

III. Template to facilitate the submission of examples/good practices of strategies, policies and measures employed to implement obligations under any of the protocols to the Convention on Long-range Transboundary Air Pollution

<p>Country:</p> <p>Cyprus</p>	<p>Pollutant(s):</p> <p><i>Please indicate the pollutant(s), emissions of which are being controlled</i></p> <p>Particulate Matter (PM), NH3</p>
<p>Protocol(s):</p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p>	<p>Sector:</p> <p><i>Please indicate the sector (e.g. agriculture, industry, urban planning, environment, etc.), or sectors (if several) for which the strategy, policy or measure has been mainly designed</i></p> <p>Agriculture</p>
<p>Type of strategy, policy or measure and the level of implementation:</p> <p><i>Please identify the type of strategy, policy or measure – economic e.g. incentive or disincentive (taxes, funds, subsidies, prices or caps/ceilings, payments, rebates, etc.); voluntary (agreements, programmes, contracts), regulatory (legislation), or other measures (educational, informational, other)</i></p> <p><i>Please state at which level (municipal, regional, sub-national, national) the policy, strategy or measure is targeted or implemented</i></p> <p>Sectoral, legislative.</p>	<p>Method used for the current analysis:</p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p>The overall process for the collection and use of data is coordinated by the Department of Labour Inspection under the Ministry of Labour, Welfare and Social Insurance and involves collection and use of information and data from the Department of Environment of the Ministry of Agriculture, Rural Development and Environment, the Department of Agriculture and the Statistical Service by personal interviews with officers.</p>
<p>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</p> <p><i>Please describe briefly what the measure attempts to achieve or what has been the result of its implementation. Please also describe since when it is being employed or for when its implementation is foreseen. Please explain whether implementation is/was immediate or gradual. [150 words max]</i></p> <p>The main objective is the promotion of anaerobic digestion in livestock breeding waste treatment.</p> <p>The only agricultural emission mitigation measure considered is the reduction of emissions from manure management from the promotion of anaerobic digestion for animal waste. This may be implemented through a) either an expansion of the biogas production capacity of</p>	

existing animal waste processing plants, b) or through an investment in additional anaerobic digesters.

The agricultural sector in 2020 accounted for:

- 60% of the national total of NH₃ emissions
- 7% of the national total of PM_{2.5} emissions

The Cyprus NH₃ emissions increased by 1.14 Gg in the 1990 – 2019 period, corresponding to 14% of the national total in 1990 and decreased by 3.00 Gg in the 2005 – 2019 period, corresponding to 31% of the national total in 2005. This decrease occurred in the agricultural sources, mainly due to measures taken to reduce NH₃ emissions during the application of manure to the soil and the reduction of Nitrogen contained in the modern fertilizers. Approximately 96% of ammonia emissions (2019) come from agricultural sources.

The reduction in the use of the fertilisers is due to various reasons but mainly due to the correct use of the fertilisers (implementation of the UNECE Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions), the shrinkage of the agriculture and the increase of the fertilisers' price. Approximately 96% of NH₃ emissions are produced from the agricultural sources.

Background and driving forces:

Please explain briefly why this strategy, policy or measure was implemented; mention the driving forces for its introduction e.g. policy development, legislation (EU, national), action plans, voluntary, incentive, or other [150 words max]

Even though anaerobic digestion is not clearly stated in the European or national legislation, the technology is preferred by large livestock breeding plants to comply with the terms stated on the wastewater and air disposal permits. The technology is strongly promoted by the Department of Environment, especially for the large installations that fall under the IED directive. Relevant national legislation that encourages the promotion of anaerobic digestion is (a) the Control of Water Pollution (Waste Water Disposal) Regulations 2003, P.I. 772/2003; (b) the Control of Water Pollution (Sensitive Areas for urban waste water discharges) P.I. 111/2004. It is a voluntary measure which is expected to increase by 1% annually, starting from additional 1% in 2012, until 2015; after 2015, the increase in the reduction will reduce to 0.5% annually.

Description of the strategy, policy or measure:

Please explain briefly how the strategy, policy or measure works and why it has been chosen compared to other policies/measures. Please also explain how its implementation is being monitored. [200 words max]

National guidance to the owners of farms are given through the “National Code of Good Agricultural Practices” issued by the Ministry of Agricultural, Rural Development and Environment. Additionally, a permit is issued for farms which fall under the IED Directive. The implementation of measures is monitored by the personnel of the Department of Environment and the Department of Agriculture through inspections.

Costs, Funding and Revenue allocation:

Please state how much the implementation of the measure costs including its monitoring and how it is funded (national budget, industry, taxes, etc.) If the measure is creating revenue, please also explain how this revenue is being allocated and collected. [200 words max]

We assumed that a new anaerobic digester installation will be added as a result of this measure, with a capacity (waste input) of 500 m³ per day. Such an installation would have an investment cost of 1.175 million Euros, or 6 Euros per m³ of waste, an operation and maintenance cost of 105 Euros per year, or 0.6 Euros per m³ of waste. These would cover the costs of complete new installation with all equipment, building and landscaping costs etc.

Effect and impacts on air pollution abatement:

Please explain briefly the effect of the policy, strategy or measure and how it has impacted the abatement of air pollution. If impacts are known, please quantify, if possible. Please highlight also other effects of the implementation of the measure e.g. with regard to compliance, the acceptance of the measure or its transposition (e.g. from a voluntary to a regulatory or another type of measure). [150 words max]

The Cyprus NH₃ emissions increased by 1.14 Gg in the 1990 – 2019 period, corresponding to 14% of the national total in 1990 and decreased by 3.00 Gg in the 2005 – 2019 period, corresponding to 31% of the national total in 2005. This decrease occurred in the agricultural sources, mainly due to measures taken to reduce NH₃ emissions during the application of manure to the soil and the reduction of Nitrogen contained in the modern fertilizers. Approximately 96% of ammonia emissions (2019) come from agricultural sources.

The implementation of this measure will contribute to the reduction of the national total emissions of air pollutants.

The estimated reduction in emissions of air pollutants after the application of this measure is described in the following Table 1:

Table 1: Estimated reduction in emissions after the application of this measure

Pollutants	Emissions Year 2019 (kt)	Emissions Year 2030 (kt)	Emission reduction (%)
NO _x	1.05	1.02	2.86
VOCs	1.43	1.43	0
NH ₃	6.56	6.36	3
PM _{2.5}	0.07	0.07	0

References/Further information: Please provide most relevant sources for information such as references for web links, books, other resources.

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Additional comments: *Please include any additional information you may wish to provide here.*

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<p>Country:</p> <p>Cyprus</p>	<p>Pollutant(s):</p> <p><i>Please indicate the pollutant(s), emissions of which are being controlled</i></p> <p>Particulate Matter (PM), NO_x, SO₂, Heavy Metals (HMs), Persistent Organic Compounds (POPs).</p>
<p>Protocol(s):</p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p> <ul style="list-style-type: none"> • 1994 Sulphur Protocol • Protocol on HMs • Protocol on POPs • Gothenburg Protocol 	<p>Sector:</p> <p><i>Please indicate the sector (e.g. agriculture, industry, urban planning, environment, etc.), or sectors (if several) for which the strategy, policy or measure has been mainly designed</i></p> <p>Energy Sector</p>
<p>Type of strategy, policy or measure and the level of implementation:</p> <p><i>Please identify the type of strategy, policy or measure – economic e.g. incentive or disincentive (taxes, funds, subsidies, prices or caps/ceilings, payments, rebates, etc.); voluntary (agreements, programmes, contracts), regulatory (legislation), or other measures (educational, informational, other)</i></p> <p><i>Please state at which level (municipal, regional, sub-national, national) the policy, strategy or measure is targeted or implemented</i></p> <p>Political, Regulatory, National</p>	<p>Method used for the current analysis:</p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p>The overall process for the collection and use of data is coordinated by the Department of Labour Inspection under the Ministry of Labour, Welfare and Social Insurance and involves collection and use of information and data from the Energy Service under the Ministry of the Energy, Commerce, and Industry.</p>
<p>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</p> <p><i>Please describe briefly what the measure attempts to achieve or what has been the result of its implementation. Please also describe since when it is being employed or for when its implementation is foreseen. Please explain whether implementation is/was immediate or gradual. [150 words max]</i></p> <p>Currently the main focus of the policy related to reduction of the above mentioned pollutants is energy sector. Energy sector in 2020 accounted for:</p> <ul style="list-style-type: none"> • 85% of the national total of SO₂ emissions 	

- 25% of the national total of NO₂ emissions
- 19% of the national total of PM_{2.5} emissions
- 73% of the national total of Cd emissions
- 26% of the national total of Hg emissions
- 15% of the national total of PCDD/F emissions

On 22.6.2016, the Council of Ministers, decided to approve the import of LNG in Cyprus.

The long-term supply of Liquefied Natural Gas (LNG) was decided to be achieved through the development of the necessary infrastructure and the supply of natural gas (NG) to the domestic market. The NG will be initially used for electricity generation purposes and subsequently for other uses.

The Council of Ministers on 18.5.2017, decided to mandate DEFA to issue, as soon as possible, an invitation for tenders regarding the long-term supply of LNG to Cyprus to satisfy electricity requirements and an invitation for tenders for the construction and operation of the necessary infrastructure. In parallel with the above DEFA was mandated to proceed with the FEED study for the internal pipeline network.

For the purpose of implementing LNG infrastructure project, a Special Purpose Vehicle (SPV) was established and registered under the name “Natural Gas Infrastructure Company” (ETYFA LTD) with a mandate to carry out the construction, management and operation of the necessary infrastructure. DEFA has an equity participation in ETYFA of 70% and EAC of 30%. On 13/12/2019 the contract was signed between ETYFA and the consortium, China Petroleum Pipeline Engineering CO Ltd – CPP, METRON S.A and Hudong-Zhonghua Shipbuilding Co. Ltd & Wilhelmsen Ship Management Limited. According to the tender terms, the Consortium must complete all project related infrastructure 24 months from the date of commencement of the project works, which is expected to be by the end of 2022.

Other important measures in the energy sector is the electricity generation from Renewable Energy Sources (RES). The following table summarizes the installed energy capacity and annual energy production from RES so far:

Table 1: Energy from RES till 2019 (latest official data)

Technology	Installed capacity in MW			Annual energy production in GWh		
	2017	2018	2019	2017	2018	2019*
Wind Parks	157.5	157.5	157.5	222.40	217.25	238
PV systems	114.42	124.57	157.4	173.73	201.21	248
Biomass	10.4	12.8	12.8	51.5	52.09	57
Total	282	295	328	447.68	470.55	543

*Some of the data of 2019 includes estimation

The above projects are implemented through various support schemes and other policy measures.

Background and driving forces:

Please explain briefly why this strategy, policy or measure was implemented; mention the driving forces for its introduction e.g. policy development, legislation (EU, national), action plans, voluntary, incentive, or other [150 words max]

This strategy will be implemented to reduce the high emissions contributing from the energy sector as stated above. The driving force for the implementation of this strategy is the Directive EC 2016/2284 (National Emissions Ceilings Directive) which sets national emission reduction commitments for five important air pollutants (NO_x, NMVOCs, SO₂, NH₃ and PM_{2.5}).

Energy is the sector which has to contribute the most in the reduction of these emissions of Cyprus. The import of natural gas and its initial use for electricity production, is expected to contribute considerable reductions of emissions at the end of 2022 and thereafter.

Description of the strategy, policy or measure:

Please explain briefly how the strategy, policy or measure works and why it has been chosen compared to other policies/measures. Please also explain how its implementation is being monitored. [200 words max]

The Government of Cyprus, recognising the positive contribution that the introduction and use of natural gas will have on the economy and the environment of Cyprus, has decided to introduce natural gas primarily for use in the electricity generation. It is however expected that after its arrival, natural gas will also be used in other sectors of the economy (commercial, industrial, transport etc.).

The Electricity Authority of Cyprus (single conventional fuel electricity producer) has included natural gas in its development strategies.

The Government, by importing natural gas, apart from the reduction of emissions from the actual use of the natural gas, there would also be a positive contribution to emission reductions through the increased efficiency of the newer technologies used.

The introduction of the natural gas for power generation is based on the fulfilment of National legislation P.I. 115/2006 and Law 183(I)/2004 as amended.

The measures towards attainment include:

- **Import and use of natural gas for electricity production**
- **Installation of combined cycle electricity production units using natural gas as fuel**
- **Decommissioning or conversion of existing electricity production units.**
- **“EUROASIA Interconnector” connecting three countries, Israel, Cyprus and Greece for the supply of electricity through a cable submerged into the sea.**

Costs, Funding and Revenue allocation:

Please state how much the implementation of the measure costs including its monitoring and how it is funded (national budget, industry, taxes, etc.) If the measure is creating revenue, please also explain how this revenue is being allocated and collected. [200 words max]

As it was mentioned above, the anticipated time plan for the implementation of the project is expected to be concluded by the end of 2022.

The capital cost of the Project is around €290 million, spread over three years (2020 – 2022). The Project capital costs will be financed through a combination of a grant from the EU CEF (Connecting Europe Facility) of up to €101 million (project was approved by CEF in January 2018), debt financing (e.g. EIB, EBRD, etc.) and an investment by the Electricity Authority of Cyprus (EAC) of €43 million. The Operation and Maintenance cost is estimated to be around €200 million for a 20-year period.

Effect and impacts on air pollution abatement:

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The implementation of this measure will contribute significantly to the reduction of the national total emissions of air pollutants.

The estimated reduction in emissions of air pollutants after the application of the RES systems is described in the following Table 1:

Table 1: Estimated reduction in emissions after the application of the RES systems

Pollutants	Emissions Year 2019 (kt)	Emissions Year 2030 (kt)	Emission reduction (%)
NO_x	3,91	1,28	67,3
VOCs	0,08	0,08	0
SO_x	14,19	0,09	99,4
PM_{2.5}	0,24	0,02	91,7

References/Further information: *Please provide most relevant sources for information such as references for web links, books, other resources.*

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<p>Protocol(s):</p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p> <ul style="list-style-type: none"> • 1994 Sulphur Protocol • Protocol on HMs • Protocol on POPs • Gothenburg Protocol 	<p>Sector:</p> <p><i>Please indicate the sector (e.g. agriculture, industry, urban planning, environment, etc.), or sectors (if several) for which the strategy, policy or measure has been mainly designed</i></p> <p>Industry</p>
<p>Type of strategy, policy or measure and the level of implementation:</p> <p><i>Please identify the type of strategy, policy or measure – economic e.g. incentive or disincentive (taxes, funds, subsidies, prices or caps/ceilings, payments, rebates, etc.); voluntary (agreements, programmes, contracts), regulatory (legislation), or other measures (educational, informational, other)</i></p> <p><i>Please state at which level (municipal, regional, sub-national, national) the policy, strategy or measure is targeted or implemented</i></p> <p>Sectoral policies and measures</p>	<p>Method used for the current analysis:</p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p>The overall process for the collection and use of data is coordinated by the Department of Labour Inspection under the Ministry of Labour, Welfare and Social Insurance and involves collection and use of information and data from the Ministry of Energy, Commerce and Industry and Statistical Service by personal interviews with officers. Also, interviews were held with the plant managers as well as data were provided by local companies that are highly involved with the design, construction and maintenance of industrial equipment.</p>
<p>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</p> <p><i>Please describe briefly what the measure attempts to achieve or what has been the result of its implementation. Please also describe since when it is being employed or for when its implementation is foreseen. Please explain whether implementation is/was immediate or gradual.</i></p> <p><i>[150 words max]</i></p>	

In the industrial sector, emission abatement measures were explored with emphasis on the following sub-sectors (a) cement industry, (b) food and beverages, (c) mining, (d) water supply, (e) plastics, (f) building material industry, (g) pharmaceutical and cosmetic industry.

Industry sector in 2020 accounted for:

- 12% of the national total of SO₂ emissions
- 15% of the national total of NO₂ emissions
- 32% of the national total of PM_{2,5} emissions
- 10% of the national total of Cd emissions
- 56% of the national total of Hg emissions
- 3% of the national total of PCDD/F emissions
- 18% of the national total of HCB emissions
- 98% of the national total of PCB emissions

Background and driving forces:

Please explain briefly why this strategy, policy or measure was implemented; mention the driving forces for its introduction e.g. policy development, legislation (EU, national), action plans, voluntary, incentive, or other [150 words max]

The driving force for the implementation of the measures in the industry sector is the implementation of the Industrial Emissions Directive (IED).

The adoption and implementation of the Industrial Emissions Directive 2010/75/EU (IED Directive) that includes special provisions in order to prevent, reduce and eliminate pollution arising from industrial activities, and sets Emission Limit Values (ELVs) for several Industrial Sectors, for example Combustion Plants and Waste Incineration and Waste co-Incineration Plants, will result in the reduction of the total Emissions of several Air Pollutants from the Industrial Sector in Cyprus.

In addition, the adoption and implementation of European Decisions establishing Best Available Techniques (BAT) Conclusions, that will be the reference for setting the Permit Conditions for IED installations will also result in stricter permit conditions, compared to the previous Integrated Pollution Prevention and Control (IPPC) and Large Combustion Plants (LCP) Directives. Specifically, according to the provisions of the IED Directive, within 4 years of publication of European Decisions on BAT Conclusions, the Competent Authority shall ensure that all the permit conditions are reconsidered and that the Emission Limit Values (ELVs) set in the permits do not exceed the ELVs associated with the BATs.

Please note that in Cyprus we have the following IED facilities:

3 Power Plants,

1 cement co-incineration plant,

9 Manufacturing of ceramic products (brick and tiles),

1 Production of non-ferrous metals,

2 Surface Treatment of Metals,

1 production of Pharmaceutical Products,

5 Disposal or Recovery of hazardous waste,

2 Recovery of non-hazardous waste facilities (treatment of metal waste in shredders)

4 Landfills,

2 Slaughterhouses,

4 Disposal or Recycling of animal carcasses or animal waste,

25 Intensive rearing of Pig farms,

20 Intensive rearing of Poultry Farms,

**1 Pyrolysis Plant,
4 Biogas Installations.**

Description of the strategy, policy or measure:

Please explain briefly how the strategy, policy or measure works and why it has been chosen compared to other policies/measures. Please also explain how its implementation is being monitored. [200 words max]

The following measures were considered in the industrial sector:

- Replacement of electricity transformers with modern highly efficient ones (i.e. achieving an efficiency of at least 95% under each loading percentage)
- Replacement of electric motors with modern highly efficient ones (efficiency class IE3 according to standard IEC 60034-30-1)
- Replacement of electric inverters with modern highly efficient ones (i.e. achieving an efficiency of at least 98% under each loading percentage)
- Installation of LED light bulbs
- Installation of photovoltaics
- Replacement of fuel oil fired burners with modern efficient ones, so that, in combination with the existing installed boilers, they achieve an efficiency of over 90%
- Cogeneration

Out of the possible measures, priority was given to those deemed as realistic by the industry, i.e. those which correspond to their economic capability and which involve technologies that are already available in the Cypriot market.

Cogeneration (CHP – combined heat and power generation) was considered for a number of industrial installations, for end uses (e.g. process hot water) that require thermal energy. It was assumed that up to 30 CHP units can be realistically installed in industrial plants across Cyprus, with a nominal electricity capacity of 100 kW each. To achieve the maximum possible emission savings, it was assumed that the CHP units will be fueled by LPG and replace boilers burning fuel oil. In line with relevant industrial information, a total thermal efficiency of 89.7% was assumed for these units (34.2% for electricity and 55.5% for thermal energy), as opposed to 75% thermal efficiency of currently installed boilers.

It is assumed that the above measures will be implemented gradually during the years 2021 – 2030, meaning the gradual replacement of motors, transformers and application of cogeneration.

Costs, Funding and Revenue allocation:

Please state how much the implementation of the measure costs including its monitoring and how it is funded (national budget, industry, taxes, etc.) If the measure is creating revenue, please also explain how this revenue is being allocated and collected. [200 words max]

Data for overall investment costs are given below:

- Electric transformer: €1,740,000
- Electric motor: €493,500,000
- Electric inverter: €183,600,000
- Lighting: €72,860,000
- Photovoltaics: €2,500,000
- Burner replacement (LFO): €56,500

Effect and impacts on air pollution abatement:

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The implementation of this measure will contribute significantly to the reduction of the national total emissions of air pollutants. More specifically the national total of air pollutants will be reduced as follows:

Intervention	Reduction in NOx emissions (kt/y)	Reduction in SO2 emissions (kt/y)
Electricity transformer	0.021	0.065
Electric motor	0.050	0.152
Electric Inverter	0.391	1.193
Lighting	0.249	0.759
Photovoltaics	0.006	0.019
Burner replacement (LFO)	0.002	0.0021

The annual reduction for the emissions refer to the emission reduction for the full implementation of the above measures. Hence, they show how much the emissions will be reduced in 2030 in relation to the emissions if no measures were applied.

The implementation of IED Directive and European Decisions establishing BAT Conclusions for IED activities, that include both ELVs and abatement techniques for each air pollutant, will result in the reduction of Air Pollution.

To comply with new, lower, Emission Limit Values (ELVs) in certain cases new or updated air pollution abatement equipment is needed.

References/Further information: *Please provide most relevant sources for information such as references for web links, books, other resources.*

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<p>Protocol(s):</p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p> <ul style="list-style-type: none"> • Protocol on HMs • Protocol on POPs • Gothenburg Protocol 	<p>Sector:</p> <p><i>Please indicate the sector (e.g. agriculture, industry, urban planning, environment, etc.), or sectors (if several) for which the strategy, policy or measure has been mainly designed</i></p> <p>Transport Sector</p>
<p>Type of strategy, policy or measure and the level of implementation:</p> <p><i>Please identify the type of strategy, policy or measure – economic e.g. incentive or disincentive (taxes, funds, subsidies, prices or caps/ceilings, payments, rebates, etc); voluntary (agreements, programmes, contracts), regulatory (legislation), or other measures (educational, informational, other)</i></p> <p><i>Please state at which level (municipal, regional, sub-national, national) the policy, strategy or measure is targeted or implemented</i></p> <p>Regulatory, Fiscal, National</p>	<p>Method used for the current analysis:</p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p>The overall process for the collection and use of data is coordinated by the Department of Labour Inspection under the Ministry of Labour, Welfare and Social Insurance and involves collection and use of information and data from the Ministry of Transport, Communications and Works by personal interviews with officers.</p>
<p>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</p> <p><i>Please describe briefly what the measure attempts to achieve or what has been the result of its implementation. Please also describe since when it is being employed or for when its implementation is foreseen. Please explain whether implementation is/was immediate or gradual. [150 words max]</i></p> <p>The measure of the promotion of public transport attempts to achieve a reduction in fuel consumption for transport by 4.4% by 2030 with consequent reductions in pollutants emissions.</p>	

The road transport sector in 2020 accounted for:

- 38% of the national total of NO₂ emissions
- 26% of the national total of PM_{2,5} emissions
- 4% of the national total of Cd emissions
- 64% of the national total of Pb emissions
- 26% of the national total of PCDD/F emissions

Background and driving forces:

Please explain briefly why this strategy, policy or measure was implemented; mention the driving forces for its introduction e.g. policy development, legislation (EU, national), action plans, voluntary, incentive, or other [150 words max]

The driving forces for the implementation of the promotion of public transport is the fulfilment of the objectives of the National legislation:

- Law No. 9(I)/2015 on the access to the profession of road transport (Amendment) Law of 2015.
- Law No. 110(I)/2019 on the regulation of road transport (Amendment) Law of 2019.

The relevant EU legislation is:

- Decision 406/209/EC of the European Parliament and the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.

Description of the strategy, policy or measure:

Please explain briefly how the strategy, policy or measure works and why it has been chosen compared to other policies/measures. Please also explain how its implementation is being monitored. [200 words max]

According to the plans of the Ministry of Transport, Communications and Works, the target is to increase the mode share of public transport from 2% in 2009 to 10% by 2020. Towards this end, the end of 2009 the legal framework concerning public transport was revised, which allowed the introduction and development of new urban, suburban and intercity bus routes and schedules.

Measures towards attainment include:

- Development and implementation of mobility master plans and land use transportation studies for the four large urban areas in the areas under the effective control of the Republic of Cyprus,
- Development of infrastructure for public transport (bus lanes, bus priority lanes, new bus stops, new bus stations),
- Development and implementation of "park and ride" systems,
- Feasibility study for the development of a tram system in Nicosia
- Promotion of electric cars

The Department of Electrical and Mechanical Services has transposed, in collaboration with the Ministry of Energy, Commerce and Industry, the Directive 2014/94/EC for the development of the infrastructure of alternative fuels in the transport sector, to the national legislation and it has enacted a National Political Framework for the development of the renewable fuels' market and the implementation of the relevant infrastructure.

In the framework of the Directive, which sets practical targets, the development of the market and the relevant infrastructure for the usage of the electricity, the Liquefied Natural Gas (LNG), the Compressed Natural Gas (CNG) and Hydrogen in the transport sector are

promoted, to minimize the dependence from the liquid fossil fuels and to restrict the environmental effects in the transport sector.

The National Political Framework (NPF) for the development of the renewable fuels' market in the transport sector was agreed by the Council of Ministers in 25.5.2017 and includes the implementation of the relevant infrastructure such as the charging points of the electric vehicles and the refuelling points of Natural Gas (LNG and CNG) and Hydrogen.

The Electricity Authority of Cyprus (EAC) has installed and managed 20 double points for the charging of electric vehicles in public places nationwide. These charging points correspond to 7 in Nicosia district, 5 in Limassol district, 1 in Platres (Troodos Mountain), 2 in Larnaka district, 2 in Protaras, 2 in Pafos district and 1 in Polis Chrysochous. In each charging point there are two charging plugs and thus two vehicles can be serviced at the same time.

For the promotion of the usage of electric vehicles, the Ministry of Transport, Communications and Works promotes specific complete policy, which includes the enactment of the necessary legislative framework and the definition of the necessary organizational structure and the measures that must be taken for the fulfillment of the targets.

For the achievement of the above, the following will be promoted:

- Grant scheme for the installation of 1000 charging points in places of the government sector, private organisations and local authorities.
- Installation of 10 double points for fast charging of electric vehicles in places of the government sector such as public parking places in hospitals, museums, and postal offices.
- Installation of 10 double points for fast charging of electric vehicles in appropriate places of road network to cover the needs of the electric vehicles travelling in highways.
- Incentive scheme for the purchase of electric vehicles of all categories.
- Incentive scheme for the withdrawal of the polluting vehicles in combination with promotion of alternative ways of transport.
- Gradual replacement of governmental vehicles, so that, whereas it is technologically feasible and allowed, until 2030 the 100% of the governmental vehicles purchased should be electric.
- Creation of the framework for the development of a functional and effective infrastructure for the charging of electric vehicles and the regulation of the relevant market.

The Department Electrical and Mechanical Services in its effort to promote the use of electric vehicles, in collaboration with the Directorate General Growth (Ministry of Finance), guaranteed funds from the European Structural and Investments Funds for the promotion and the development of infrastructure of electric vehicles. The targeted number of public charging points for 2025 is 85 and for 2030 is greater than 100.

Currently, Natural Gas (LNG, CNG) is not used in the transport sector, since there is no NG market in Cyprus due to its geographical isolation, the small size of the market and the lack of connection with other networks of NG.

The legislative framework for the investments for the gas (LPG) usage in the transport sector has been completed and includes:

- The technical specifications for the construction of new service stations or the conversion of the current stations for the distribution of LPG in the transport sector.
- The configuration of the places where the vehicles using LPG will be transformed, maintained, repaired, and checked periodically.
- The training and the licensing of the technicians of LPG systems.

- The definition of the specifications of LPG used in the transport sector.

The taxation for the LPG used in the transport sector has been determined for the coming years after a decision of the Council of Ministers. In 30.3.2016 the Council of Ministers decided to include the LPG as a fuel for the vehicles. The first urban planning licenses have been issued for the LPG stations and a number of technicians for LPG systems in the transport sector have been licensed. The compliance of the LPG stations and the maintenance stations of the vehicles are monitored by the Department of Labour Inspection.

Costs, Funding and Revenue allocation:

Please state how much the implementation of the measure costs including its monitoring and how it is funded (national budget, industry, taxes, etc.) If the measure is creating revenue, please also explain how this revenue is being allocated and collected. [200 words max]

They have been introduced 255 new buses in the network. In total, there are 1000 buses purchased or rented annually.

In addition, 1,755,000 transportations are carried out for all services with total 840 routes which cover in total 31.5 million kilometers annually.

The cost of the service has been reduced during the last years of the application of the measure from approximately €63 million to €45 million in 2017.

The transportations show a constant trend with slight increase and they are expected to increase further.

Effect and impacts on air pollution abatement:

Please explain briefly the effect of the policy, strategy or measure and how it has impacted the abatement of air pollution. If impacts are known, please quantify, if possible. Please highlight also other effects of the implementation of the measure e.g. with regard to compliance, the acceptance of the measure or its transposition (e.g. from a voluntary to a regulatory or another type of measure). [150 words max]

The implementation of this measure will contribute to the reduction of the national total emissions of air pollutants. More specifically the national total of air pollutants will be reduced as follows:

Pollutant	Year 2019	Year 2030
VOCs	2.21 kt	2.03 kt
NOx	5.68 kt	5.20 kt
NH₃	0.16 kt	0.18 kt
PM_{2,5}	0.31 kt	0.29 kt
Pb	0.24 Mg	
PCDD/F	0.127 g	

References/Further information: *Please provide most relevant sources for information such as references for web links, books, other resources.*

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Additional comments: *Please include any additional information you may wish to provide here.*

III. Template to facilitate the submission of examples/good practices of strategies, policies and measures employed to implement obligations under any of the protocols to the Convention on Long-range Transboundary Air Pollution

<p>Country:</p> <p>Cyprus</p>	<p>Pollutant(s):</p> <p><i>Please indicate the pollutant(s), emissions of which are being controlled</i></p> <p>Particulate Matter (PM), Persistent Organic Compounds (POPs).</p>
<p>Protocol(s):</p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p> <ul style="list-style-type: none"> • Protocol on POPs • Gothenburg Protocol 	<p>Sector:</p> <p><i>Please indicate the sector (e.g. agriculture, industry, urban planning, environment, etc.), or sectors (if several) for which the strategy, policy or measure has been mainly designed</i></p> <p>Waste management</p>
<p>Type of strategy, policy or measure and the level of implementation:</p> <p><i>Please identify the type of strategy, policy or measure – economic e.g. incentive or disincentive (taxes, funds, subsidies, prices or caps/ceilings, payments, rebates, etc); voluntary (agreements, programmes, contracts), regulatory (legislation), or other measures (educational, informational, other)</i></p> <p><i>Please state at which level (municipal, regional, sub-national, national) the policy, strategy or measure is targeted or implemented</i></p> <p>Sectoral policies and measures, Legislative.</p>	<p>Method used for the current analysis:</p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p>The overall process for the collection and use of data is coordinated by the Department of Labour Inspection under the Ministry of Labour, Welfare and Social Insurance and involves collection and use of information and data from the Department of Environment of the Ministry of Agriculture, Rural Development and Environment, the Ministry of Interior, the Water Development Department and Municipalities by personal interviews with officers.</p>
<p>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</p> <p><i>Please describe briefly what the measure attempts to achieve or what has been the result of its implementation. Please also describe since when it is being employed or for when its implementation is foreseen. Please explain whether implementation is/was immediate or gradual. [150 words max]</i></p> <p>We considered the implementation of planned emission mitigation measures for waste management in line with national policies, according to which the possible policies comprise:</p> <ul style="list-style-type: none"> • Biogas recovery from controlled waste management sites; • Promotion of anaerobic digestion in wastewater treatment plants, • Reduction of the amount of biodegradable waste being disposed in landfills and 	

- **Separate collection of biodegradable waste**

Waste management sector in 2020 accounted for:

- **3% of the national total of PM2.5 emissions**
- **51% of the national total of PCDD/F emissions**

Background and driving forces:

Please explain briefly why this strategy, policy or measure was implemented; mention the driving forces for its introduction e.g. policy development, legislation (EU, national), action plans, voluntary, incentive, or other [150 words max]

With the Landfill Directive being the main guiding force, in combination to the improvement of the infrastructure of the country, Cyprus has been developing during the recent years the revised strategy for solid waste management. The management of the municipal solid waste is under the competence of the Department of Environment.

The adopted policies and measures are guided by EU Directives into national legislation and set future targets with a goal in reducing emissions. The Waste Framework Directive 2008/98/EC introduces recycling and recovery targets to be achieved by 2020 for 50% of the household waste, and national Law on Waste No. 185(I)/2011 harmonizes the targets.

Biodegradable municipal waste to landfills is also targeted for reduction to 35% by weight of the total municipal waste produced in 1995, following the Landfill Directive 1999/31/EC, and is adopted by the national Regulatory Administrative Act P.I. 562/2003 on Solid and Hazardous Waste for the year 2020.

Additionally, Article 1 of the Landfill Directive encourages the separate collection of biodegradable waste, which is ratified in P.I. 562/2003.

Description of the strategy, policy or measure:

Please explain briefly how the strategy, policy or measure works and why it has been chosen compared to other policies/measures. Please also explain how its implementation is being monitored. [200 words max]

Generally speaking, at the moment, the quantity and quality of biogas that can be recovered from the three Controlled Sanitary Landfill sites in Cyprus is low and as a result, biogas cannot be exploited for electric and heat generation.

Specifically, at the Controlled Sanitary Landfill in Paphos, the quantities and the quality of biogas that is produced from the direct landfilling of the mixed domestic waste is not adequate to be burnt on site by a controlled flaring combustion. It is expected that with the closure of the landfill and its restoration/rehabilitation which will include sealing of the landfill and collection of biogas the quantities and the quality of biogas will be adequate to be burnt on site by a controlled flaring combustion or even to be exploited for electric generation.

In the case of the Residual Sanitary Landfill in Larnaca - Ammochostos at the Kochi, most of the biodegradable material from the mixed domestic waste is separated, stabilized and used as a substitute for the covering soil at the landfill, so the quantities and quality of the collected biogas are not yet adequate to be burnt on site by a controlled flaring combustion. There is a provision for future use of biogas for energy production if the quantity and quality justify this.

As far as the Limassol's Integrated Waste Management Facility (IWMF) at the Pentakomo is concerned, the solid biodegradable fraction from the mixed waste is used for the production of secondary fuel RDF (Refuse-Derived Fuel) and the liquid fraction is anaerobically treated for the production of secondary fuel SRF (Solid-Recovered Fuel). As a result, the quantity and quality of the collected biogas from the Residual Sanitary Landfill is not adequate to be burnt on site by a controlled flaring combustion. It should be noted that the biogas produced during the anaerobic treatment of the organic fraction of waste is used for electric and heat generation, which is used to cover part of the electricity/heat needs of the Limassol's IWMF.

Finally, the Water Development Department at the moment is implementing all necessary studies and documents for the restoration/rehabilitation of the 24 Uncontrolled Waste Disposal Landfills (UWDL) of Nicosia District and the 47 UWDL of Limassol District, which their operation has been permanently terminated, including also the main UWDL of Kotsiatis and Vati in the Nicosia and Limassol Districts, respectively. The restoration/rehabilitation works, only of the main UWDL of Kotsiatis and Vati, will include among others the sealing of the landfills and the installation of a biogas pipe network collection. The collected biogas will be burnt on site by a controlled flaring combustion and there is a provision, in the case that the quantity and quality of the collected biogas are adequate to be exploited for electric generation. As far as the rest of the UWDL of Nicosia and Limassol Districts is concerned, according to the above studies, the quantities and quality of the produced biogas do not justify the installation of a controlled flaring combustion systems or to be exploited for electric generation. It is expected that within 2022 the construction works for their restoration/rehabilitation to begin. It is noted that for the 37 UWDL in Paphos District and the 16 UWDL in Larnaca – Ammochostos District, for which the restoration/rehabilitation works have been completed, their environmental monitoring has been also completed, since among others, biogas is not produced anymore.

Costs, Funding and Revenue allocation:

Please state how much the implementation of the measure costs including its monitoring and how it is funded (national budget, industry, taxes, etc.) If the measure is creating revenue, please also explain how this revenue is being allocated and collected. [200 words max]

For the termination and restoration of uncontrolled landfill sites the following costs can be given:

Restoration of UWDL in Pafos District. The construction works for the rehabilitation were completed and at the moment the sites are under Environmental Monitoring. The cost of the contract was €6,622,000 plus VAT and the project was cofounded from the Cohesion Fund of the programed period 2007 – 2013.

Restoration of UWDL in Larnaka-Ammochostos Districts. The project was split into three contracts and the construction works for the rehabilitation were completed and the sites are at the moment under Environmental Monitoring. The cost of the contracts was for Part I €6,717,000 plus VAT, Part II €4,789,000 plus VAT and Part III €5,982,510 plus VAT. All the contracts were cofounded by the Cohesion Fund of the programmed period 2007 – 2013.

Restoration/Rehabilitation of UWDL in Limassol District. The implementation of the relevant studies began in September 2017 and the construction works of restoration/rehabilitation are expected to be completed in September 2024. The budget for the preparation of the relevant studies, the supervision of the rehabilitation/restoration works and the construction expenses is estimated to reach €38 million including VAT. The project is co-funded by the Republic of Cyprus and the Cohesion Fund from the programming period 2014 – 2020 with a potential co-funding from the programming period 2021-2027.

Restoration/Rehabilitation of UWDL in Nicosia District. The implementation of the relevant studies began in October 2017 and the construction works of restoration/rehabilitation are expected to be completed in March 2024. The budget for the preparation of the relevant studies, the supervision of the rehabilitation/restoration works and the construction expenses is estimated to reach €36 million including VAT. The project is co-funded by the Republic of Cyprus and the Cohesion Fund from the programming period 2014 – 2020 with a potential co-funding from the programming period 2021-2027.

Construction of Integrated Waste Management Facilities (IWMF) and Transfer Stations (TS) for the management of municipal solid waste. The construction works for the IMSW and the TS in Limassol District were completed and are in full operation since 10/11/2017. The cost of the contract was €43 plus VAT and was co-funded by the Republic of Cyprus and the Cohesion Fund from the programming period 2007 – 2013 and 2014 – 2020. This project was the second completed in Cyprus after the IMSW and the TS in Larnaka-Ammochostos District which are in full operation since 01/04/2010. The cost of the contract was €46 plus VAT and was co-funded by the Republic of Cyprus and the Cohesion Fund from the programming period 2004 – 2006.

Effect and impacts on air pollution abatement:

Please explain briefly the effect of the policy, strategy or measure and how it has impacted the abatement of air pollution. If impacts are known, please quantify, if possible. Please highlight also other effects of the implementation of the measure e.g. with regard to compliance, the acceptance of the measure or its transposition (e.g. from a voluntary to a regulatory or another type of measure). [150 words max]

The implementation of this measure will contribute negligible to the reduction of the national total emissions of air pollutants.

References/Further information: *Please provide most relevant sources for information such as references for web links, books, other resources.*

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