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ANNEXES 1 to 4

ANNEXES

to the

Report from the Commission to the European Parliament and the Council

on the progress made on the implementation of Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants

ANNEX I

Projected compliance as reported by Member States in 2019 under existing policies and measures ("With Measures" scenario) against 2020-29 and 2030-onwards emission reduction commitments

Member State	NO_x		NMVOCs		SO_2		NH_3		$PM_{2.5}$	
	2020	2030	2020	2030	2020	2030	2020	2030	2020	2030
Austria	✓	×	✓	✓	✓	✓	×	×	✓	×
Belgium	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
Bulgaria	✓	×	×	×	✓	✓	✓	×	×	×
Croatia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyprus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Czechia	✓	×	✓	×	✓	✓	✓	×	✓	✓
Denmark	✓	✓	✓	✓	✓	×	×	×	×	×
Estonia	✓	✓	✓	✓	✓	✓	×	×	✓	✓
Finland	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
France	×	×	✓	✓	✓	✓	×	×	✓	✓
Germany	✓	×	✓	✓	✓	×	×	×	✓	×
Greece	✓	×	✓	×	✓	✓	✓	✓	✓	✓
Hungary	✓	×	×	×	✓	×	×	×	×	×
Ireland	✓	×	×	×	✓	×	×	×	✓	✓
Italy	✓	×	×	×	✓	✓	✓	×	✓	×
Latvia	×	×	✓	✓	✓	✓	×	×	✓	×
Lithuania	×	×	✓	×	✓	✓	×	×	✓	×
Luxembourg	✓	×	✓	×	✓	✓	×	×	✓	×
Malta	✓	×	×	×	✓	✓	✓	×	✓	✓
Netherlands	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Poland	×	✓	×	✓	×	×	✓	×	✓	×
Portugal	✓	✓	✓	×	✓	✓	✓	✓	✓	×
Romania	×	×	×	×	✓	×	✓	✓	×	×
Slovakia	✓	×	✓	✓	✓	×	✓	✓	✓	✓
Slovenia	×	✓	✓	×	✓	×	✓	✓	✓	×
Spain	✓	×	✓	×	✓	×	✓	×	✓	×
Sweden	✓	×	✓	✓	✓	✓	×	×	✓	✓
United Kingdom	✓	×	✓	×	✓	×	×	×	×	×
✓	22	10	21	14	27	18	16	9	23	13
✖	6	18	7	14	1	10	12	19	5	15

Source: https://www.eea.europa.eu/themes/air/air-pollution-sources-1/national-emission-ceilings/nec-directive-reporting-status-2019 with relevant updates from the projections review. Here, late submission or resubmission of relevant reporting obligations by Member States are taken into account and projections are checked against the relevant emission inventory versions.

ANNEX 2

Projected compliance as reported by Member States in 2019 under additional policies and measures ("With Additional Measures" scenario) against 2020-29 and 2030-onwards emission reduction commitments

Member State	NO_x		NMVOCs		SO_2		NH_3		$PM_{2.5}$	
	2020	2030	2020	2030	2020	2030	2020	2030	2020	2030
Austria	-	-	-	-	-	-	-	-	-	-
Belgium	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bulgaria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Croatia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyprus	-	-	-	-	-	-	-	-	-	-
Czechia	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Denmark	✓	✓	✓	✓	✓	✓	×	×	×	×
Estonia	✓	✓	✓	✓	✓	✓	×	×	✓	✓
Finland	-	-	-	-	-	-	-	-	-	-
France	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Germany	✓	✓	✓	✓	✓	✓	×	✓	✓	✓
Greece	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hungary	-	-	-	-	-	-	-	-	-	-
Ireland	✓	×	×	×	✓	✓	×	×	✓	✓
Italy	-	-	-	-	-	-	-	-	-	-
Latvia	×	✓	✓	✓	✓	✓	×	✓	✓	✓
Lithuania	×	×	✓	×	✓	✓	✓	×	✓	×
Luxembourg	-	-	-	-	-	-	-	-	-	-
Malta	✓	×	×	✓	✓	✓	✓	×	✓	✓
Netherlands	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Poland	-	-	-	-	-	-	-	-	-	-
Portugal	-	-	-	-	-	-	-	-	-	-
Romania	×	×	×	×	✓	×	✓	✓	×	×
Slovakia	✓	✓	✓	✓	✓	×	✓	✓	✓	✓
Slovenia	-	-	-	-	-	-	-	-	-	-
Spain	✓	✓	✓	×	✓	✓	✓	✓	✓	✓
Sweden	-	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-	-
✓	14	13	14	13	17	15	12	12	15	14
×	3	4	3	4	0	2	5	5	2	3
WaM non reported	11	11	11	11	11	11	11	11	11	11

Source: EEA compilation based on Member States 2019 submission pursuant to Article 10(2) of Directive (EU) 2016/2284 and the subsequent review of the submitted data. Member States for which no information is displayed in the table did not report a WAM scenario.

ANNEX 3

Assessment of the risk of non-compliance with emission reduction commitments

	2020-2029					2030 and beyond				
	SO_2	NOx	NMVOC	NH_3	$PM_{2.5}$	SO_2	NOx	NMVOC	NH_3	$PM_{2.5}$
Austria	L	L	M	H	L	L	H	M	H	H
Belgium	L	L	L	M	L	L	L	L	M	L
Bulgaria	M	H	H	H	L	L	H	H	H	L
Cyprus	L	M	M	L	M	M	L	M	L	H
Czechia	L	H	H	H	L	L	H	H	H	L
Germany	L	L	L	H	L	L	M	M	M	M
Denmark	L	L	L	H	H	H	L	L	H	H
Estonia	M	M	M	H	M	L	M	L	H	M
Greece	-	-	-	-	-	-	-	-	-	-
Spain	L	L	M	M	L	L	L	H	M	M
Finland	M	M	M	H	M	M	M	H	M	M
France	M	M	M	H	M	M	M	M	H	H
Croatia	L	L	M	M	M	L	L	M	M	M
Hungary	-	-	-	-	-	-	-	-	-	-
Ireland	L	L	H	H	L	M	H	H	H	L
Italy	-	-	-	-	-	-	-	-	-	-
Lithuania	M	H	H	M	M	M	H	H	H	H
Luxembourg	-	-	-	-	-	-	-	-	-	-
Latvia	-	-	-	-	-	-	-	-	-	-
Malta	-	-	-	-	-	-	-	-	-	-
Netherlands	L	H	M	H	M	M	H	M	H	H
Poland	H	H	H	H	M	H	H	H	H	H
Portugal	M	H	H	H	M	H	H	H	H	H
Romania	-	-	-	-	-	-	-	-	-	-
Sweden	L	L	L	H	L	L	H	L	H	L
Slovenia	M	H	M	M	M	H	M	H	H	H
Slovakia	-	-	-	-	-	-	-	-	-	-
United Kingdom	M	M	M	H	H	H	H	H	H	H
High risk	**1**	**7**	**6**	**14**	**2**	**5**	**10**	**10**	**14**	**10**
Medium risk	**8**	**5**	**10**	**5**	**10**	**6**	**5**	**6**	**5**	**5**
Low risk	**11**	**8**	**4**	**1**	**8**	**9**	**5**	**4**	**1**	**5**
Not assessed	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**

Source: Review of national air pollutant projections and assessment of national air pollution control programmes: Horizontal report, Ricardo, 2020 (where methodology for the risk assessment is also described) https://ec.europa.eu/environment/air/reduction/NAPCP.htm

Legend:
H = high risk
M = medium risk
L = low risk
- = not assessed due to late or non-submission

ANNEX 4

Clean Air expenditures tracking methodology

1) General approach to Clean Air expenditure tracking

a) Principles of EU clean air tracking

To monitor progress in the Member States' uptake of EU funds for clean air objectives, the Commission will "mark" expenditure by assigning a specific weighting to the EU financial contribution, which reflects the extent to which it contributes to clean air objectives.

This clean air tracking builds on the lessons learnt from the climate and biodiversity tracking already in place in the Commission. It also builds on proposed programme regulations which identify the environmental markers to be assigned to EU funding when tracking the environmental contribution, notably Cohesion funds (Annex 1 of the Common Provisions Regulation), and other relevant programmes (eg Common Agricultural Policy, Connecting Europe Facility). Unlike climate tracking, clean air tracking does not relate to a spending target but is meant to monitor EU funding contributing to clean air in view of a better implementation of the clean air policies in Member States.

The main attributes of clean air tracking are:
- Use of 100%, 40% and 0% markers;
- Attention to administrative effort and simplicity;
- Consistency of the marking among programmes (similar activities marked similarly);
- Transparency of marking
- Independence from the other tracking methodologies (climate, biodiversity), ie each Euro spent can be tracked more than once.

Clean air, being a cross-cutting issue, not only benefits from actions targeted at clean air, but also from impacts generated by EU-funded projects in other policy areas, for example those targeting topics such as sustainable transport, climate change mitigation (e.g. energy efficiency), resource efficiency, health.

b) EU clean air markers

As for climate tracking, for the purposes of clean air tracking, "expenditure" is defined as the commitment appropriation. This will allow the Commission and stakeholders to identify clean air spending early in the process. The Commission will not monitor clean air-marked payment appropriations and/or payments.

The EU clean air markers are developed based on the qualitative Rio markers that the OECD Development Assistance Committee uses for identifying specific environmental objectives (desertification, climate mitigation, climate adaptation and biodiversity) for development aid projects and build on the experience from the EU Climate Rio markers.

The EU clean air markers are designed to quantify expenditure contributing to clean air objectives. Given the range of implementing procedures (e.g. centrally managed, shared management, financial instruments, programmable/bottom-up), the approach to implementation varies across programmes and the methodology has been adapted to reflect the specific circumstances. Thus, the markers are assigned at the most appropriate level depending on the specific design of each budget programme – project, type of intervention, component of programme or whole programme.

The markers are assigned with the overall approach:

- 100% for expenditure expected to contribute principally to clean air objectives [parity with OECD Rio marker 2]
- 40% for expenditure expected to contribute significantly to clean air objectives [parity with OECD Rio marker 1]
- 0% for expenditure not contributing to clean air objectives

This 3-level approach necessarily makes some approximations, and it is a conservative one: In case of doubt and / or lack of precise information, the lower marker is chosen.

This overall approach is translated into specific tracking procedures that can vary between programmes, reflecting the differences in their design and management modes.

c) Annual reporting of the data

The Commission will consolidate the expected clean air commitment data for all programmes annually. Each programme will present in the programme statements for operational expenditures accompanying the Annual Draft Budget the expected clean air spending for each year.
The Commission will also report every four years in the NEC Directive implementation report on the uptake of EU funds in support of the objectives of the Directive with a first preliminary reporting in the context of the 2020 implementation report).

2) Implementation of the Clean Air Tracking approach at programme level

a) Horizon 2020

Action	**Marker**
Specific Objective - European Research Council (ERC)	0 (1)
Specific Objective - Future and Emerging Technologies	0 (2)
Specific Objective –Marie Sklodowska-Curie actions (MSCA)	0 (1)
Specific Objective - Research infrastructures	0 (1)
Specific Objective - Enabling and Industrial Technologies	0 (2)
Specific Objective – Access to risk finance	0
Specific Objective - SMEs	0 (2)
Specific Objective - Health	0
Specific Objective - Food	0 (2)
Specific Objective - Energy	40
Specific Objective - Transport	40
Specific Objective - Resource efficient and climate change resilient economy	40
Specific Objective - Inclusive, innovative and reflective European societies	0
Specific Objective - Secure European societies	0
Specific Objective - Spreading excellence and widening participation	0
Specific Objective - Science with and for society	0
Specific Objective - Non-Nuclear Direct Actions of the Joint Research Centre	0 (2)
Specific Objective - European Institute of Innovation and Technology	0 (2)

(1) For bottom-up activities such as ERC and MSCA no value can been set for this first exercise. This will need to be adjusted (upwards) in future tracking exercises. A more accurate estimate of the contribution of these activities to air quality action will be possible in the next MFF. In the meantime, a 0-marker is applied for these activities.

(2) Although some of these projects might contribute to clean air objectives, the scoring "0" is applied due to lack of precise information.

While this table gives an indication on the contribution of Horizon 2020 to financing activities benefitting clean air, in view of ensuring more accurate figures, the tracking of clean air related expenditure will be tracked at call or project level through corresponding reporting formats in the next programme Horizon Europe (2021-2027).

b) European Strategic Investments: The European Fund for Strategic Investments (EFSI)

The EFSI[1] is an initiative launched under the Investment Plan for Europe (Junker Plan) in 2015 to help address the investment gaps throughout the European Union. It has the following main features:

- Under the EFSI, the Union provides an irrevocable and unconditional guarantee[2] to the EIB for providing eligible financing and investment operations to final recipients.
- The EFSI is constituted of two windows:

i) The Infrastructure and Innovation Window (IIW) supported actions concern direct and intermediated financing operations to final recipients which, depending on their nature and scope, could contribute to the objectives of clean air. Operations under the Infrastructure and Innovations Window as of 31 December 2019 were screened and the appropriate OECD Rio Marker was attributed to each of them: A 100% marker was attributed to operations that contribute principally to clean air objectives while a 40% marker was attributed for all expected to contribute significantly to clean air objectives[3] – i.e. those that generate mitigations of air pollution;

ii) The SME Window (SMEW) facilitates access to loan and equity financing for small and medium sized enterprises (SMEs) and is implemented by the EIF. Some of the supported actions and final beneficiaries could potentially support the clean air objectives. However, due to the diversity of supported portfolios and small size of individual transaction it is impossible to estimate the contribution to the clean air objectives.

- The EFSI support is provided through a budgetary guarantee amounting to €26 billion. Liabilities arising from potential defaults[4] of operations covered by the EU Guarantee are paid from a guarantee fund that constitutes a liquidity cushion. This liquidity cushion under the EU Guarantee Fund amounts to €9.1 billion (provisioned amount). Total contributions from the general budget of the Union amount to €8.43 billion and are complemented by €0.675 billion from revenues and repayments.

Taking into account these characteristics, an estimate of the EFSI contribution to clean air was done for the IIW only. The amount of EFSI support to the clean air objective was therefore calculated as the sum of each operation's contribution as determined by the relevant marker as of 31 December 2019.

[1] Regulation (EU) No 2015/1017 of the European Parliament and of the Council of 25 June 2015 as amended by Regulation (EU) 2017/2396 of the European Parliament and Council of 13 December 2017.

[2] The EU Guarantee and the related resources in the EU Guarantee Fund cover a portfolio of financing and investment operations and are not ring-fenced for specific projects.

[3] Estimates are based on a conservative approach taking into consideration that EFSI Regulation and contractual documents do not foresee reporting and tracking of supported investments that contribute to clean air objectives.

[4] In case of no defaults, the projects are still guaranteed and supported. However, there is no outflow of EU Budget.

c) CEF - Connecting Europe Facility

Action/Strand (Regulation (EU) No 1316/2013	**Action/Strand (COM(2018)0438 – C8-0255/2018 – 2018/0228(COD) for 2021-2027)**	**Marker**
CEF energy[5]		
Electricity	Electricity	40
Gas	Gas	40
Smart grids	Smart grids	40
CO2 networks	CO2 networks	0
	Cross-border projects in the field of renewable energy	40
CEF transport		
	Transport Mode Rail: 40% (including ERTMS)	40
	Transport mode Inland Waterways	40
	Transport mode Maritime	40
	Alternative fuel infrastructure (not in urban nodes)	40
	Urban Nodes (including infrastructures, digitalisation and alternative fuels)	100
	Air traffic management	0[6]

d) European Regional and Development Fund (ERDF) and Cohesion Fund (CF)

Intervention codes and fields in implementing Regulation 215/2014 for 2014-2020		**Intervention codes, fields and *Rio* Coefficient for Environment in COM(2018) 375 final for 2021-2027**		**Clean Air Marker**
Code	Field	Code	Field	
65	Research and innovation infrastructure, processes, technology transfer and cooperation in enterprises focusing on the low carbon economy and on resilience to climate change	22	Research and innovation processes, technology transfer and cooperation between enterprises focusing on the low carbon economy, resilience and adaptation to climate change	40

[5] Due to the conservative approach of the methodology, the contribution of the CEF Energy actions on electricity, smart grids and cross-border projects in the field of renewable energy to clean air objectives may be underestimated.

[6] The methodology follows a conservative approach: Part of the CEF Actions on air traffic management includes support to the deployment of Air Traffic Management functionalities at airports, that can contribute, through a more efficient management of traffic, take-off, landing and taxing operations, to reduced emissions of air pollutants in airports and their surroundings.

		23	Research and innovation processes, technology transfer and cooperation between enterprises focusing on circular economy	40
068	Energy efficiency and demonstration projects in SMEs and supporting measures	24	Energy efficiency and demonstration projects in SMEs and supporting measures	40
014	Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures	25	Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures	40
013	Energy efficiency renovation of public infrastructure, demonstration projects and supporting measures	26	Energy efficiency renovation of public infrastructure, demonstration projects and supporting measures	40
071	Development and promotion of enterprises specialised in providing services contributing to the low carbon economy and to resilience to climate change (including support to such services)	27	Support to enterprises that provide services contributing to the low carbon economy and to resilience to climate change	40
009	Renewable energy: wind	28	Renewable energy: wind	40
010	Renewable energy: solar	29	Renewable energy: solar	40
		31	Renewable energy: marine	40
012	Other renewable energy (including hydroelectric, geothermal and marine energy) and renewable energy integration (including storage, power to gas and renewable hydrogen infrastructure)	32	Other renewable energy (including geothermal energy)	40
015	Intelligent Energy Distribution Systems at medium and low voltage levels (including smart grids and ICT systems)	33	Smart Energy Distribution Systems at medium and low voltage levels (including smart grids and ICT systems) and related storage	40
016	High efficiency co-generation and district heating	34	High efficiency co-generation, district heating and cooling	40
017	Household waste management (including minimisation, sorting,	42	Household waste management: prevention, minimisation, sorting,	40

	recycling measures)		recycling measures	
069	Support to environmentally-friendly production processes and resource efficiency in SMEs	47	Support to environmentally-friendly production processes and resource efficiency in SMEs	40
083	Air quality measures	48	Air quality and noise reduction measures	100
085	Protection and enhancement of biodiversity, nature protection and green infrastructure	50	Nature and biodiversity protection, green infrastructure	40
		63	Digitalisation of transport: road	40
024	Railways (TEN-T Core)	64	Newly built railways - TEN-T core network	40
025	Railways (TEN-T comprehensive)	65	Newly built railways - TEN-T comprehensive network	40
026	Other Railways	66	Other newly built railways	40
		67	Reconstructed or improved railways - TEN-T core network	40
		68	Reconstructed or improved railways - TEN-T comprehensive network	40
		69	Other reconstructed or improved railways	40
		70	Digitalisation of transport: rail	40
		71	European Rail Traffic Management System (ERTMS)	40
027	Mobile rail assets	72	Mobile rail assets	40
043	Clean urban transport infrastructure and promotion (including equipment and rolling stock)	73	Clean urban transport infrastructure	40
		74	Clean urban transport rolling stock	100
090	Cycle tracks and footpaths	75	Cycling infrastructure	100
		76	Digitalisation of urban transport	40
		77	Alternative fuels infrastructure	40
035	Multimodal transport (TEN-T)	78	Multimodal transport (TEN-T)	40

036	Multimodal transport	79	Multimodal transport (not urban)	40
		84	Digitising transport: other transport modes	40
007	Natural gas			40
008	Natural gas (TEN-E)			40
023	Environmental measures aimed at reducing and / or avoiding greenhouse gas emissions (including treatment and storage of methane gas and composting)			40
044	Intelligent transport systems (including the introduction of demand management, tolling systems, IT monitoring control and information systems)			40
070	Promotion of energy efficiency in large enterprises			40
084	Integrated pollution prevention and control (IPPC)			40

Any intervention field not displayed in this table has been marked 0 for the clean air tracking.

e) Common Agricultural Policy

Action	**Marker**
European Agricultural Fund for Rural Development (EAFRD)	
Focus areas 2A (farm modernisation)[7]	0
Focus Area 5B (energy efficiency)	40
Focus Area 5D (reducing greenhouse gases and ammonia emissions from agriculture	40
First pillar of CAP[8]	0

[7] The farm modernisation can have a positive effect on clean air. However, distinguishing investments for farm modernisation having an effect on ammonia emission reduction from other investments is difficult and they are not expected to represent a high percentage.

[8] One of the elements of cross-compliance, Good Agricultural and Environmental Condition number 6: "prohibition to burn stubble in the field to maintain organic matter in the soil", contributed to the reduction of PM-10 emissions. However, due to the difficulty to quantify the contribution and the expected low value of this element in the overall value of direct payments, the contribution is fixed at 0%.

f) LIFE programme

Action	**Marker**
Projects with clean air as main objective, such as: - Integrated Projects for clean air (including Technical Assistance projects if applicable) - Environment and resource efficiency traditional projects contributing to clean air as a priority topic - Environmental governance and information traditional projects focusing on clean air - Preparatory Projects focusing on clean air - Operating grants for NGOs which focus on clean air	100
Projects contributing to clean air, such as: - Integrated Projects under the sub-programme for environment which contribute to clean air (including Technical Assistance projects if applicable) - Environment and resource efficiency traditional projects contributing to clean air as a secondary benefit - Environmental governance and information traditional projects contributing to clean air as a secondary benefit - Preparatory Projects contributing to clean air as a secondary benefit - Integrated projects under the sub-programme for climate action which contribute to clean air (including Technical Assistance projects if applicable) - Climate change mitigation traditional projects contributing to clean air as a secondary benefit - Climate governance and information traditional projects contributing to clean air as a secondary benefit - Operating grants for NGOs which contribute to clean air	40
Projects or activities outside the scope of the categories mentioned above	0

Under LIFE, clean air is supported by dedicated traditional and integrated projects, but, being a crosscutting issue, clean air also benefits from impacts generated by LIFE projects primarily focusing on other topics such as water, noise and climate change mitigation (e.g. energy efficiency).

3) Amounts of EU funds dedicated to clean air objectives according to the above methodology

Programme	Estimated Clean Air Contribution 2014-2020 (in million EUR)
Horizon 2020	4 219
EFSI	819
CEF	8 830
ERDF	20 458
CF	10 874
EAFRD	1 138
LIFE	105
TOTAL	**46 443**