

**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><b>Country:</b></p> <p>Cyprus</p>	<p><b>Pollutant(s):</b></p> <p><i>Please indicate the pollutant(s), emissions of which are being controlled</i></p> <p><b>Particulate Matter (PM), NH3</b></p>
<p><b>Protocol(s):</b></p> <p><i>Please indicate the name of the protocol(s) to the Convention, obligations under which are being fulfilled</i></p>	<p><b>Sector:</b></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><b>Agriculture</b></p>
<p><b>Type of strategy, policy or measure and the level of implementation:</b></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><b>Sectoral, legislative.</b></p>	<p><b>Method used for the current analysis:</b></p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p><b>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.</b></p>
<p><b>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</b></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><b>The main objective is the promotion of anaerobic digestion in livestock breeding waste treatment.</b></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 existing animal waste processing plants, b) or through an investment in additional anaerobic digesters.

The agricultural sector in 2016 accounted for:

- 69% of the national total of NH<sub>3</sub> emissions
- 4% of the national total of PM<sub>2.5</sub> emissions

The total annual emissions of NH<sub>3</sub> are reduced by 0.63 Gg during the period 1990 – 2015 corresponding the 12% of the national total of 1990 and reduced by 1.33 Gg during the period 2000 – 2015 corresponding the 23% of the national total of 2000. This reduction was due to the agricultural sources (1.23 Gg in 1990 to 0.34 Gg in 2015 in agricultural sector) mainly due to promotion of anaerobic digestion-treatment of animal waste, the application of measures for the reduction of NH<sub>3</sub> emissions during the application of manure in the soil as well as due to the reduction of the usage of Nitrogen and other fertilisers. 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 95% of NH<sub>3</sub> emissions are produced form 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 m<sup>3</sup> per day. Such an installation would have an investment cost of 1.175 million Euros, or 6 Euros per m<sup>3</sup> of waste, an operation and maintenance cost of 105 Euros per year, or 0.6 Euros per m<sup>3</sup> 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 total annual emissions of NH<sub>3</sub> are reduced by 0.28 Gg during the period 1990 – 2016 corresponding the 5% of the national total of 1990 and reduced by 0.73 Gg during the period 2000 – 2015 corresponding the 12% of the national total of 2000. The total annual emissions of NH<sub>3</sub> from agriculture in 2016 are estimated to 5.3 Gg.

Total waste (cattle, poultry, pigs) that will be produced by 2020 “without measures” is estimated to 1,162,198 (m<sup>3</sup>/y).

Additional amount of waste directed to anaerobic digestion by 2020 “with measures” is estimated to 98,787 (m<sup>3</sup>/y).

It can be estimated that the annual emissions from agriculture for 2020 will be approximately 5.1 Gg with % reduction in NH<sub>3</sub> emissions approximately of 9% if the above mentioned quantity of waste from agriculture will be directed to anaerobic digestion.

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

**Contact:** *Please insert your contact details below.*

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

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<p><b>Protocol(s):</b></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"> <li>• <b>1994 Sulphur Protocol</b></li> <li>• <b>Protocol on HMs</b></li> <li>• <b>Protocol on POPs</b></li> <li>• <b>Gothenburg Protocol</b></li> </ul>	<p><b>Sector:</b></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><b>Energy Sector</b></p>
<p><b>Type of strategy, policy or measure and the level of implementation:</b></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><b>Political, Regulatory, National</b></p>	<p><b>Method used for the current analysis:</b></p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p><b>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, Industry and Tourism.</b></p>
<p><b>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</b></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>	

**Currently the main focus of the policy related to reduction of the above mentioned pollutants is energy sector. Energy sector in 2016 accounted for:**

- **89% of the national total of SO<sub>2</sub> emissions**
- **27% of the national total of NO<sub>2</sub> emissions**
- **19% of the national total of PM<sub>2.5</sub> emissions**
- **50% of the national total of Cd emissions**
- **9% of the national total of Hg emissions**
- **22% of the national total of PCDD/F emissions**

**The main measure is the introduction of Natural Gas (NG) in energy production sector in Cyprus.**

**After the unsuccessful attempts for the introduction of Natural Gas (NG) through the “Interim Solution”, the Council of Ministers, during its meeting in 22.6.2016, decided to approve the introduction of NG in liquid form (LNG) the soonest possible. The import and use of the NG in energy sector is promoted as a separate process with a target of 2020. The supply of LNG will be permanent until the supply of the NG internal market from native deposits, which will be the exclusive mean of supply. When the supply of the Cyprus NG market from native deposits will become possible, this import of NG will be the alternative mean of supply (for diversification purposes) which will guarantee the security of energy supply of the island. The anticipated time plan for the implementation of the project for the import of NG is expected to be by year 2020. According to the national plans, exploration and exploitation of NG from native deposits and the use in energy production is planned for 2023.**

**According this decision in 22.6.2016, the Ministry of Energy, Commerce, Industry and Tourism ordered the National Gas Public Company (DEFA) to proceed to the preparation of the relevant study for the best choice of introduction of LNG and the construction of necessary infrastructure which will be needed in the first phase for electricity production. DEFA proceeded to the preparation of the relevant study which refers to the analysis of the choices for the marine transport of LNG and the storage/treatment/regasification of LNG either in a terrestrial or floating unit, as well as for its terrestrial transportation and distribution. The study includes also the timetable of the analytical design of the necessary infrastructure that will be needed in the first phase so that with the introduction of NG the direct use of NG will be possible for electricity production at first stage. The study concluded that the preferred LNG supply option project is through the use of a floating infrastructure with the development of the necessary mooring facilities and pipeline connection to the natural gas receiving point at Vassilikos.**

**On the basis of the results of the study the Council of Ministers, at its meeting 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 12.12.2017 the Cyprus Government applied a request for funding of the works related to the implementation of the above mentioned infrastructure and in 25.1.2018 the Innovation and Networks Executive Agency (INEA) has informed the Government that a funding of approximately €101,255,320 has been granted (approximately 40% of eligible cost) from the European Commission through the funding programme “Connecting Europe Facility – CEF”.**

Currently, the Ministry of Energy, Commerce, Industry and Tourism (MECIT) is under consultation with INEA for the finalisation and sign of the Grant Agreement as well as with the European Funding Bank for the secure of funding of the project. In parallel, it is noted that DEFA has proceeded with recruitment of consultants regarding the project and it is under the procedure for the finalisation of the final tmetables.

In parallel with the above DEFA was mandated to proceed with the FEED study for the internal pipeline network.

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:

Technology	Installed capacity in MW			Annual energy production in GWh		
	2014	2016	2017	2014	2016	2017
Wind Parks	146.7	157.5	157.5	182.4	226.3	195.8
Photovoltaic systems	45.7	54.8	54.8	61.3	94.4	103.8
Biomass	9	9.7	9.7	37.5	36.6	33
<b>Total energy production from RES (GWh)</b>				<b>281.2</b>	<b>357.3</b>	<b>332.6</b>

#### 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<sub>x</sub>, NMVOCs, SO<sub>2</sub>, NH<sub>3</sub> and PM<sub>2.5</sub>).**

**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 in 2020 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 and transport).**

**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]*



In respect to the supply of natural gas to Cyprus, the Council of Ministers, at its meeting in June 2016, decided to approve the import of Liquefied Natural Gas (LNG) to Cyprus in a manner leading to the commencement of natural gas supply by the year 2020. For the purpose of implementing the Decision, DEFA was mandated to carry out a study which concluded that the preferred LNG supply option project is through the use of a floating infrastructure with the development of the necessary mooring facilities and pipeline connection to the natural gas receiving point at Vassilikos. On the basis of the results of the study the Council of Ministers, at its meeting on May 18th 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. The anticipated time plan for the implementation of the project is expected to be by year 2020. The overall cost of the project is estimated to be approximately 253m euros.

In parallel with the above DEFA was mandated to proceed with the FEED study for the internal pipeline network.

On October 12th, 2017, the Ministry of Energy, Commerce, Industry and Tourism (MECIT) applied to the “Connecting Europe Facility Energy 2017 call for proposals” for financial aid of the above project works (Removing internal bottlenecks to end isolation & allow transmission of NG from Eastern Mediterranean (CyprusGas2EU project).

On January 25th, 2018, the project received approval and was recommended for funding as per the European Commission’s decision, for EU support of approximately €101m.

The companies that hold the exploration licenses in Cyprus Exclusive Economic Zone (EEZ) will finance the upstream and midstream facilities for production and transportation of NG, which will take back through the revenues from selling it.

**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 electricity generation from Renewable Energy Sources can be described as follows:**

Technology	Installed capacity in MW			
	2014	2016	2017	2030
Wind	146.7	157.5	157.5	251
Photovoltaics	45.7	54.8	54.8	559
Biomass	9	9.7	9.7	28

The estimated reduction in emissions after the application of the above RES systems will be as follows:

Pollutants	Year 2016 (kt)	Year 2030 (kt)	% reduction in Year 2030
NOx	4.06	3.69	10
VOCs	0.085	0.08	6.25
SOx	14.597	13.27	10
PM2.5	0.257	0.23	11.74
CO	0.448	0.41	9.27

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

**Contact:** *Please insert your contact details below.*

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<p><b>Protocol(s):</b></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"> <li>• <b>1994 Sulphur Protocol</b></li> <li>• <b>Protocol on HMs</b></li> <li>• <b>Protocol on POPs</b></li> <li>• <b>Gothenburg Protocol</b></li> </ul>	<p><b>Sector:</b></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><b>Industry</b></p>
<p><b>Type of strategy, policy or measure and the level of implementation:</b></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><b>Sectoral policies and measures</b></p>	<p><b>Method used for the current analysis:</b></p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p><b>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, Industry and Tourism 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.</b></p>
<p><b>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</b></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</i></p>	

*implementation is foreseen. Please explain whether implementation is/was immediate or gradual.  
[150 words max]*

**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 2016 accounted for:**

- **8% of the national total of SO<sub>2</sub> emissions**
- **18% of the national total of NO<sub>2</sub> emissions**
- **24% of the national total of PM<sub>2,5</sub> emissions**
- **26% of the national total of Cd emissions**
- **88% of the national total of Hg emissions**
- **3% of the national total of PCDD/F emissions**
- **87% 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,**

**7 Manufacturing of ceramic products (brick and tiles),**

**1 Production of non-ferrous metals,**

**1 Surface Treatment of Metals,**

1 production of Pharmaceutical Products,  
4 Disposal or Recovery of hazardous waste,  
2 Recovery of non-hazardous waste facilities (treatment of metal waste in shredders)  
3 Landfills,  
2 Slaughterhouses,  
4 Disposal or Recycling of animal carcasses or animal waste  
and several Intensive rearing of poultry and pig facilities.

**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 fuelled 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.

**The information stated below regarding the costs are based on current data for the Industry**

**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 as follows:

- 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

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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:**

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

**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.*

**Contact:** *Please insert your contact details below.*

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<p><b>Protocol(s):</b></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"> <li>• <b>Protocol on HMs</b></li> <li>• <b>Protocol on POPs</b></li> <li>• <b>Gothenburg Protocol</b></li> </ul>	<p><b>Sector:</b></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><b>Transport Sector</b></p>
<p><b>Type of strategy, policy or measure and the level of implementation:</b></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><b>Regulatory, Fiscal, National</b></p>	<p><b>Method used for the current analysis:</b></p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p><b>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.</b></p>
<p><b>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</b></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>	



**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.**

**The road transport sector in 2016 accounted for:**

- **41% of the national total of NO<sub>2</sub> emissions**
- **30% of the national total of PM<sub>2,5</sub> emissions**
- **14% of the national total of Cd emissions**
- **99% of the national total of Pb emissions**
- **46% 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. 101(I)/2009 on the access to the profession of road transport**
- **Law No. 96(I)/2009 on the regulation of road transport**

**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 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.**

**Charging points of electric vehicles have been installed by Electricity Authority of Cyprus (EAC) in 18 points in public places nationwide. These charging points correspond to 6 in Nicosia district, 4 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.**

**The Department Electrical and Mechanical Services in its effort to promote the use of electric vehicles, in collaboration with the Directorate General for European Programmes, Coordination and Development, guaranteed funds from the European Structural and Investments Funds for the promotion and the development of infrastructure of electric vehicles. In this framework, they are promoted 10 fast charging points in several points of the national road network. The targeted number of charging points for 2020 is 100 and for 2025 is >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 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:**

<b>Pollutant</b>	<b>Year 2016</b>	<b>Year 2030</b>
<b>VOCs</b>	2.55 kt	1.83 kt
<b>NOx</b>	6.07 kt	3.03 kt
<b>NH<sub>3</sub></b>	0.2 kt	0.14 kt
<b>PM<sub>2,5</sub></b>	0.4 kt	0.18 kt
<b>Pb</b>	26.52 Mg	15.9 Mg
<b>PCDD/F</b>	0.21 g	0.16 g

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**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><b>Country:</b></p> <p>Cyprus</p>	<p><b>Pollutant(s):</b></p> <p><i>Please indicate the pollutant(s), emissions of which are being controlled</i></p> <p><b>Particulate Matter (PM), Persistent Organic Compounds (POPs).</b></p>
<p><b>Protocol(s):</b></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"> <li>• <b>Protocol on POPs</b></li> <li>• <b>Gothenburg Protocol</b></li> </ul>	<p><b>Sector:</b></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><b>Waste management</b></p>
<p><b>Type of strategy, policy or measure and the level of implementation:</b></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><b>Sectoral policies and measures, Legislative.</b></p>	<p><b>Method used for the current analysis:</b></p> <p><i>Please identify the method used for collecting information and the analysis made</i></p> <p><b>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.</b></p>
<p><b>What is the main objective of the strategy, policy or measure? When has it been implemented/or will be implemented?</b></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><b>We considered the implementation of planned emission mitigation measures for waste management in line with national policies, according to which the possible policies comprise:</b></p> <ul style="list-style-type: none"> <li>• <b>Biogas recovery from controlled waste management sites;</b></li> <li>• <b>Promotion of anaerobic digestion in wastewater treatment plants,</b></li> </ul>	

- Reduction of the amount of biodegradable waste being disposed in landfills and
- Separate collection of biodegradable waste

**Waste management sector in 2016 accounted for:**

- 2% of the national total of PM2.5 emissions
- 2% 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]*

**There is a small amount of biogas that can be recovered from the two controlled sanitary landfill sites in Cyprus and as a result, biogas cannot be exploited for power and heat generation. At the Sanitary Landfill in Paphos (Agia Marinouda), the quantities and the quality of biogas that is produced from the direct landfilling of the mixed domestic waste are not adequate to be burnt on site by a controlled flaring combustion. In the case of the Residual Sanitary Landfill in Larnaca - Ammochostos (Kochi), the organic material from the mixed domestic waste is separated, stabilized and used as a substitute for the covering soil, 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.**

**Other Uncontrolled Waste Disposal Landfills (U.W.D.L) that are about to be closed down and rehabilitated, such as the main sites of Kotsiatis in the Nicosia District and Vati in the Limassol District, they don't have any infrastructure to collect the biogas. The Water Development Department at the moment is implementing a study for the rehabilitation of the 20 U.W.D.L of Nicosia District and the 44 U.W.D.L of Limassol District. The rehabilitation works will include among others the sealing of all U.W.D.L and the installation of a biogas pipe network collection at the U.W.D.L which is required. The collected biogas will be burnt on site by a controlled flaring combustion and is not expected to be exploited for power and heat generation, with the exception of the Kotsiatis and Vati sites.**

**With regards to the amount of biodegradable waste disposed in landfills, this will be reduced considerably in the new plant that is currently starting its operation in Pentakomo, in the Limassol district. This plant will indeed lead to the production of biogas and can contribute to emission savings. However, this is a plant that has already been constructed, and no additional similar plant is scheduled to be built in the near future.**

**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 U.W.D.L 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 programmed period 2007 – 2013.**

**Restoration of U.W.D.L 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 of U.W.D.L in Limassol District. The implementation of the relevant studies began in September 2017 and the construction works of rehabilitation are expected to be completed in September 2020. The budget for the preparation of the relevant studies, the supervision of the rehabilitation works and the construction expenses is estimated to reach €27 million including VAT. The project is cofounded from the Cohesion Fund at the programmed period 2014 – 2020.**

**Restoration of U.W.D.L in Nicosia District. The implementation of the relevant studies began in October 2017 and the construction works of rehabilitation are expected to be completed in August 2020. The budget for the preparation of the relevant studies, the supervision of the rehabilitation works and the construction expenses is estimated to reach €27 million including**

**VAT. The project is cofounded from the Cohesion Fund at the programmed period 2014 – 2020.**

**Construction of Integrated Installation for the Management of Municipal Solid Waste (IMSW) and Transfer Stations. The construction works of the IMSW in Limassol District were completed and is in full operation since 10/11/2017. The cost of the contract was €42,686,200 plus VAT and it is cofounded from the Cohesion Fund of the programmed period 2007 – 2013 and 2014 – 2020. This installation is the second constructed in Cyprus after the IMSW in Larnaka-Famagusta district which is in operation since 01/04/2010 and it was cofounded from the Cohesion Fund of the programmed 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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