plan PGN: http://poraj.bip.net.pl/?p=document&action=save&id=3543&bar_id=2219

1.30. **County pszczyński**

1.30.01. Urban-rural municipality **Pszczyna**

Plan PGN: http://www.prawomiejscowe.pl/api/file/GetZipxAttachment/269/552909/preview

http://www.prawomiejscowe.pl/api/file/GetZipxAttachment/269/555084/preview

1.30.02. Rural municipality **Goczałkowice-Zdrój**

Plan PGN: http://www.bip.urzad.goczalkowicezdroj.pl/res/serwisy/pliki/13727313?version=1.0

1.30.03. Rural municipality **Kobiór**

Environmental Protection Program: http://bip.kobior.pl/uchwaly/40d45e05e535c19703c8f615dab186f5_1/RG.0007.37.2015.pdf

1.30.04. Rural municipality **Miedźna**

Plan PGN: http://bip.miedzna.pl/?a=7205

1.30.05. Rural municipality **Pawłowice**

Plan PGN: http://bip.gwpawlowice.finn.pl/res/serwisy/pliki/13107434?version=1.0

1.30.06. Rural municipality **Suszec**

Plan PGN: http://bip.suszec.iap.pl/pl/12493/0/program-gospodarki-niskoemisyjnej-dla-gminy-suszec.html

1.31. **County raciborski**

1.31.01. Urban municipality **Racibórz**

Plan PGN: http://www.bipraciborz.pl/res/serwisy/pliki/15242142?version=1.0

1.31.02. Urban-rural municipality **Krzanowice**

Plan PGN: http://bip.umkrzanowice.madkom.pl/pobierz/15887.html

1.31.03. Urban-rural municipality **Kuźnia Raciborska**

Plan PGN: http://kuznia-raciborska.bip.info.pl/plik.php?id=4141

1.31.04. Rural municipality **Kornowac**

Plan PGN: http://bip-files.idcom-web.pl/sites/46932/wiadomosci/307840/files/nr_xiii852016.pdf

1.31.05. Rural municipality **Krzyżanowice**

Plan PGN: http://bip.krzyzanowice.pl/informacje/uchwaly_rady_gminy_2016.html

1.31.06. Rural municipality **Nędza**

Plan PGN: http://www.nedza.pl/nasza_gmina/aktualnosci/W-Nedzy-uchwalono-plan-gospodarki-niskoemisyjnej/idn:1254

1.31.07. Rural municipality **Pietrowice Wielkie**

Plan PGN not available.

http://www.pietrowicewielkie.pl/files_tiny/xv_151_2016.pdf

1.31.08. Rural municipality **Rudnik**

PNG not available. EIA of PNG: http://bip.gmina-rudnik.pl/view.php?id=1659&menuID=668

1.32. **County rybnicki**

1.32.01. Urban-rural municipality **Czerwionka-Leszczyny**

Plan PGN: http://www.bip.czerwionka-leszczyny.pl/dzialalnosc_urzedu/plany_i_programy.html

1.32.02. Rural municipality **Gaszowice**

Plan PGN: http://bip.gaszowice.pl/projekt-plan-gospodarki-niskoemisyjnej-gminy-gaszowice

1.32.03. Rural municipality **Jejkowice**

Plan PGN: http://bip.jejkowice.pl/zalacznik/3362

1.32.04. Rural municipality **Lyski**

Plan PGN: http://bip.lyski.pl/download/Plan%20gospodarki%20niskoemisyjnej%20Gminy%20Lyski.pdf

1.32.05. Rural municipality **Świerklany (s. Jankowice Rybnickie)**

Plan PGN: http://www.swierklany.pl/bip/zal1_154.pdf

Environmental Protection Program: http://bip-files.idcom-web.pl/sites/3131/wiadomosci/377285/files/mxm260_20170531_132022.pdf

1.33. **County tarnogórski**

1.33.01. Urban municipality **Tarnowskie Góry**

Plan PGN: http://www.tarnowskiegory.pl/files/environments/1409/pgn_tg_marzec2016_uchwala.pdf

1.33.02. Urban municipality **Kalety**

Plan PGN: http://www.bip.kalety.pl/upload/Plan%20Gospodarki%20Niskoemisyjnej%20dla%20Gminy%20Kalety%201.9.pdf

1.33.03. Urban municipality **Miasteczko Śląskie**

Plan PGN: http://www.miasteczkoslaskie.bip.net.pl/?a=3230

1.33.04. Urban municipality **Radzionków**

Plan PGN: http://www.bip.radzionkow.pl/?p=search&searchstr=plan+gospodarki+niskoemisyjnej&submit=

1.33.05. Rural municipality **Krupski Młyn**

Plan PGN: http://www.bip.krupskimlyn.pl/grafiki/zalaczniki/9447/pgn-pdf.pdf

1.33.06. Rural municipality **Ożarowice**

Plan PGN: http://www.bip.ozarowice.pl/grafiki/zalaczniki/7142/uchwala-nr-48-201520150323134055.pdf

1.33.07. Rural municipality **Świerklaniec**

Plan PGN: http://www.swierklaniec.i-gmina.pl/files/23303_Uchwala_Nr_147.pdf

1.33.08. Rural municipality **Tworóg**

Plan PGN: http://bip.ugtworog.rekord.com.pl/BIP.aspx?Sel=6655&ident=21505&kat=1

1.33.09. Rural municipality **Zbrosławice**

Plan PGN: http://bip.zbroslawice.pl/Article/get/id,16315.html

1.34. **County wodzisławski**

1.34.01. Urban municipality **Pszów**

Plan PGN: http://bip.gmpszow.finn.pl/res/serwisy/pliki/14059706?version=1.0

1.34.02. Urban municipality **Radlin**

Plan PGN: https://miasto.radlin.pl/wp-content/uploads/2015/10/Plan-Gospodarki-Niskoemisyjnej-dla-Miasta-Radlin.pdf

1.34.03. Urban municipality **Rydułtowy**

Plan PGN: https://gmrydultowy.peup.pl/pobierz.seam?zbior=1&plikId=415537&zalId=375738

1.34.04. Urban municipality **Wodzisław Śląski**

Plan PGN: http://wodzislaw-slaski.pl/_files/articles/rodowisko%20akty%20prawne/IV-39-15.pdf

1.34.05. Rural municipality **Godów**

Plan PGN: http://godow.bip.net.pl/?a=11556

1.34.06. Rural municipality **Gorzyce**

Plan PGN: http://ug.bip.gorzyce.pl/upload/PGN_gorzyce_ca%C5%82o%C5%9B%C4%87.pdf

1.34.07. Rural municipality **Lubomia**

Plan PGN: https://gwlubomia.peup.pl/pobierz.seam?zbior=1&plikId=447686&zalId=408796

1.34.08. Rural municipality **Marklowice**

Plan PGN: http://marklowice.pl/images/images/pdf/Plan_gospodarki_niskoemisyjnej_Marklowice_2_6.pdf

1.34.09. Rural municipality **Mszana**

Plan PGN: https://gwmszana.peup.pl/pobierz.seam?zbior=1&plikId=465657&zalId=429537

1.35. **County zawierciański**

County Environmental Protection Plan: http://bip.zawiercie.powiat.finn.pl/res/serwisy/pliki/12834759?version=1.0

1.35.01. Urban municipality **Poręba**

Plan PGN: http://bip.umporeba.finn.pl/res/serwisy/pliki/13818339?version=1.0

1.35.02. Urban municipality **Zawiercie**

Plan PGN: http://www.zawiercie.bip.net.pl/?a=10393

1.35.03. Urban-rural municipality **Łazy**

Plan PGN: http://bip.lazy.pl/userfiles/file/Plany%20strategie%20/Plan%20Gospodarki%20Niskoemisyjnej.pdf

1.35.04. Urban-rural municipality **Ogrodzieniec**

Plan PGN: http://www.ogrodzieniec.pl/dokumenty/plangospodarkiniskoemisyjnejdlagminyogrodzieniec533.pdf

1.35.05. Urban-rural municipality **Pilica**

Plan PGN: http://www.pilica.pl/dokume nty/plan_gospodarki_niskoemisyjnej_gmina_pilica_121306.pdf

1.35.06. Urban-rural municipality **Szczekociny**

PGN in progress

1.35.07. Rural municipality **Irządze**

Plan PGN: http://www.irzadze.pl/dokumenty/pgn_gminy_irzadze_projekt1055.pdf

1.35.08. Rural municipality **Kroczyce**

Plan PGN: http://www.kroczyce.bip.jur.pl/artykuly/3236

Development Strategy: http://www.kroczyce.bip.jur.pl/dokumenty/strategia_rozwoj_gminy_kroczyce_2015_2020.pdf

1.35.09. Rural municipality **Włodowice**

Plan PGN: http://www.bip.wlodowice.pl/artykuly/3786

1.35.10. Rural municipality **Żarnowiec**

Plan PGN: http://docplayer.pl/6644746-Plan-gospodarki-niskoemisyjnej-dla-gminy-zarnowiec.html

1.36. **County żywiecki**

1.36.01. Urban municipality **Żywiec**

Plan PGN: http://www.zywiec.pl/zdjecia/a/zal/plan-gospodarki-niskoemisyjnej-dla-miasta-zywiec_201509020808.pdf

1.36.02. Rural municipality **Czernichów**

Plan PGN: http://www.czernichow.finn.pl/bipkod/15273383

1.36.03. Rural municipality **Gilowice**

Plan PGN: http://bip.gilowice.pl/BIP.aspx?Sel=5595&ident=7636&js=1

1.36.04. Rural municipality **Jeleśnia**

Plan PGN: http://www.bip.jelesnia.pl/index.php?modul=aktualnosci&kat_id=122&id=4148

1.36.05. Rural municipality **Koszarawa**

Plan PGN not available.

1.36.06. Rural municipality **Lipowa**

Plan PGN: http://www.lipowa.pl/czyste-powietrze/plan-gospodarki-niskoemisyjnej-dla-gminy-lipowa

1.36.07. Rural municipality **Łękawica**

Plan PGN: http://www.bip.lekawica.com.pl/index.php?modul=aktualnosci&kat_id=309&id=2794

1.36.08. Rural municipality Łodygowice

Plan PGN: http://uglodygowice.bip.org.pl/pliki/uglodygowice/uchw207.pdf

1.36.09. Rural municipality **Milówka**

Plan PGN: http://www.bip.milowka.com.pl/BIP.aspx?Sel=5578&Nr=1&ident=6718

1.36.10. Rural municipality **Radziechowy-Wieprz (s. Wieprz)**

Plan PGN: http://www.radziechowy-wieprz.pl/upload/statement/19/files/386/pgn-radziechowy-wieprz.pdf

1.36.11. Rural municipality **Rajcza**

Plan PGN: http://bip.ugrajcza.rekord.com.pl/BIP.aspx?Sel=5846&ident=3919

1.36.12. Rural municipality **Ślemień**

Plan PGN: http://www.slemien.pl/images/Artyku%C5%82/Plan_gospodarki_niskoemisyjnej_dla_Gminy_%C5%9Alemie%C5%84.pdf

1.36.13. Rural municipality **Świnna**

Plan PGN: http://www.swinna.pl/post/plan-gospodarki-niskoemisyjnej-dla-gminy-swinna,21.html

1.36.14. Rural municipality **Ujsoły**

Plan PGN: http://www.bip.ujsoly.com.pl/index.php?modul=aktualnosci&kat_id=55&id=1517

1.36.15. Rural municipality **Węgierska Górka**

Plan PGN: http://www.bip.wegierska-gorka.pl/index.php?modul=aktualnosci&kat_id=271&id=2743

Województwo Opolskie

2.01. City with county rights: **Opole**

http://www.opole.pl/wp-content/uploads/2016/01/u347-15.pdf

http://www.opole.pl/uchwaly/uchwala-nr-xxiv44916-rady-miasta-opola-z-dnia-24-marca-2016-r-zmieniajaca-uchwale-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-miasta-opola/

2.02. **County brzeski**

2.02.01. Urban municipality **Brzeg**

Plan PGN: http://www.bip.brzeg.pl/zalaczniki/3478/XII-99-15_05-10-2015_13-52-12_15-12-2016_12-02-45.pdf

http://www.bip.brzeg.pl/zalaczniki/3478/XXI-224-16_04-07-2016_14-27-50_15-12-2016_12-10-28.pdf

2.02.02. Urban-rural municipality **Grodków**

Plan PGN: http://www.grodkow.pl/static/img/k01/projekt%20PGN%20Grodkow%20(1).pdf

2.02.03. Urban-rural municipality **Lewin Brzeski**

Plan PGN: http://www.bip.lewin-brzeski.pl/download/attachment/36006/zal-do-proj-uchw-plan-gospodarki-niskoemisyjnej.pdf

2.02.04. Rural municipality **Lubsza**

Plan PGN: http://bip.lubsza.ug.gov.pl/download/attachment/10204/pgn_lubsza.pdf

2.02.05. Rural municipality **Olszanka**

Plan PGN: http://www.olszanka.gminarp.pl/gos_nis_emis/uchwala_IX552015.pdf

2.02.06. Rural municipality **Skarbimierz (s. Skarbimierz Osiedle)**

Plan PGN: http://bip.skarbimierz.pl//container/PGN-Skarbimierz-end-popr-19-05-2016-14-18-29.pdf

2.03. **County głubczycki**

2.03.01. Urban-rural municipality **Baborów**

Plan PGN: http://baborow.pl/download/attachment/16811/pgn-baborow-13062016.pdf

2.03.02. Urban-rural municipality **Głubczyce**

Plan PGN: http://www.prawomiejscowe.pl/api/file/GetZipxAttachment/146/316871/preview

2.03.03. Urban-rural municipality **Kietrz**

Plan PGN: http://www.bip.kietrz.pl/system/obj/5692_XXVI-223-2016.pdf

2.03.04. Rural municipality **Branice**

Plan PGN: http://branice.pl/download/attachment/7326/program-gospodarki-niskoemisyjnej-w-gminie-branice-2016.pdf

http://branice.pl/download/attachment/541/prog_gmi.pdf

2.04. **County kędzierzyńsko-kozielski**

2.04.01. Urban municipality **Kędzierzyn-Koźle**

Plan PGN: http://portal.kedzierzynkozle.pl/portal/index.php?t=200&id=64526

2.04.02. Rural municipality **Bierawa**

Plan PGN: http://bip.bierawa.pl/download/attachment/13710/1-czesc-diagnostyczna-kksof-bierawa.pdf

2.04.03. Rural municipality **Cisek**

Plan PGN: http://static.bip.cisek.pl/download/attachment/11171/uchwalaix4820152015-08-24_cz1.pdf

2.04.04. Rural municipality **Pawłowiczki**

Plan PGN: http://www.pawlowiczki.pl/bip2/info.php?id=623

2.04.05. Rural municipality **Polska Cerekiew**

Plan PGN: http://polskacerekiew.pl/1060/1292/archiwum-aktualnosci-2015.html?Page=7

2.04.06. Rural municipality **Reńska Wieś**

Plan PGN: http://www.renskawies.pl/bip/images/ogloszenia/PGN_KSpoleczne/zpgn%20dla%20skk_ver%203-2.pdf

2.05. **County kluczborski**

2.05.01. Urban-rural municipality **Byczyna**

Plan PGN: https://www.byczyna.pl/download/attachment/27194/plan-gospodarki-niskoemisyjnej-dla-gminy-byczyna.pdf

2.05.02. Urban-rural municipality **Kluczbork**

Plan PGN: http://www.bip.kluczbork.eu/plik,4481,uchwala-projekt-podp-pgn-2016-07-12-pdf.pdf

Environmental Protection Program: http://www.bip.kluczbork.eu/plik,5538,program-ochrony-srodowiska-dla-gminy-kluczbork-pdf.pdf

2.05.03. Urban-rural municipality **Wołczyn**

Plan PGN: http://bip.wolczyn.pl/uchwaly/62324f719ab4bfc4f3d3ed08a5c89185_1/Uchw_186.pdf

http://bip.wolczyn.pl/uchwaly/8a8ab84bf91b1f8c51a2e8e6754304be_1/Uchw_156.pdf

2.05.04. Urban municipality **Lasowice Wielkie**

Plan PGN: http://lasowicewielkie.pl/files/tinymce_browser/other/pgnplan.pdf

2.06. **County krapkowicki**

2.06.01. Urban-rural municipality **Gogolin**

Plan PGN: http://bip.gogolin.pl/download//44528/uchwala-nr-viii_50_2015-w-sprawie-uchwalenia-planu-gospodarki-niskoemisyjnej-dla-gminy-gogolin-na-lata-2015-2020.pdf

2.06.02. Urban-rural municipality **Krapkowice**

Plan PGN: https://krapkowice.skycms.com.pl/download/attachment/45053/uchwala-nr-xxiv-296-2017-w-sprawie-planu-gospodarki-niskoemisyjnej.pdf

2.06.03. Urban-rural municipality **Zdzieszowice**

Plan PGN: http://zdzieszowice.pl/download/attachment/44078/pgn_zdzieszowice.pdf

http://zdzieszowice.pl/download/attachment/36059/20050607_program_ochrony_srodowiska_zdzieszowice.pdf

2.06.04. Rural municipality **Strzeleczki**

Plan PGN: http://strzeleczki.pl/download/attachment/13716/plan_gospodarki_niskoemisyjnej_dla_gminy_strzeleczki_04_2017.pdf

2.06.05. Rural municipality **Walce**

Plan PGN: http://www.walce.pl/download/attachment/14815/uchwala-nr-x872015-rady-gminy-walce-z-dnia-18-listopada-2015-r-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-gminy-walce.pdf

2.07. **County namysłowski**

2.07.01. Urban-rural municipality **Namysłów**

Plan PGN: http://namyslow.eu/download//12091/401-07-16_2016-10-27.pdf

2.07.02. Rural municipality **Domaszowice**

Plan PGN not planned.

http://www.bip.domaszowice.pl

2.07.03. Rural municipality **Pokój**

Plan PGN: http://www.gminapokoj.pl/download/attachment/13165/zal-do-uchwaly-nr-xvii1502016.pdf

2.07.04. Rural municipality **Świerczów**

Plan PGN: http://swierczow.pl/download/attachment/6554/uchwala-nr-xx-95-2016-rady-gminy-w-swierczowie-z-dnia-29-wrzesnia-2016-r.pdf

2.07.05. Rural municipality **Wilków**

Plan PGN: http://www.wilkow.pl/2620/plan-gospodarki-niskoemisyjnej-dla-gminy-wilkow.html

2.08. **County nyski**

2.08.01. Urban-rural municipality **Głuchołazy**

Plan PGN: http://www.nowe.glucholazy.pl/images/artykuly/2016/1/sesja/j.pdf

2.08.02. Urban-rural municipality **Korfantów**

Plan PGN: http://prawomiejscowe.pl/api/file/GetZipxAttachment/151/299726/preview

2.08.03. Urban-rural municipality **Nysa**

Plan PGN: https://nysa.eu/strona-2051-plan_gospodarki_niskoemisyjnej.html

2.08.04. Urban-rural municipality **Otmuchów**

Plan PGN: http://bip.otmuchow.pl/system/obj/518_PGN_Gmina_Otmuchow.pdf

2.08.05. Urban-rural municipality **Paczków**

Plan PGN: http://paczkow.bip.net.pl/?p=document&action=save&id=11993&bar_id=5956

2.08.06. Rural municipality **Kamiennik**

PGN not planned.

2.08.07. Rural municipality **Łambinowice**

Plan PGN in progress

2.08.08. Rural municipality **Pakosławice**

Plan PGN: http://bip.pakoslawice.pl/download/attachment/5198/uchwala-nr-xxi18016-z-dnia-30-listopada-2016-roku-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej.pdf

2.08.09. Rural municipality **Skoroszyce**

Plan PGN: http://www.skoroszyce.pl/static/img/k01/Dokumenty%20Planistyczne/PGN/PGN%20Skoroszyce%20-13-01-2017.pdf

2.09. **County oleski**

2.09.01. Urban-rural municipality **Dobrodzień**

Plan PGN: http://bip.dobrodzien.pl/download/attachment/11088/plan-gospodarki-niskoemisyjnej-dla-gminy-dobrodzien.pdf

2.09.02. Urban-rural municipality **Gorzów Śląski**

Plan PGN: http://bip.gorzowslaski.pl/a2787-UCHWALA-NR-XXII-151-2016-w-sprawie-PRZYJECIA-PLANU-GOSPODARKI-NISKOEMISYJNEJ-DLA-GMINY-GORZOW-SLASKI-NA-LATA-2015-2020

2.09.03. Urban-rural municipality **Olesno**

Plan PGN: http://www.olesno.pl/attachments/documents/8537/PGN%20Olesno_ostatnia%20wersja_8537.pdf

2.09.04. Urban-rural municipality **Praszka**

Plan PGN: http://bip.praszka.pl/download/attachment/15986/u142-xix-2016.pdf

2.09.05. Rural municipality **Radłów**

Plan PGN: http://bip.radlow.tensoft.pl/index.php?gid=6579745bc407f96b5f191245d2f5f0c5&ver=1

2.09.06. Rural municipality **Zębowice**

Plan PGN: http://bip.zebowice.pl/download/attachment/9215/plan-gospodarki-niskoemisyjnej-gminy-zebowice-projekt.pdf

2.09.07. Rural municipality **Rudniki**

Plan PGN: http://rudniki.pl/download/attachment/13406/uxvi-122-2016.pdf

http://rudniki.pl/download/attachment/14710/uxxii-166-2017.pdf

2.10. **County opolski**

2.10.01. Urban-rural municipality **Niemodlin**

Plan PGN: https://niemodlin.pl/download/attachment/17214/plan-gospodarki-niskoemisyjnej-gminy-niemodlin.docx

2.10.02. Urban-rural municipality **Ozimek**

Plan PGN: http://www.ozimek.pl/static/img/k01/uchwa%C5%82y%202015/luty%202015/VI_19_15.pdf

2.10.03. Urban-rural municipality **Prószków**

Plan PGN: http://bip.proszkow.pl/download//5854/uchwala-nr-x-73-2015.pdf

2.10.04. Rural municipality **Chrząstowice**

Plan PGN: http://www.chrzastowice.bip.net.pl/?a=6798

2.10.05. Rural municipality **Dąbrowa**

Plan PGN: http://www.gminadabrowa.pl/download/attachment/7715/plan-gospodarki-niskoemisyjnej-dla-gminy-dabrowa.pdf

2.10.06. Rural municipality **Dobrzeń Wielki**

Plan PGN: http://www.bip.dobrzenwielki.pl/download/attachment/9629/uchwala-nr-iv212014.pdf

2.10.07. Rural municipality **Komprachcice**

Plan PGN: http://bip.komprachcice.pl/download/attachment/10142/uchwala-xxv1752017.pdf

2.10.08. Rural municipality **Łubniany**

Plan PGN: http://bip.lubniany.pl/download/attachment/11451/projekt_uchwaly-plan_gospodarki_niskoemisyjnej.pdf

2.10.09. Rural municipality **Murów**

Plan PGN not planned.

2.10.10. Rural municipality **Popielów**

Plan PGN: https://bip.popielow.pl/download/attachment/17155/plan-gospodarki-niskoemisyjnej-dla-gminy-popielow.pdf

2.10.11. Rural municipality **Tarnów Opolski**

Plan PGN: http://bip.tarnowopolski.pl/download/attachment/12157/uchwala-nr-xxii-156-2016-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-gminy-tarnow-opolski.pdf

2.10.12. Rural municipality **Turawa**

Plan PGN: http://turawa.pl/download/attachment/16243/projekt-pgn-turawa-0404-1.pdf

2.10.13. Rural municipality **Tułowice**

Plan PGN: http://bip.tulowice.pl/download/attachment/12736/zarzadzenie-nr-162-z-dnia-04102016-r.pdf

2.11. **County prudnicki**

2.11.01. Urban-rural municipality **Prudnik**

Plan PGN: http://prudnik.pl/download/attachment/40128/pgn_prudnik_pdk_popr_11.pdf

2.11.02. Urban-rural municipality **Biała**

Plan PGN: http://bip.biala.gmina.pl/download//12118/plan-gospodarki-niskoemisyjnej-dla-gminy-biala.pdf

2.11.03. Urban-rural municipality **Głogówek**

Plan PGN: http://bip.glogowek.pl/download/attachment/2800/pgn-glogowek.pdf

2.11.04. Rural municipality **Lubrza**

Plan PGN: http://bip.lubrza.pl/system/obj/3419_Plan_gospodarki_niskoemisyjnej_dla_gminy_Lubrza.pdf

2.12. **County strzelecki**

2.12.01. Urban-rural municipality **Kolonowskie**

Plan PGN: http://bip.kolonowskie.pl/download//20580/uchwala-nr-viii6515-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-gminy-kolonowskie.pdf

2.12.02. Urban-rural municipality **Leśnica**

Plan PGN: http://bip.lesnica.pl/download/attachment/11567/zintegrowany-plan-gospodarki-niskoemisyjnej.pdf

2.12.03. Urban-rural municipality **Strzelce Opolskie**

Plan PGN: www.strzelceopolskie.pl/download/6

2.12.04. Urban-rural municipality **Ujazd**

Plan PGN: http://bip.ujazd.pl/download//17582/pgn-dla-gminy-ujazd.pdf

2.12.05. Urban-rural municipality **Zawadzkie**

Plan PGN: http://bip.zawadzkie.pl/download//3531/projekt-uchwaly-w-sprawie-przyjecia-zintegrowanego-planu-gospodarki-niskoemisyjnej-dla-subregionu-kedzierzynsko-kozielskiego.pdf

2.12.06. Rural municipality **Izbicko**

Plan PGN: http://bip.izbicko.pl/download/attachment/4283/plan-gospodarki-niskoemisyjnej-dla-gminy-izbicko.pdf

2.12.07. Rural municipality **Jemielnica**

Plan PGN: http://static.bip.jemielnica.pl/download//13733/uchwala-nr-xxi_137_16-w-sprawie-przyjecia-planu-gospodarki-niskoemisyjnej-dla-gminy-jemielnica.pdf

Województwo małopolskie

3.01. County Chrzanowski

3.01.01. Urban-rural municipality Alwernia

Plan PGN: https://bip.malopolska.pl/umalwernia,a,1306336,uchwala-nr-iii152017-rady-miejsiej-w-alwerni-w-sprawie-zmiany-uchwaly-nr-i12017-z-dnia-20012017-r-w-.html

3.01.02. Urban-rural municipality Chrzanów

Plan PGN: https://bip.malopolska.pl/umchrzanow,a,1215583,uchwala-nr-xxi1712016-rady-miejskiej-w-chrzanowie-z-dnia-28-czerwca-2016-r-o-przyjeciu-do-realizacji.html

3.01.03. Urban-rural municipality Libiąż

Plan PGN: https://bip.malopolska.pl/umlibiaz,a,1292407,plan-gospodarki-niskoemisyjnej-dla-gminy-libiaz.html

3.01.04. Urban-rural municipality Trzebinia

Plan PGN: https://bip.malopolska.pl/e,pobierz,get.html?id=1382876

3.01.05. Rural municipality Babice

Plan PGN: https://bip.malopolska.pl/e,pobierz,get.html?id=1564758

3.02. County nowotarski

3.02.01. Urban municipality Nowy Targ

Plan PGN: http://www.ugnowytarg.pl/sites/default/files/upload/news/2015/5134/PGN%20dla%20gminy%20Nowy%20Targ%2026.10.2015-uchwalony.pdf

3.02.02. Urban-rural municipality Rabka Zdrój

Plan PGN: https://bip.malopolska.pl/Download/get/id,1549691.html

3.02.03. Urban-rural municipality Szczawnica

Plan PGN: http://docplayer.pl/1503875-Plan-gospodarki-niskoemisyjnej-miasta-i-gminy-szczawnica-szczawnica-kwiecien-2015.html

3.02.04. Rural municipality Czarny Dunajec

Plan PGN: http://www.czarny-dunajec.pl/_pliki/uchwala_81,34ee5.pdf

3.02.05. Rural municipality Czorsztyn

Plan PGN: https://bip.malopolska.pl/ugczorsztyn,m,298117,plan-gospodarki-niskoemisyjnej.html

3.02.06. Rural municipality Jabłonka

Plan PGN: http://edziennik.malopolska.uw.gov.pl/WDU_K/2017/2153/akt.pdf

3.02.07. Rural municipality Krościenko nad Dunajcem

Plan PGN: http://kroscienko-nad-dunajcem.pl/wp-content/uploads/2016/06/PGN_Kro%C5%9Bcienko-nad-Dunajcem_ost.pdf

3.02.08. Rural municipality Lipnica Wielka

Information not available.

3.02.09. Rural municipality Łapsze Niżne

Plan PGN: https://bip.malopolska.pl/uglapszenizne,a,1212616,projekt-uchwaly-rady-gminy-lapsze-nizne-w-sprawie-przyjecia-i-wdrozenia-do-realizacji-planu-gospodar.html

3.02.10. Rural municipality Nowy Targ

Plan PGN: http://www.nowytarg.pl/dok/urm/urm_2015_059_z01.pdf

3.02.11. Rural municipality Ochotnica Dolna

Plan PGN: https://bip.malopolska.pl/ugochotnicadolna,a,1188891,uchwala-nr-xx14216-rady-gminy-ochotnica-dolna-z-dnia-21-marca-2016-r-w-sprawie-przyjecia-planu-gospo.html

3.02.12. Rural municipality Raba Wyżna

Plan PGN in progress.

3.02.13. Rural municipalitySpytkowice

Plan PGN: https://bip.malopolska.pl/pobierz/1425506.html

3.02.14. Rural municipality Szaflary

Plan PGN: https://bip.malopolska.pl/ugszaflary/Article/get/id,1218786.html

3.03. County olkuski

3.03.01. Urban municipality Bukowno

Plan PGN: https://bip.malopolska.pl/umbukowno,a,1309822,uchwala-nr-xxxix2742017-rady-miejskiej-w-bukownie-z-dnia-28-marca-2017-r-w-sprawie-zmiany-uchwaly-nr.html

3.03.02. Urban-rural municipality Olkusz

Plan PGN: http://www.umig.olkusz.pl/images/dokumenty/2017/plan_gospodarki_niskoemisyjnej_dla_gminy_olkusz_styczen_2017.pdf

3.03.03. Urban-rural municipality Wolbrom

Plan PGN: https://bip.malopolska.pl/pobierz/1298084.html

3.03.04. Rural municipality Bolesław

Plan PGN: https://bip.malopolska.pl/pobierz/1245027.html

3.03.05. Rural municipality Klucze

Plan PGN: http://docplayer.pl/15989020-Plan-gospodarki-niskoemisyjnej-dla-gminy-klucze.html

3.03.06. Rural municipality Trzyciąż

Plan PGN: https://bip.malopolska.pl/ugtrzyciaz,a,1337232,uchwala-nr-xxxviii3112017-rady-gminy-trzyciaz-z-dnia-21-czerwca-2017-roku-w-sprawie-zmiany-planu-gos.html

3.04. County oświęcimski

3.04.01. Urban municipality Oświęcim

Plan PGN: http://web.um.oswiecim.pl/bip/dokumenty/pliki/103/28739.pdf

3.04.02. Urban-rural municipality Brzeszcze

Plan PGN: https://bip.malopolska.pl/ugbrzeszcze,e,pobierz,get.html?id=1413577

3.04.03. Urban-rural municipality Chełmek

PGN in progress.

3.04.04. Urban-rural municipality Kęty

Plan PGN: www.kety.pl/plik.php?id=514

3.04.05. Urban-rural municipality Zator

Plan PGN: http://docplayer.pl/5221321-Plan-gospodarki-niskoemisyjnej.html

3.04.06. Rural municipality Osiek

Information not available.

3.04.07. Rural municipality Oświęcim

Plan PGN: http://www.prawomiejscowe.pl/UrzadGminyOswiecim/document/200857/Uchwa%C5%82a-XIII_130_15

3.04.08. Rural municipality Polanka Wielka

Plan PGN: http://img.iap.pl/_f/10063/s/125/201173/Pliki/20812/10063_Plan_Gospodarki_Nisko_Emisyjnej_dla_Gminy_Polanka_Wielka.pdf

3.04.09. Rural municipality Przeciszów

Development Strategy: https://bip.malopolska.pl/ugprzeciszow,m,186727,dokumenty.html

3.05. County suski

3.05.01. Urban municipality Jordanów

Plan PGN: http://powiatsuski.pl/download/zalaczniki/wydzialy/ws/plany-i-prog/pgn_jordanow%20miasto.pdf

3.05.02. Urban municipality Sucha Beskidzka

Plan PGN: http://powiatsuski.pl/download/zalaczniki/wydzialy/ws/plany-i-prog/pgn_sucha.pdf

3.05.03. Urban-rural municipality Maków Podhalański

Plan PGN: https://bip.malopolska.pl/ummakowpodhalanski,a,1334733,uchwala-nr-xxvi2432017-rady-miejskiej-w-makowie-podhalanskim-z-dnia-13-czerwca-2017-r-w-sprawie-zatw.html

3.05.04. Rural municipality Budzów

Plan PGN: https://budzow.pl/wp-content/uploads/2016/05/plan.pdf

3.05.05. Rural municipality Bystra-Siedzina

Plan PGN: https://bip.malopolska.pl/ugbystrasidzina,a,1334906,uchwala-nr-xxviii22517-rady-gminy-bystra-sidzina-z-dnia-14-czerwca-2017-roku-w-sprawie-przyjecia-pla.html

3.05.06. Rural municipality Jordanów

Plan PGN: http://gmina-jordanow.pl/pliki/plan%20gospodarki%20niskoemisyjnej%20dla%20gminy%20jordanow.pdf

3.05.07. Rural municipality Stryszawa

Plan PGN: http://www.powiatsuski.pl/download/zalaczniki/wydzialy/ws/plany-i-prog/pgn_stryszawa.pdf

3.05.08. Rural municipality Zawoja

Plan PGN: http://powiatsuski.pl/download/zalaczniki/wydzialy/ws/plany-i-prog/pgn_zawoja.pdf

3.05.09. Rural municipality Zembrzyce

Plan PGN: http://powiatsuski.pl/download/zalaczniki/wydzialy/ws/plany-i-prog/pgn_zembrzyce.pdf

3.06. County tatrzański

3.06.01. Urban municipality Zakopane

Plan PGN: https://www.zakopane.eu/assets/zakopaneEu/media/files/653962bf-e052-4db6-bf28-61482a7a9b79/pgn-zakopane.pdf

3.06.02. Rural municipality Biały Dunajec

Plan PGN: https://bip.malopolska.pl/ugbialydunajec,a,1256694,uchwala-nrxx1252016-rady-gminy-bialy-dunajec-z-dnia-24-pazdziernika-2016-roku-w-sprawie-przyjecia-pl.html

3.06.03. Rural municipality Bukowina Tatrzańska

Plan PGN exists but is not available.

3.06.04. Rural municipality Kościelisko

Plan PGN: https://bip.malopolska.pl/ugkoscielisko,e,pobierz,get.html?id=1224477

3.06.05. Rural municipality Poronin

Plan PGN: https://bip.malopolska.pl/ugporonin,a,1113535,uchwala-nr-xii542015-rady-gminy-poronin-z-dnia-30-wrzesnia-2015-r-w-sprawie-przyjecia-i-wdrozenia-do.html

3.07. County wadowicki

3.07.01. Urban-rural municipality Andrychów

Plan PGN: https://bip.malopolska.pl/umandrychow/Article/get/id,1218016.pdf

3.07.02. Urban-rural municipality Kalwaria Zebrzydowska

Plan PGN: https://bip.malopolska.pl/umkalwariazebrzydowska,a,1299165,uchwala-nr-xx2372017-rady-miejskiej-w-kalwarii-zebrzydowskiej-z-dnia-23-lutego-2017-r-w-sprawie-przy.html

3.07.03. Urban-rural municipality Wadowice

Plan PGN: https://bip.malopolska.pl/umwadowice,a,1069243,uchwala-nr-vii452015-rady-miejskiej-w-wadowicach-z-dnia-27-maja-2015-r-w-sprawie-przyjecia-planu-gos.html

3.07.04. Rural municipality Brzeźnica

Plan PGN: https://bip.malopolska.pl/api/files/1546184

3.07.05. Rural municipality Lanckorona

Information not available.

3.07.06. Rural municipality Mucharz

Information not available.

3.07.07. Rural municipality Spytkowice

Plan PGN: https://bip.malopolska.pl/pobierz/1425506.html

3.07.08. Rural municipality Stryszów

Plan PGN: https://bip.malopolska.pl/ugstryszow,a,1312140,uchwala-nr-xxiii1972017-rady-gminy-w-stryszowie-z-dnia-10-kwietnia-2017-r-w-sprawie-aktualizacji-i-p.html

3.07.09. Rural municipality Tomice

Plan PGN: http://tomice.pl/wp-content/uploads/2016/06/PGN_Tomice2016.pdf

3.07.10. Rural municipality Wieprz

Plan PGN: http://wieprz.eu/%21data/pliki/sesje/26s2.pdf

Annex 3: List of relevant legislation of the EU

Air Quality

- Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0050

- Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0107

- Commission Directive (EU) 2015/1480 of 28 August 2015 amending several annexes to Directives 2004/107/EC and 2008/50/EC of the European Parliament and of the Council laying down the rules concerning reference methods, data validation and location of sampling points for the assessment of ambient air quality

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32015L1480

Emissions of Air Pollutants into the Air

- Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2016.344.01.0001.01.ENG

- Commission decision of 3.3.2016 on the notification by the Republic of Poland of a modified transitional national plan referred to in Article 32(6) of Directive 2010/75/EU on industrial emissions

  Link (EN):

  https://circabc.europa.eu/sd/a/23b38752-939c-46e9-8762-7022eb133c6b/Poland%20TNP%20-%20Commission%20Decision%2003.03.2016%20(EN).pdf

- Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L2193

- 2015/C 117/03Commission decision of 10.4.2015 on the notification by the Czech Republic of a transitional national plan referred to in Article 32 of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

  Link (EN):

- https://circabc.europa.eu/webdav/CircaBC/env/ied/Library/TNPs/_Commission%20Decisions/Czech%20Republic%20TNP%20-%20Commission%20Decision%2010-04-2015%20(EN).pdf

  Link (CS):

http://www.mzp.cz/C1257458002F0DC7/cz/prechodny_narodni_plan_cr/$FILE/OOO-PNP_CR_2017-20170214.pdf

- 2014/25/EU: Commission Decision of 17 January 2014 on the notification by the Slovak Republic of a transitional national plan referred to in Article 32 of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32014D0025

- 2012/115/EU: Commission Implementing Decision of 10 February 2012 laying down rules concerning the transitional national plans referred to in Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012D0115

- 2012/249/EU: Commission Implementing Decision of 7 May 2012 concerning the determination of start-up and shut-down periods for the purposes of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32012D0249

- Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32010L0075

- Directive 2009/126/EC of the European Parliament and of the Council of 21 October 2009 on Stage II petrol vapour recovery during refuelling of motor vehicles at service stations

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0126

- Directive 2004/42/CE of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products and amending Directive 1999/13/EC

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0042

- European Parliament and Council Directive 94/63/EC of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31994L0063

Best Available Techniques (BAT)

- Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1503383091262&uri=CELEX:32017D1442

- Commission Implementing Decision (EU) 2017/302 of 15 February 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the intensive rearing of poultry or pigs

Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.043.01.0231.01.ENG&toc=OJ:L:2017:043:FULL

- Commission Implementing Decision (EU) 2016/902 of 30 May 2016 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for common waste water and waste gas treatment/management systems in the chemical sector

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.152.01.0023.01.ENG

- Commission Implementing Decision (EU) 2016/1032 of 13 June 2016 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the non-ferrous metals industries

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.174.01.0032.01.ENG

- Commission Implementing Decision (EU) 2015/2119 of 20 November 2015 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the production of wood-based panels

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.306.01.0031.01.ENG

- 2014/687/EU: Commission Implementing Decision of 26 September 2014 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the production of pulp, paper and board

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_284_R_0017

- 2014/738/EU: Commission Implementing Decision of 9 October 2014 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the refining of mineral oil and gas

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOL_2014_307_R_0009

- 2013/84/EU: Commission Implementing Decision of 11 February 2013 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the tanning of hides and skins

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.045.01.0013.01.ENG

- 2013/163/EU: Commission Implementing Decision of 26 March 2013 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the production of cement, lime and magnesium oxide

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.100.01.0001.01.ENG&toc=OJ:L:2013:100:TOC

- 2013/732/EU: Commission Implementing Decision of 9 December 2013 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the production of chlor-alkali

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2013.332.01.0034.01.ENG

- 2012/134/EU: Commission Implementing Decision of 28 February 2012 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the manufacture of glass

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2012.070.01.0001.01.ENG

- 2012/135/EU: Commission Implementing Decision of 28 February 2012 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for iron and steel production

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32012D0135

- Best Available Techniques (BAT) Reference Document for Large Combustion Plants

  Link (EN): http://eippcb.jrc.ec.europa.eu/reference/BREF/LCP_FinalDraft_06_2016.pdf

Eco-design

- Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0125

- 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

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.193.01.0100.01.ENG

Ecodesign legislation

- General link (EN):

  https://ec.europa.eu/energy/sites/ener/files/documents/list_of_ecodesign_measures.pdf

  The document contains links to individual regulations in English, Czech, Polish and Slovak:

  Air conditioners and comfort fans, Air heating and cooling products, Circulators, Computers, Domestic cooking appliances, Electric motors, External power supplies, Household dishwashers, Household tumble driers, Household washing machines, Industrial fans, Lighting products in the domestic and tertiary sectors, Local space heaters, Heaters and water heaters, Power transformers, Professional refrigerated storage cabinets, Refrigerators and freezers, Simple set-top boxes, Solid fuel boilers, Standby and off mode electric power consumption of household and office equipment and network standby, Televisions, Use of tolerances in verification procedures (omnibus regulation), Vacuum cleaners, Ventilation units, Water pumps.

EIA/SEA

- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0052

- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0092

- Directive 2003/35/EC of the European Parliament and of the Council of 26 May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to justice Council Directives 85/337/EEC and 96/61/EC

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32003L0035

- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32001L0042

Road Transport

- Commission Regulation (EU) 2016/427 of 10 March 2016 amending Regulation (EC) No 692/2008 as regards emissions from light passenger and commercial vehicles (Euro 6)

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016R0427

- Commission Regulation (EU) No 582/2011 of 25 May 2011 implementing and amending Regulation (EC) No 595/2009 of the European Parliament and of the Council with respect to emissions from heavy duty vehicles (Euro VI) and amending Annexes I and III to Directive 2007/46/EC of the European Parliament and of the Council

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011R0582

- Regulation (EC) No 595/2009 of the European Parliament and of the Council of 18 June 2009 on type-approval of motor vehicles and engines with respect to emissions from heavy duty vehicles (Euro VI) and on access to vehicle repair and maintenance information and amending Regulation (EC) No 715/2007 and Directive 2007/46/EC and repealing Directives 80/1269/EEC, 2005/55/EC and 2005/78/EC

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009R0595

- Commission Regulation (EC) No 692/2008 of 18 July 2008 implementing and amending Regulation (EC) No 715/2007 of the European Parliament and of the Council on type-approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008R0692

- Directive 2007/46/EC of the European Parliament and of the Council of 5 September 2007 establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive)

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32007L0046

- Regulation (EC) No 715/2007 of the European Parliament and of the Council of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32007R0715

Fuels

- Directive (EU) 2016/802 of the European Parliament and of the Council of 11 May 2016 relating to a reduction in the sulphur content of certain liquid fuels

  Link (EN, CS, PL, SK):

- http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32016L0802
- Council Directive (EU) 2015/652 of 20 April 2015 laying down calculation methods and reporting requirements pursuant to Directive 98/70/EC of the European Parliament and of the Council relating to the quality of petrol and diesel fuels

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32015L0652
- Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0030
- Directive 2003/17/EC of the European Parliament and of the Council of 3 March 2003 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003L0017
- Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31998L0070

Off-road mobile machinery

- Commission Delegated Regulation (EU) 2017/654 of 19 December 2016 supplementing Regulation (EU) 2016/1628 of the European Parliament and of the Council with regard to technical and general requirements relating to emission limits and type-approval for internal combustion engines for non-road mobile machinery

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32017R0654
- Commission Delegated Regulation (EU) 2017/655 of 19 December 2016 supplementing Regulation (EU) 2016/1628 of the European Parliament and of the Council with regard to monitoring of gaseous pollutant emissions from in-service internal combustion engines installed in non-road mobile machinery

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32017R0655
- Commission Implementing Regulation (EU) 2017/656 of 19 December 2016 laying down the administrative requirements relating to emission limits and type-approval of internal

combustion engines for non-road mobile machinery in accordance with Regulation (EU) 2016/1628 of the European Parliament and of the Council

Link (EN, CS, PL, SK):

http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496664714366&uri=CELEX:32017R0656

- Directive 2011/88/EU of the European Parliament and of the Council of 16 November 2011 amending Directive 97/68/EC as regards the provisions for engines placed on the market under the flexibility scheme

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0088

- Commission Directive 2012/46/EU of 6 December 2012 amending Directive 97/68/EC of the European Parliament and of the Council on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012L0046

- Directive 2004/ 26/EC of the European Parliament and of the Council of 21 April 2004 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004L0026

- Directive 2002/88/EC of the European Parliament and of the Council of 9 December 2002 amending Directive 97/68/EC on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32002L0088

- Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31997L0068

Energy

- Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC

  Link (EN, CS, PL, SK):

  http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1399375464230&uri=CELEX%3A32012L0027

- Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings

  Link (EN, CS, PL, SK): http://eur-lex.europa.eu/legal-content/EN/ALL/;ELX_SESSIONID=FZMjThLLzfxmmMCQGp2Y1s2d3TjwtD8QS3pqdkhXZbwqGwlgY9KN!2064651424?uri=CELEX%3A32010L0031

Annex 4: List of relevant international conventions and protocols

UNECE 1979 Convention on long-range transboundary air pollution (CLRTAP)

Ratification: EU (1982), CS (1983/1993), PL (1985), SK (1983/1993)

Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1979.CLRTAP.e.pdf

The 1984 Geneva Protocol on Long-term Financing of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP)

Ratification: EU (1986), CS (1986/1993), PL (1988), SK (1986/1993)

Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/1984.EMEP.e.pdf

Guidance documents:

- The EMEP/EEA air pollutant emission inventory guidebook

  Link (EN): https://www.eea.europa.eu/publications/emep-eea-guidebook-2016

- Guidelines for reporting emissions and projections data under the Convention on Long-range Transboundary Air Pollution

  Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ece.eb.air.125_E_ODS.pdf

The 1998 Aarhus Protocol on Heavy Metals (as amended on 13 December 2012)

Ratification: EU (2001), CS (2002), PL (not yet ratified), SK (2002)

Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE.EB.AIR.115_ENG.pdf

Guidance documents:

- Guidance document on best available techniques for controlling emissions of heavy metals and their compounds from the source categories listed in annex II

  Link (EN): http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE_EB.AIR_116_E.pdf

The 1998 Aarhus Protocol on Persistent Organic Pollutants (POPs) as amended on 18 December 2009

Ratification: EU (2004), CS (2002), PL (not yet ratified), SK (2002)

Link (EN): http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/ece.eb.air.104.e.pdf

Guidance documents:

- Guidance document on best available techniques to control emissions of persistent organic pollutants from major stationary sources

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2012/air/Guidance_document_on_BAT_to_Control_Emissions_of_POPs_from_major_stationary_sources.pdf

The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone, as amended on 4 May 2012

Ratification: EU (2003), CS (2004), PL (not yet ratified), SK (2005)

Links (EN):

- Protocol: http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE.EB.AIR.114_ENG.pdf

- Annex I:

  http://www.unece.org/fileadmin/DAM/env/lrtap/full%20text/ECE_EB.AIR_111_Add1_1_E.pdf

- Annex II + III

  http://www.unece.org/fileadmin/DAM/env/documents/2017/AIR/Gothenburg_Protocol/Annex_II_and_III_updated_clean.pdf

Guidance documents:

- Guidelines for estimation and measurement of emissions of volatile organic compounds

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2016/AIR/WGSR/Docs_December/E_ECE_EBAIR_WG5_2016_4.pdf

- Guidance Document on Emission Control Techniques for Mobile Sources

  Link (EN):
  http://www.unece.org/fileadmin/DAM/env/documents/2016/AIR/Publications/ECE_EB.AIR_138_En.pdf

- Guidance document on control techniques for emissions of sulphur, NOx, VOC, and particulate matter (including PM10, PM2.5 and black carbon) from stationary sources

  Link (EN):
  http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE.EB.AIR.117_AV.pdf

- Guidance document on economic instruments to reduce emissions of regional air pollutants

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE_EB.AIR_118_ENG_01.pdf

- Guidance document on national nitrogen budgets

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ECE_EB.AIR_119_ENG.pdf

- Guidance document for preventing and abating ammonia emissions from agricultural sources

  Link (EN):
  http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE_EB.AIR_120_ENG.pdf

- Guidance document on health and environmental improvements using new knowledge, methods and data

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2013/air/eb/ece.eb.air.124_E_ODS.pdf

- United Nations Economic Commission for Europe Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions

  Link (EN):

  http://www.unece.org/fileadmin/DAM/env/documents/2015/AIR/EB/ECE_EB.AIR_129_ENG.pdf

UNECE 1991 Espoo Convention on Environmental Impact Assessment in a Transboundary Context

Ratification: EU (1997), CS (2001), PL (1997), SK (1999)

Link (EN):

http://www.unece.org/fileadmin/DAM/env/eia/Publications/2015/ECE.MP.EIA.21_Convention_on_Environmental_Impact_Assessment.pdf

UNECE Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (Kyiv, 2003)

Link (EN): http://www.unece.org/fileadmin/DAM/env/eia/documents/legaltexts/protocolenglish.pdf

The 2001 Stockholm Convention on Persistent Organic Pollutants

Ratification: EU (2004), CS (2002), PL (2008), SK (2002)

Link (EN): http://chm.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx

Guidance documents:

- Guidance for National Implementation Plans (NIPs)

  Link (EN):

  http://chm.pops.int/Implementation/NationalImplementationPlans/Guidance/tabid/2882/Default.aspx

- Guidance on Best available techniques and best environmental practices

  Link (EN):

  http://chm.pops.int/Implementation/BATandBEP/Guidance/Overview/tabid/5121/Default.aspx

The 2013 Minamata Convention on Mercury

Ratification: EU (2017), CS (not yet ratified), PL (not yet ratified), SK (2017)

Link (EN):
http://mercuryconvention.org/Portals/11/documents/Booklets/Minamata%20Convention%20on%20Mercury_booklet_English.pdf

Guidance documents:

- Link (EN):
  http://mercuryconvention.org/Implementationsupport/Formsandguidance/tabid/5527/language/en-US/Default.aspx

Annex 5: List of relevant legislation of the Czech Republic

Air

- Act No. 201/2012 Coll., of 2 May 2012 on the Air Protection of the air, as amended

  Link (CS):
  https://portal.gov.cz/app/zakony/zakon.jsp?page=0&nr=201~2F2012&rpp=15#seznam

- Decree No. 415/2012 Coll., of 21 November 2012 on the permissible level of pollution (emissions) and its detection and on the implementation of certain other provisions of the Act on Air Protection, as amended

Link (CS):
https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=78575&nr=415~2F2012&rpp=15#local-content

- Decree No. 330/2012 Coll., of 8 October 2012 on the method of assessing and evaluating the level of pollution (air quality), the scope of public information on the level of pollution and in the case of smog situations, as amended

  Link (CS):
  https://portal.gov.cz/app/zakony/zakon.jsp?page=0&nr=330~2F2012&rpp=15#seznam

- Government Regulation No. 56/2013 Coll., of 6 February 2013 on the establishment of rules for the inclusion of road motor vehicles in emission categories and emission plates

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=79556&nr=56~2F2013&rpp=15#local-content

Integrated prevention (IPPC)

- Act No. 76/2002 Coll., of 5 February 2002 concerning integrated pollution prevention and control, the Integrated Pollution Register and the amendment of certain laws (the Integrated Prevention Act), as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=53139&nr=76~2F2002&rpp=15#local-content

- Decree No. 288/2013 Coll., of 6 September 2013 on the implementation of certain provisions of the Integrated Prevention Act

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=80552&nr=288~2F2013&rpp=15#local-content

- Act No. 25/2008 Coll., of 16 January 2008 on integrated register of environmental pollution and integrated system for the enforcement of environmental reporting obligations and amending certain acts, as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=66513&nr=25~2F2008&rpp=15#local-content

- Government Regulation No.145 / 2008 Coll., of 26 March 2008 establishing the list of pollutants and threshold values and the data required for reporting to the Integrated Pollutant Register, as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=67016&nr=145~2F2008&rpp=15#local-content

EIA/SEA

- Act No. 100/2001 Coll., of 20 February 2001 on Environmental Impact Assessment, as amended

  Link (CS):

https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=51142&nr=100~2F2001&rpp=15#local-content

- Decree No. 457/2001 Coll., of the Ministry of Environment of 6 December 2001 on professional competence and on the regulation of certain other issues related to environmental impact assessment

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=51924&nr=457~2F2001&rpp=15#local-content

- Government Regulation No.283 / 2016 Coll., of 24 August 2016 on the definition of priority transport intentions

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=87037&nr=283~2F2016&rpp=15#local-content

Energy

- Act No. 406/2000 Coll., of 25 October 2000 on energy management, as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=49857&nr=406~2F2000&rpp=15#local-content

- Implementing Regulations (Decrees) to the Act No. 406/2000 Coll.

  Link (CS): https://www.mpo.cz/cz/energetika/energeticka-legislativa/legislativa-cr/prehled-vyhlasek-k-zakonu-c--406-2000-sb---o-hospodareni-energii--221999/

Transport

- Act No. 56/2001 Coll., of 10 January 2001 on the conditions for the operation of vehicles on the roads

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=62781&nr=311~2F2006&rpp=15#local-content

- Decree No.341 / 2014 Coll., of 19 December 2014 on the approval of technical capacity and on the technical conditions for the operation of vehicles on the roads

  Link(CS):
  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=83221&nr=341~2F2014&rpp=15#local-content

- Decree No. 302/2001 Coll., of the Ministry of Transport and Communications of 7 August 2001 on Technical Inspections and Measurements of Vehicle Emissions, as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=51610&nr=302~2F2001&rpp=15#local-content

- Act No. 311/2006 Coll., of 23 May 2006 on fuels and petrol stations, as amended

  Link (CS):

https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=62781&nr=311~2F2006&rpp=15#local-content

- Decree No. 133/2010 Coll., of 5 May 2010 on requirements for fuel, on the way of monitoring and monitoring the composition and quality of fuels and on their registration (Decree on quality and registration of fuel), as amended

  Link (CS):

  https://portal.gov.cz/app/zakony/zakonPar.jsp?idBiblio=71008&nr=133~2F2010&rpp=15#local-content

Annex 6: List of relevant legislation of Poland

Environment/Air/EIA/SEA/IPPC

- Act of 27 April 2001 - Environmental Protection Law (Journal of Laws of 2013, item 1232, as amended) - Art. 26 and Art. 85-95

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20130001232

  Link (EN): http://esdac.jrc.ec.europa.eu/Library/Themes/Contamination/workshop_Nov2003/legislation/PolandEnvironmentalProtectionAct.pdf

Air

- Regulation of the Minister of Environment of 23 November 2010 on the method and frequency of updating of environmental information (Journal of Laws of 2010 No. 227, item 1485)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20102271485

- Regulation of the Minister of Environment of 22 April 2011 on the emission standards from the installations (Journal of Laws of 2011, item 558)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20110950558

- Regulation of the Minister of Environment of 2 August 2012 on zones where air quality is assessed (Journal of Laws of 2012, item 914)

  Link: http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120000914

- Regulation of the Minister of Environment of 11 September 2012 on air protection programs and short-term action plans (Journal of Laws of 2012, item 1028)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001028

- Regulation of the Minister of Environment of 13 September 2012 on the method of calculating the average exposure indicator and the method of assessing the compliance of the exposure concentration obligation (Journal of Laws of 2012, item 1029)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001029

- Regulation of the Minister of Environment of 14 August 2012 on national exposure reduction target (Journal of Laws of 2012, item 1030)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001030

- Regulation of the Minister of Environment of 24 August 2012 on the levels of certain substances in the air (Journal of Laws of 2012, item 1031);

  Link (PL): http://dziennikustaw.gov.pl/du/2012/1031

- Regulation of the Minister of Environment of 13 September 2012 on the assessment of airborne levels (Journal of Laws of 2012, item 1032).

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001032&min=1

- Regulation of the Minister of Environment of 10 September 2012 on the scope and manner of transmitting information concerning air pollution (Official Journal of 2012, item 1034)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20120001034

- Regulation of the Minister of Environment of 27 August 2014 on types of installations that may cause significant pollution of particular natural or environmental elements as a whole (Official Journal 2014, item 1169)

  Link (PL): Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001169

- Regulation of the Minister of the Environment of 30 October 2014 on the requirements for the measurement of emissions and the measurement of water intake (Journal of Laws of 2014, item 1542)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001542

- Regulation of the Minister of the Environment of 4 November 2014 on emission standards for certain types of installations, combustion sources of fuels and devices for incineration or co-incineration of waste (Official Journal 2014, item 1546)

  Link (PL): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20140001546

- Regulation of the Ministry of Finance and Development of 1 August 2017 on the requirements for fuel boilers (Official Journal 2017, item 1960)[189]

  Link (Pl): http://isap.sejm.gov.pl/DetailsServlet?id=WDU20170001690

- Regulation of the Minister of the Environment of March 1, 2018 on emission standards for certain types of installations, fuel combustion plants and waste incineration or co-incineration plants (Journal of Laws No. 2018, item 680)[178]

- Link (PL): http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180000680

Annex 7: List of relevant legislation of the Slovak Republic

Air

- Act No. 137/2010 Coll., on the Air, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/137/20160101

- Act No. 401/1998 Coll., on Air Pollution Charges, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/1998/401/20150115

- Decree of the Ministry of Environment of the Slovak Republic No. 314/2010 Coll., laying down the content of the program for the reduction of emissions from stationary sources of air pollution and the content of data and methods of informing the public

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/314/20100715

[178] Link (PL): http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20180000680

- Decree of the Ministry of Environment of the Slovak Republic No. 127/2011 Coll., establishing a list of regulated products, labelling of their packaging and requirements for the reduction of emissions of volatile organic compounds when using organic solvents in regulated products

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2011/127/20110501

- Decree of the Ministry of Environment of the Slovak Republic No. 410/2012 Coll., which implements some provisions of the Act on the Air, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/410/20161001

- Decree of the Ministry of Environment of the Slovak Republic No. 411/2012 Coll., on monitoring of emissions from stationary sources of air pollution and air quality in their vicinity

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/411/20130101

- Decree of the Ministry of Environment of the Slovak Republic No. 231/2013 Coll., on information to the European Commission, on the requirements for maintaining the operational records, on the data notified to the National Emission Information System and on the set of technical and operational parameters and technical and organizational measures, as amended.

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2013/231/20130901

- Decree of the Ministry of Environment of the Slovak Republic No. 228/2014 Coll., which establishes requirements for fuel quality and maintenance of fuel register as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2014/228/20170101

- Decree of the Ministry of Environment of the Slovak Republic No. 195/2016 Coll., laying down the technical requirements and general conditions for the operation of stationary air pollution sources, for operating equipment used for the storage, filling and transport of petrol and the method and requirements for detecting and demonstrating compliance data

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/195/20160615

- Decree of the Ministry of Environment of the Slovak Republic No. 244/2016 Coll., on air quality

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/244/20161231

Integrated prevention (IPPC)

- Act No. 39/2013 Coll., on Integrated Prevention and Control of Environmental Pollution and on the amendment of certain laws, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2013/39/20160101

- Decree of the Ministry of Environment of the Slovak Republic No. 11/2016 Coll., which implements Act no. 39/2013 Coll. On Integrated Prevention and Control of Environmental Pollution and on the amendment of certain laws, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2016/11/20160101

EIA/SEA

- Act No. 24/2006 Coll., on Environmental Impact Assessment and on Amendments to Certain Acts, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2006/24/20170101

- Decree of Ministry of Environment of the Slovak Republic No. 113/2006 Coll., which sets out the details for environmental impact assessment

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2006/113/20060301

Energy

- Act No. 555/2005 Coll., on the Energy Efficiency of Buildings and on Amendments to Certain Acts, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2005/555/20170101

- Act No. 529/2010 Coll., on Environmental Design and Use of Products (Ecodesign Act)

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2010/529/20101229

- Decree No. 364/2012 Coll. of the Ministry of Transport, Construction and Regional Development of the Slovak Republic implementing Act no. 555/2005 Coll., on the Energy Efficiency of Buildings and on Amendments to Certain Acts as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/364/20170101

- Act No. 321/204 Coll., on Energy Efficiency and on Amendments to Certain Acts

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2014/321/20141201

Transport

- Act No. 725/2004 Coll., on the Conditions for the Operation of Vehicles on Roads and on the amendment and supplementation of some laws, as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2004/725/20160701

- Decree of the Ministry of Environment of the Slovak Republic No. 228/2014 Coll., which establishes requirements for fuel quality and maintenance of fuel register as amended

  Link (SK): https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2014/228/20170101

Annex 8: Studies, reports and other sources of information

General Environment

- Global Environment Outlook (UNEP 2012)

  Link (EN): http://www.unep.org/geo/assessments/global-assessments/global-environment-outlook-5

- OECD Environmental Outlook to 2050: The Consequences of Inaction (OECD 2012)

  Link (EN): http://www.keepeek.com/Digital-Asset-Management/oecd/environment/oecd-environmental-outlook-to-2050_9789264122246-en#.WT53PbpuLL8#page1

- Mapping Europe's environmental future: understanding the impacts of global megatrends at the national level

  Link (EN): https://www.eea.europa.eu/publications/mapping-europes-environmental-future-understanding

- Environmental indicator report 2016 — In support to the monitoring of the 7th Environment Action Programme (EEA 2016)

  Link (EN): https://www.eea.europa.eu/publications/environmental-indicator-report-2016

- The sixth Global Environment Outlook (GEO-6) Assessment for the Pan-European region (UNEP / UNECE 2016)

  Link (EN): http://www.unep.org/geo/assessments/regional-assessments/regional-assessment-pan-european-region#sthash.3Ng9iTxg.dpuf

- SOER 2015 — The European environment — state and outlook 2015 (EEA 2015)

  Link (EN) – Full text: https://www.eea.europa.eu/soer

  Link (CS) – Synthesis: https://www.eea.europa.eu/soer-2015/synthesis/evropske-zivotni-prostredi-2013-stav

  Link (PL) - Synthesis: https://www.eea.europa.eu/soer-2015/synthesis/srodowisko-europy-2015-2013-stan

  Link (SK) – Synthesis: https://www.eea.europa.eu/soer-2015/synthesis/zivotne-prostredie-europy-2013-stav

- Assessment of global megatrends — extended background analysis (EEA Report 11/2015)

  Link (EN): https://www.eea.europa.eu/publications/global-megatrends-assessment-extended-background-analysis

- State-of-the-Environment Report of the Czech Republic 2015

  Link (CS):
  https://www.mzp.cz/C1257458002F0DC7/cz/zpravy_o_stavu_zivotniho_prostredi_publikace/$FILE/SOPSZP-Zprava_ZP_CR_2015-20170301.pdf

  Link (EN):
  https://www.mzp.cz/C125750E003B698B/en/state_of_the_environment_reports_documents/$FILE/SOPSZP_Report_CZ_Environment_2015-20170314.pdf

- Statistical Yearbook – Environment Czech Republic 2015

  Link (CS):
  https://www.mzp.cz/C1257458002F0DC7/cz/statisticka_rocenka_zivotniho_prostredi_publikace/$FILE/SOPSZP-Stat_rocenka_ZP_CR_2015-20170301.pdf

- State-of-the-Environment in the Silesian-Moravian Region 2014)

  Link (CS):
  https://www.mzp.cz/C1257458002F0DC7/cz/zpravy_zivotni_prostedi_v_krajich/$FILE/SOPSZP-Moravskoslezsky-20160201.pdf

- OECD Environmental Performance Review Czech Republic (OECD 2005)

  Link (EN): http://www.keepeek.com/Digital-Asset-Management/oecd/environment/oecd-environmental-performance-reviews-czech-republic-2005_9789264011793-en#.WT6FFbpuLL8#page1

- Environment 2016 – Statistical Publication

  Link (PL): http://stat.gov.pl/en/topics/environment-energy/environment/environment-2016,1,8.html

- OECD Environmental Performance Review Poland (OECD 2015)

  Link (EN): http://www.keepeek.com/Digital-Asset-Management/oecd/environment/oecd-environmental-performance-reviews-poland-2015_9789264227385-en#.WT6GgLpuLL8

  Link (PL): https://www.mos.gov.pl/fileadmin/user_upload/Przeglady_ekologiczne_OECD_-_Polska_2015_-_Ocena_i_rekomendacje.pdf

- State of the Environment in Poland – Signals 2016

  Link (PL): http://www.gios.gov.pl/images/dokumenty/pms/raporty/GIOS_Sygnaly_2016.pdf

- State of Environment in Poland. 2004 report – full text

  Link (PL): http://www.gios.gov.pl/images/dokumenty/pms/raporty/GIOS_raport_2014.pdf

- State of Environment in Poland. 2014 report – Summary

  Link (EN): http://www.gios.gov.pl/images/dokumenty/pms/raporty/SoER_2014_summary_eng.pdf

- State of the Environment – Silesian Voivodship 2015

  Link (PL): http://www.katowice.wios.gov.pl/monitoring/raporty/2015/raport2015.pdf

- State of the Environment – Opole Voivodship 2015

  Link (PL): http://www.opole.pios.gov.pl/wms/Pliki/2016/Kompleksowy_raport_o_stanie_srodowiska_w_wojewodztwie_opolskim_w_latach_2013-2015.pdf

- State-of-the-Environment Report of the Slovak Republic 2015

  Link (SK): http://enviroportal.sk/spravy/detail/2601

- Environmental Regionalization of the Slovak Republic 2016

  Link (SK/EN): http://www.enviroportal.sk/uploads/files/Sprava_ZP/Environmentalna-regionalizacia-SR.pdf

- OECD Environmental Performance Review Slovak Republic (OECD 2011)

  Link (EN): http://www.keepeek.com/Digital-Asset-Management/oecd/environment/oecd-environmental-performance-reviews-slovak-republic-2011_9789264121836-en#.WT6G1rpuLL8

Air Quality

- WHO Global Urban Ambient Air Pollution Database (update 2016)

  Link (EN): http://www.who.int/phe/health_topics/outdoorair/databases/cities/en/

- Air pollution trends in the EMEP region between 1990 and 2012 (EMEP 2016)

  Link (EN): http://www.unece.org/index.php?id=42906

- Towards Cleaner Air Scientific Assessment Report 2016 (UNECE 2016)

  Link (EN): http://www.unece.org/index.php?id=42861

- Air quality in Europe — 2016 report (EEA Report 28/2016)

  Link (EN): https://www.eea.europa.eu/publications/air-quality-in-europe-2016

- Air quality in Europe — 2015 report (EEA Report 5/2015)

  Link (EN): https://www.eea.europa.eu/publications/air-quality-in-europe-2015

- Air quality in Europe — 2014 report (EEA Report 5/2014)

  Link (EN): https://www.eea.europa.eu//publications/air-quality-in-europe-2014

- Air quality in Europe — 2013 report (EEA Report 9/2013)

  Link (EN): https://www.eea.europa.eu//publications/air-quality-in-europe-2013

- Air quality in Europe — 2012 report (EEA Report 4/2012)

  Link (EN): https://www.eea.europa.eu/publications/air-quality-in-europe-2012

- Summer 2014 ozone assessment (EEA Briefing 2015)

Link (EN): https://www.eea.europa.eu/themes/air/ozone/air-pollution-by-ozone-across

- Air quality in Europe — 2011 report (EEA Report 12/2011)

  Link (EN): https://www.eea.europa.eu/publications/air-quality-in-europe-2011

- Status of black carbon monitoring in ambient air in Europe (EEA Technical Report 18/2013)

  Link (EN): https://www.eea.europa.eu/publications/status-of-black-carbon-monitoring

- Reporting and exchanging air quality information using e-Reporting (EEA Technical Report 5/2012)

  Link (EN): https://www.eea.europa.eu/publications/reporting-and-exchanging-air-quality

- Air Pollution in the Czech Republic – Data yearbooks (1997 – 2016)

  Link (CS): http://portal.chmi.cz/files/portal/docs/uoco/isko/tab_roc/tab_roc_CZ.html

  Link (EN): http://portal.chmi.cz/files/portal/docs/uoco/isko/tab_roc/2016_enh/index_GB.html

- Air Pollution in the Czech Republic – Graphic yearbooks (1996 – 2015)

  Link (CS): http://portal.chmi.cz/files/portal/docs/uoco/isko/grafroc/grafroc_CZ.html

  Link (EN): http://portal.chmi.cz/files/portal/docs/uoco/isko/grafroc/15groc/gr15en/Obsah_GB.html

- Air Quality Monitoring Assessment 2015

  Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/zprava_o_kvalite_ovzdusi/$FILE/OOO-Zprava_o_kvalite_ovzdusi_2015-20170105.pdf

- Air Quality and Pollutants Emissions Annual Reports – Moravian-Silesian Region (2004-2015)

  Link (CS): http://www.msk.cz/cz/zivotni_prostredi/zpravy-o-kvalite-ovzdusi-a-emisni-situaci-v-moravskoslezskem-kraji-od-roku-2004-26410/

- Analysis of Air Quality in the City of Ostrava (2007-2008)

  Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1/analyza-kvality-ovzdusi-na-uzemi-mesta-a-legislativa-v-ochrane-ovzdusi

- Analysis of the Impacts of Meteorological Factors on Air Quality

  Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1/analyza-zavislosti-meteorologickych-velicin-a-kvality-ovzdusi

- Air Quality in Opava

  Link (CS): http://www.opava-city.cz/cs/kvalita-ovzdusi-na-uzemi-mesta

- Air Quality Portal

  Link (PL): http://powietrze.gios.gov.pl/pjp/home

- Air Quality Portal - Reports

  Link (PL): http://powietrze.gios.gov.pl/pjp/content/publications

Links to the following supporting documents can be found through the above link:

- Air quality in Poland in 2015 in the light of the results of measurements conducted within the framework of the State Environmental Monitoring
- Analysis of the air pollution by PM_{10} and $PM_{2.5}$ particulate matter, taking into account chemical composition of particles and influence of natural sources - final report

- **Air Pollution in the Slovak Republic (annual reports 1998 - 2015)**

  Link (SK/EN): http://www.shmu.sk/sk/?page=997

- **Air Quality Assessment in the Slovak Republic (annual reports 2004 – 2015)**

  Link (SK): http://www.shmu.sk/sk/?page=996

Emissions into the Air

- National Emission Inventories 2008 – 2016 (Data and Informative Inventory Reports for all countries of the UNECE region – including CS, PL and SK

  Link (EN): http://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/

- EMEP/EEA air pollutant emission inventory guidebook – 2016 (EEA Report 21/2016)

  Link (EN): https://www.eea.europa.eu/publications/emep-eea-guidebook-2016

- Guidelines for reporting emissions and projections data (UNECE 2015)

  Link (EN): http://www.unece.org/index.php?id=40168

- European Union emission inventory report 1990–2014 under the UNECE Convention on Long-range Transboundary Air Pollution (LRTAP); EEA Report 16/2016)

  Link (EN): https://www.eea.europa.eu/publications/lrtap-emission-inventory-report-2016

- NEC Directive reporting status 2015 (EEA Briefing No 1/2016)

  Link (EN): https://www.eea.europa.eu/themes/air/national-emission-ceilings/nec-directive-reporting-status-2015

- Projections in hindsight (EEA Technical Report 4/2015)

  Link (EN): https://www.eea.europa.eu/publications/projections-in-hindsight

- Potential emission reductions from implementing BAT conclusions (AMEC 2015)

  Link (EN): https://circabc.europa.eu/sd/a/44aaf4c4-d716-4f02-91ab-a526b07ee6b7/Final%20report_20150501.pdf

- Guidance on the elaboration and implementation of the initial National Air Pollution Control Programmes under the new National Emissions Ceilings Directive 2016/2284/EU (Ricardo 2017 – draft)

  Link (EN):
  http://ec.europa.eu/environment/air/pollutants/pdf/guidance_on_the_elaboration_and_implementation_of_the_initial_national_air_pollution_control_programmes.pdf
  Link – Annex 4 (EN):
  http://ec.europa.eu/environment/air/pollutants/pdf/guidance_on_the_elaboration_and_implementation_of_the_initial_national_air_pollution_control_programmes_appendix%204.pdf

- Czech Informative Inventory Report 2017 (IIR)

  Link (EN):
  http://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2017_submissions/

- Draft Emission Factors for Certain Stationary Sources of Air Pollution

  Link (CS):
  https://www.mzp.cz/C1257458002F0DC7/cz/navrh_emisnich_faktoru_studie/$FILE/OOO-Studie_navrh_emisnich_faktoru_pro_vybrane_stacionarni_zdroje-20151014.pdf

- Best Available Techniques Reference Documents for Stationary Sources of Air Pollution outside the Scope of Directive 2010/75/EU on Industrial Emissions

  Link (CS): https://www.mzp.cz/cz/techniky_u_stacionarnich_zdroju_vystup_projektu

- Assessment of Fugitive Emissions from Metallurgy Installations

  Link (CS): https://www.mzp.cz/cz/urceni_emisi_hutni_hornicka_cinnost

- Poland´s Informative Inventory Report 2017 (IIR)

  Link (EN):
  http://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2017_submissions/

- Informative Inventory Report (IIR) 2017 Slovak Republic

  Link (EN):
  http://www.ceip.at/ms/ceip_home1/ceip_home/status_reporting/2017_submissions/

- EU fuel quality monitoring — 2015: Summary report (EEA Report 36/2016)

  Link (EN): https://www.eea.europa.eu/publications/eu-fuel-quality-monitoring-2015

- Trends and projections in Europe 2016 - Tracking progress towards Europe's climate and energy targets (EEA Report 29/16)

  Link (EN): https://www.eea.europa.eu/publications/trends-and-projections-in-europe

- Reducing air pollution from electricity-generating large combustion plants in the European Union (EEA Technical Report 9/2013)

  Link (EN): https://www.eea.europa.eu/publications/reducing-air-pollution-from-electricity

- Air pollution from electricity-generating large combustion plants (EEA Technical Report 4/2008)

  Link (EN): https://www.eea.europa.eu/publications/technical_report_2008_4

- Energy and the Environment in the Slovak Republic 2014

  Link (SK): http://www.enviroportal.sk/uploads/report/6804.pdf

- Industry and the Environment in the Slovak Republic 2014

  Link (SK): http://www.enviroportal.sk/uploads/report/804.pdf

Air and Transport

- SIGNALS 2016 - Towards clean and smart mobility

  Link (EN): https://www.eea.europa.eu/publications/signals-2016

- Transitions towards a more sustainable mobility system (EEA Report 34/2016)

  Link (EN): https://www.eea.europa.eu/publications/term-report-2016

- Explaining road transport emissions - A non-technical guide (EEA 2016)

Link (EN): https://www.eea.europa.eu/publications/explaining-road-transport-emissions

- Evaluating 15 years of transport and environmental policy integration — TERM 2015: Transport indicators tracking progress towards environmental targets in Europe (EEA Report 7/ 2015)

  Link (EN): https://www.eea.europa.eu/publications/term-report-2015

- A closer look at urban transport – TERM 2013: transport indicators tracking progress towards environmental targets in Europe (EEA Report 11/2013)

  Link (EN): https://www.eea.europa.eu/publications/term-2013

- The contribution of transport to air quality - TERM 2012: Transport indicators tracking progress towards environmental targets in Europe (EEA Report 10/2012)

  Link (EN): https://www.eea.europa.eu/publications/transport-and-air-quality-term-2012

- Study on Transport Trends from Environmental Viewpoints in the Czech Republic 2015

  Link (EN/CS): https://www.mzp.cz/C1257458002F0DC7/cz/studie_vyvoj_dopravy/$FILE/OOO-Studie_2015-20170123.pdf

- Transport and the Environment in the Slovak Republic (2014)

  Link (SK): http://www.enviroportal.sk/uploads/report/6801.pdf

Air and Agriculture

- Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions (UNECE 2015)

  Link (EN): http://www.unece.org/index.php?id=41358

- *Air and Climate*

- Climate & Clean Air Coalition

  Link: http://www.ccacoalition.org/en

- Air Quality and Climate Change: A UK Perspective (DEFRA 2007)

  Link (EN): https://uk-air.defra.gov.uk/assets/documents/reports/aqeg/fullreport.pdf

Air and Nature

- Effects of air pollution on European ecosystems (EEA Technical Report 11/2014)

  Link (EN): https://www.eea.europa.eu/publications/effects-of-air-pollution-on

Air in Cities

- Air Implementation Pilot - Lessons learnt from the implementation of air quality legislation at urban level (EEA Report 7/2013)

  Link (EN): https://www.eea.europa.eu/publications/air-implementation-pilot-2013

Air and Health

- Evolution of WHO air quality guidelines: past, present and future (WHO 2017)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2017/evolution-of-who-air-quality-guidelines-past,-present-and-future-2017

- WHO Expert Consultation: Available evidence for the future update of the WHO Global Air Quality Guidelines (AQGs) (WHO 2016)

Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2016/who-expert-consultation-available-evidence-for-the-future-update-of-the-who-global-air-quality-guidelines-aqgs-2016

- Health risk assessment of air pollution. General principles (WHO 2016)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2016/health-risk-assessment-of-air-pollution.-general-principles-2016

- Air quality guidelines - global update 2005 (WHO 2005)

  Link (EN) - Summary:

- http://apps.who.int/iris/bitstream/10665/69477/1/WHO_SDE_PHE_OEH_06.02_eng.pdf

  Link (EN) – Full text: http://www.euro.who.int/en/health-topics/environment-and-health/Housing-and-health/publications/pre-2009/air-quality-guidelines.-global-update-2005.-particulate-matter,-ozone,-nitrogen-dioxide-and-sulfur-dioxide

- Ambient air pollution: A global assessment of exposure and burden of disease (WHO 2016)

  Link (EN): http://www.who.int/phe/publications/air-pollution-global-assessment/en/

- Health effects of black carbon (WHO 2012)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2012/health-effects-of-black-carbon-2012

- Health risks of ozone from long-range transboundary air pollution (WHO 2008)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/pre2009/health-risks-of-ozone-from-long-range-transboundary-air-pollution

- Health risks of heavy metals from long-range transboundary air pollution (WHO 2007)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/pre2009/health-risks-of-heavy-metals-from-long-range-transboundary-air-pollution-2007

- Trends in Ecosystem and health responses to long-range transported atmospheric pollutants (UNECE CLRTAP 2016)

  Link (EN): http://www.unece.org/index.php?id=42868

- WHO Expert Meeting Methods and tools for assessing the health risks of air pollution at local, national and international level (WHO 2014)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2014/who-expert-meeting-methods-and-tools-for-assessing-the-health-risks-of-air-pollution-at-local,-national-and-international-level

- Health Effects of Particulate Matter (WHO/UNECE 2013)

  Link (ENG): http://www.unece.org/index.php?id=32918

- Environment and health in Europe: status and perspectives (WHO 2017)

  Link (EN): http://www.euro.who.int/en/media-centre/events/events/2017/06/sixth-ministerial-conference-on-environment-and-health/documentation/anchored-list/environment-and-health-in-europe-status-and-perspectives

- Fact sheet 10 - Air pollution. Better air for better health (WHO 2017)

Link (EN): http://www.euro.who.int/en/media-centre/events/events/2017/06/sixth-ministerial-conference-on-environment-and-health/fact-sheets-on-environment-and-health-priorities/fact-sheet-10-air-pollution.-better-air-for-better-health-2017

- Environment and human health (EEA Report 5/2013)

  Link (EN): https://www.eea.europa.eu/publications/environment-and-human-health

- Residential heating with wood and coal: health impacts and policy options in Europe and North America (WHO 2015)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2015/residential-heating-with-wood-and-coal-health-impacts-and-policy-options-in-europe-and-north-america

- Health risks of air pollution in Europe – HRAPIE project. Recommendations for concentration-response functions for cost-benefit analysis of particulate matter, ozone and nitrogen dioxide (WHO 2013)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/health-risks-of-air-pollution-in-europe-hrapie-project.-recommendations-for-concentrationresponse-functions-for-costbenefit-analysis-of-particulate-matter,-ozone-and-nitrogen-dioxide

- Review of evidence on health aspects of air pollution – REVIHAAP project: final technical report (WHO 2013):

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/review-of-evidence-on-health-aspects-of-air-pollution-revihaap-project-final-technical-report

- Health effects of particulate matter. Policy implications for countries in eastern Europe, Caucasus and central Asia (WHO 2013)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2013/health-effects-of-particulate-matter.-policy-implications-for-countries-in-eastern-europe,-caucasus-and-central-asia-2013

- Health risks of air pollution 2015

  Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/zdravotni_dusledky_znecisteni_ovzdusi/$FILE/OOO-Zdravotni_rizika_2015-20170105.pdf

- Environmental Health Monitoring System in the Czech Republic – Summary Report 2015

  Link (EN/CS): http://www.szu.cz/uploads/documents/chzp/souhrnna_zprava/Souhrnna_15_CD.pdf

- Ambient Air Pollution in the Czech Republic - Health Risk Assessment 2015

  Link (CS): http://www.szu.cz/uploads/documents/chzp/ovzdusi/dokumenty_zdravi/rizika_CRi_2015.pdf

- Air Pollution and Health in the Moravian-Silesian Region

  Link (CS): http://www.msk.cz/cz/zivotni_prostredi/ovzdusi-a-zdravi-41506/

Air – Policy and Measures

- Updated Handbook for the 1979 Convention on Long-range Transboundary Air Pollution and its Protocols (UNECE 2015)

Link (EN): http://www.unece.org/index.php?id=41371

- Strategies and Policies for Air Pollution Abatement (UNECE 2013)

  Link (EN): http://www.unece.org/index.php?id=35140

- Catalogue Of Air Quality Measures

  Link (EN): http://fairmode.jrc.ec.europa.eu/measure-catalogue/

- Review of the EU Air Policy - Supporting documents

  Link (EN): http://ec.europa.eu/environment/air/review_air_policy.htm

  Links to the following supporting documents can be found through the above link:

- Review of EU Air Quality Policy - Commission Staff Working Document (SEC(2011)342) - March 2011
- Thematic Strategy on Air Pollution
  - Facts and figures on agriculture reductions as proposed under the Commission's NECD proposal - October 2015
  - Adjusted historic emission data, projections and optimised reduction targets for 2030 - TSAP Report 16A - January 2015
  - Adjusted historic emission data, projections and optimised reduction targets for 2030 - TSAP Report 16B - January 2015
  - Urban PM2,5 levels under the Clean Air Policy Package - TSAP #12 - October 2014
  - A Flexibility Mechanism for Complying with National Emission Ceilings for Air Pollutants - TSAP #15 - September 2014
  - Updates to the GAINS Model Databases after the Bilateral Consultations with National Experts in 2014 - TSAP #14 - September 2014
  - Summary of the Bilateral Consultations with National Experts on the GAINS Input Data - TSAP #13 - September 2014
  - Non-paper on the methane reduction commitments in the proposed NECD revision - May 2014
  - Measures and costs for CH4 implementation by Member State - May 2014
  - Cost-benefit analysis of Final Policy Scenarios for the EU Clean Air Policy Package - March 2014
  - The Final Policy Scenarios of the EU Clean Air Policy Package - February 2014
  - Implementing the WHO-HRAPIE recommendations in the Cost-benefit analysis for the EU Air Policy - January 2014
  - Policy Scenarios for the Revision of the Thematic Strategy on Air Pollution - March 2013
  - Update of EMEP EEA Emission Inventory Guidebook, in particular on methodologies for Black Carbon - February 2013
  - Cost-benefit Analysis of Scenarios for Cost-Effective Emission Controls after 2020 - November 2012
  - TSAP-2012 Baseline: Health and Environmental Impacts - November 2012
  - Quantitative review of experience with implementation of the 2005 TSAP - June 2012

- Ambient Air Quality Directive
    - Reasons for non-compliance of ozone target value set by Directive 2008/50/EC and potential for air quality improvements in relation to ozone pollution - January 2014
    - Review of Provisions for Air Quality measurements, Air Quality modelling, Management Framework, Assessment and Public information; and Stakeholder Consultation Support
    - Assessment of the Stakeholder Expert Group recommendations - June 2013
    - Assessment of FAIRMODE recommendations - June 2013
    - Assessment of AQUILA recommendations - June 2013
    - Assessment on siting criteria, classification and representativeness of air quality monitoring stations - May 2013
    - Review of the health evidence on the pollutants regulated by the Ambient Air Quality Directive (2 grant agreements with WHO). Projects REVIHAP and HRAPIE
    - Air Implementation Pilot, Lessons learnt from the implementation of air quality legislation at urban level. EEA report - June 2013
    - Modelling compliance with NO2 and PM10 air quality limit values in the GAINS model - March 2013
    - Implementation of the Air Quality Directive and the 4th Daughter Directive - February 2013
    - Workshop on PM, assessment and management: lessons learned, best practices and orientations for the future - October 2012
- National Emission Ceilings Directive
    - Improving the quality of SOX/SO2 estimates and reporting – August 2016
    - Assessment of the reasons for non-compliance of the emission ceilings set in the NEC Directive - December 2013
    - Evaluation of progress under the EU NEC Directive, EEA report - October 2012
    - Black carbon emission inventories - May 2012
    - Evaluation of 2006 National Programmes under NEC Directive
- Sector-specific pollution control measures
    - Collection and analysis of data for the control of emissions from the spreading of manure - January 2014
    - Specific evaluation of emissions from shipping (main report and annexes) - March 2013
    - The potential for further controls of emissions from mobile sources in Europe - November 2012
    - Emissions from agriculture and their control potentials - November 2012
    - Future emissions of air pollutants in Europe - current legislation baseline and the scope for further reductions - June 2012
    - Emissions from households and other small combustion sources and their reduction potential - June 2012
- Medium Combustion Plants Directive

- Analysis of the impacts of various options to control emissions from the combustion of fuels in installations with a total rated thermal input below 50MW - February 2014

- Impact of selected policy measures on Europe's air quality (EEA Technical Report 8/2010)
- Link (EN): https://www.eea.europa.eu/publications/impact-of-selected-policy-measures
- Air Quality Management Handbook (Ministry of Environment 2013)
- Link (CS): https://www.mzp.cz/C1257458002F0DC7/cz/prirucka_ochrany_kvality_ovzdusi/$FILE/OOO-prirucka_OPLZZ_komplet-20140408.pdf
- Measures for the Improvement of Air Quality in Ostrava (2010)
- Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1
- Air Quality in Ostrava – Documents and studies
- Link (CS): https://www.ostrava.cz/cs/o-meste/zivotni-prostredi/ovzdusi/dokumenty-a-materialy-tykajici-se-ochrany-ovzdusi-1
- Link (CS): https://dycham.ostrava.cz/ovzdusi/dokumenty-ke-stazeni

Modelling

- FAIRMODE: Forum for air quality modelling in Europe

  Link (EN): http://fairmode.jrc.ec.europa.eu/

  Link (EN) – documents: http://fairmode.jrc.ec.europa.eu/downloads.html

  Links to the following supporting documents can be found through the above link:

  - Guidance Document on Modelling Quality Objectives and Benchmarking
  - Fairmode recommendations on e-reporting
  - SPECIEUROPE: The European database for PM source profiles
  - A new methodology to assess the performance and uncertainty of source apportionment models II: The results of two European intercomparison exercises
  - How to start with PM modelling for air quality assessment and planning relevant to the Air Quality Directive. ETC/ACM Technical Paper 2013/11
  - European guide on air pollution source apportionment with receptor models
  - Recommendations from FAIRMODE to the review of the EU Air Quality Policy
  - Guide on modelling Nitrogen Dioxide (NO2) for air quality assessment and planning relevant to the European Air Quality Directive. ETC/ACM Technical Paper 2011/15
  - The application of models under the European Union's Air Quality Directive: A technical reference guide
  - SHERPA - Screening for High Emission Reduction Potential on Air
  - EU Composite Maps
  - SPECIEUROPE Database
  - Delta Tool: a tool for air quality models benchmarking
  - MDS - Model Documentation System

- Catalogue Of Air Quality Measures

- **GAINS model** (explores synergies and trade-offs between the control of local and regional air pollution and the mitigation of global greenhouse gas emissions)

  Link GAINS-Europe (EN): http://www.iiasa.ac.at/web/home/research/researchPrograms/air/Europe.html

- **COPERT model** (an European tool to calculate emissions from road transport)

  Link (EN): http://emisia.com/products/copert

- **TREMOVE** (a policy assessment model to study the effects of different transport and environment policies on the emissions of the transport sector)

  Link (EN): http://www.tmleuven.be/methode/tremove/home.htm

- **The application of models under the European Union's Air Quality Directive: A technical reference guide (EEA Technical Report 10/2011)**

  Link (EN): https://www.eea.europa.eu/publications/fairmode

- **Catalogue of scenario studies — Knowledge base for Forward-Looking Information and Services (EEA Technical Report 1/2011)**

  Link (EN): https://www.eea.europa.eu/publications/catalogue-of-scenario-studies

- **Modelling environmental change in Europe: towards a model inventory (SEIS/Forward); EEA Technical Report 11/2008**

  Link (EN): https://www.eea.europa.eu/publications/technical_report_2008_11

Economic Aspects

- Environmental taxation and EU environmental policies (EEA Report 17/2016)

  Link (EN): https://www.eea.europa.eu/publications/environmental-taxation-and-eu-environmental-policies

- Economic cost of the health impact of air pollution in Europe: Clean air, health and wealth (WHO 2015)

  Link (EN): http://www.euro.who.int/en/health-topics/environment-and-health/air-quality/publications/2015/economic-cost-of-the-health-impact-of-air-pollution-in-europe

- Costs of air pollution from European industrial facilities 2008-2012 (EEA Technical Report 20/2014)

  Link (EN): https://www.eea.europa.eu/publications/costs-of-air-pollution-2008-2012

- Road user charges for heavy goods vehicles (HGV); EEA Technical Report 1/2013

  Link (EN): https://www.eea.europa.eu/publications/road-user-charges-for-vehicles

- Revealing the costs of air pollution from industrial facilities in Europe (EEA Technical Report 15/2011)

  Link (EN): https://www.eea.europa.eu/publications/cost-of-air-pollution

IIASA (International Institute for Applied System Analysis) studies and reports

- Air Quality and Greenhouse Gases Program (AIR) reports

  Link (EN): http://www.iiasa.ac.at/web/home/research/researchPrograms/air/AIR-Reports.html

- Links to the following documents can be found through the above link:
  - Energy and Air Pollution
  - Nitrogen pollution in the EU: Best management strategies, regulations, and science needs.
  - Adjusted historic emission data, projections, and optimized emission reduction targets for 2030 - a comparison with COM data 2013. Part A: Results for EU-28. TSAP Report #16A
  - Adjusted historic emission data, projections, and optimized emission reduction targets for 2030-a comparison with COM data 2013. Part B: Results for Member States. TSAP Report #16B
  - Residential heating with wood and coal: health impacts and policy options in Europe and North America. WHO Europe 2015
  - Complimentary impact assessment on interactions between EU air quality policy and climate and energy policy. Ex-Ante Impact Assessment Unit, EPRS, European Parliament, Brusells, Belgium (2014)
  - Urban PM2.5 levels under the EU Clean Air Policy Package. [[TSAP Report #12]], V1.0, DG-Environment of the European Commission, Belgium (October 2014)
  - Updates to the GAINS model databases after the bilateral consultations with national experts in 2014. [[TSAP Report #14]] V1.0 (Editor: M. Amann), DG-Environment of the European Commission, Belgium (September 2014)
  - Summary of the bilateral consultations with national experts on the GAINS input data. [[TSAP Report #13]], V2.1, DG-Environment of the European Commission, Belgium (September 2014)
  - A flexibility mechanism for complying with national emission ceilings for air pollutants. [[TSAP Report #15]], V1.0, DG-Environment of the European Commission, Belgium (September 2014)
  - The final policy scenarios of the EU Clean Air Policy Package. XO-14-072
  - Capacity building on decision support for air pollution policies - Results from Nordic-Russian co-operation. Final Report to NMR, IVL Report B2131, IVL Swedish Environmental Research Institute Ltd. (December 2013)
  - Policy Scenarios for the revision of the thematic strategy on air pollution. XO-13-057
  - Modelling compliance with NO2 and PM10 air quality limit values in the GAINS model. [[TSAP Report #9]], V1.0, DG-Environment of the European Commission, Belgium (March 2013)
  - The impact of future vehicles on pollutant emissions and air quality in Europe. [[ECO-MOBILITY 2012]], 11-12 December 2012, Vienna, Austria
  - TSAP-2012 Baseline: Health and environmental impacts. [[TSAP Report #6]], Version 1.0 (Editor: M. Amann), DG-Environment of the European Commission, Belgium (November 2012)
  - Compliance with EU air quality limit values - A first set of sensitivity and optimization analyses. [[TSAP Report #8]], Version 1.0 (Editor: M. Amann), DG-Environment of the European Commission, Belgium (November 2012)

- Scenarios of cost-effective emission controls after 2020. [[TSAP Report #7]], Version 1.0 (Editor: M. Amann), DG-Environment of the European Commission, Belgium (November 2012)
- Environmental improvements of the 2012 revision of the Gothenburg Protocol. [[CIAM Report 1/2012]], Version 1.1, CIAM & IIASA (September 2012)
- Future emissions of air pollutants in Europe - Current legislation baseline and the scope for further reductions. [[TSAP Report #1]], Version 1.0, DG-Environment, European Commission, Belgium (June 2012)
- Emissions from agriculture and their control potentials. [[TSAP Report #3]], Version 1.0, DG-Environment of the European Commission, Belgium (June 2012)
- The potential for further controls of emissions from mobile sources in Europe. [[TSAP Report #4]], Version 1.0, DG-Environment of the European Commission, Belgium (June 2012)
- Emissions from households and other small combustion sources and their reduction potential. [[TSAP Report #5]], Version 1.0, DG-Environment of the European Commission, Belgium (June 2012)
- Factors determining recent changes of emissions of air pollutants in Europe. [[TSAP Report #2]], Version 1.0, DG-Environment of the European Commission, Belgium (June 2012)
- The GAINS Integrated Assessment Model. EC4MACS Modelling Methodology, European Consortium for Modelling of Air Pollution and Climate Strategies - EC4MACS
- EDGAR-HTAP: A harmonized gridded air pollution emission dataset based on national inventories. JRC Scientific and Technical Report #JRC58434, Publications Office of the European Union, Luxembourg
- Ammonia Reductions and Costs Implied By the Three Ambition Levels Proposed in the Draft Annex IX to the Gothenburg Protocol. [[CIAM 5/2011]], Version 1.2. CIAM, IIASA, Laxenburg, Austria (4 November 2011)
- An Updated Set of Scenarios of Cost-effective Emission Reductions for the Revision of the Gothenburg Protocol. [[CIAM 4/2011]], Version 1.0. CIAM, IIASA, Laxenburg, Austria (26 August 2011)
- Cost-effective emission reductions to improve air quality in Europe in 2020: Analysis of policy options for the EU for the revision of the Gothenburg Protocol. Final Report submitted to the European Commission, DG Environment (July 2011)
- Calculation of Cause-specific Mortality Impacts of Fine Particulate Matter in GAINS. CIAM-Report 2/2011, Draft Version 1. IIASA, Laxenburg, Austria
- Cost-effective Emission Reductions to Improve Air Quality in Europe in 2020: Background paper. [[CIAM-Report]], Version 2.1. CIAM, IIASA, Laxenburg, Austria (31 March 2011)
- The reduction in air quality impacts and associated economic benefits of mitigation policy: Summary of results from the EC RTD Climate Cost Project. In: P. Watkiss (ed.); [[The ClimateCost Project]], Final Report. Volume 1: Europe; Stockholm Environment Institute; Stockholm, Sweden

EMEP Publications

- List of EMEP publications 1999-2016
- Link(EN): http://emep.int/publ/common_publications.html
- Links to the following documents can be found through the above link:
- Publications in 2016
    - "Transboundary particulate matter, photo-oxidants, acidifying and eutrophying components"
    - "EMEP/MSC-W model performance for acidifying and eutrophying components, photo-oxidants and particulate matter in 2014"
    - "Assessment of heavy metals transboundary pollution, progress in model development and mercury research"
    - "Persistent organic pollutants: model assessment of pollution research activity"
- Publications in 2015
    - "Transboundary particulate matter, photo-oxidants, acidifying and eutrophying components"
    - "EMEP/MSC-W model performance for acidifying and eutrophying components, photo-oxidants and particulate matter in 2013"
    - "Heavy metals: Analysis of long-term trends, country-specific research and progress in mercury regional and global modelling"
    - "Assessment of spatial and temporal trends of POP pollution on regional and global scale "
- Publications in 2014
    - "Transboundary particulate matter, photo-oxidants, acidifying and eutrophying components"
    - "EMEP/MSC-W model performance for acidifying and eutrophying components, photo-oxidants and particulate matter in 2012"
    - "Heavy Metals: Transboundary Pollution of the Environment"
    - "Persistent Organic Pollutants in the Environment"
- Publications in 2013
    - "Transboundary acidification, eutrophication and ground level ozone in Europe in 2011"
    - "EMEP/MSC-W model performance for acidifying and eutrophying components and photo-oxidants in 2011"
    - "Source-receptor tables for 2011 - extended version"
    - "Long-term Changes of Heavy Metal Transboundary Pollution of the Environment (1990-2010)"
    - "Persistent Organic Pollutants in the Environment"
    - "Transboundary Particulate Matter in Europe: Status Report 4/2013"

- Publications in 2012
    - "Transboundary acidification, eutrophication and ground level ozone in Europe in 2010"
    - "EMEP/MSC-W model performance for acidifying and eutrophying components and photo-oxidants in 2010"
    - "Long-term Changes of Heavy Metal Transboundary Pollution of the Environment (1990-2010)"
    - "Persistent Organic Pollutants in the Environment"
    - "Transboundary Particulate Matter in Europe: Status Report 4/2012"
    - **Publications in 2011**
    - "Transboundary acidification, eutrophication and ground level ozone in Europe in 2009"
    - "EMEP Unified model performance for acidifying and eutrophying components and photo-oxidants in 2009"
    - "Heavy Metals: Transboundary Pollution of the Environment"
    - "Persistent Organic Pollutants in the Environment"
    - "Transboundary Particulate Matter in Europe: Status Report 2011"

PM Studies

- Fine Particulate Matter (PM2.5) in the United Kingdom (DEFRA 2012)

  Link (EN): https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69635/pb13837-aqeg-fine-particle-matter-20121220.pdf
- Particulate matter from natural sources and related reporting under the EU Air Quality Directive in 2008 and 2009 (EEA Report 10/2012)

  Link (EN): https://www.eea.europa.eu/publications/particulate-matter-from-natural-sources