

Examples/good practices of strategies, policies, and measures employed to implement obligations under the 1988 Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes and the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone to the LRTAP Convention

<p>Country:</p> <p>Poland</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>Residential sector</p>
<p>Type of strategy, policy or measure:</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>Voluntary programme: Air Emission Reduction Programme for household heating installations (<i>Program Obniżenia Niskiej Emisji - PONE</i>)</p>	<p>Level:</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>Municipal level</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 goal of the Air Emission Reduction Programme targeted at individual household heating installations financed totally with national own sources, was to improve air quality in Tychy by taking appropriate measures to reduce emissions at their sources (emitters up to 10 metres high). Tychy, a city with a population of around 130 thousand, is located in the south of Poland in the Uppersilesian Industrial District.</p> <p>Altogether 2200 heating sources were modernised by replacing old, conventional, low-efficiency coal-fired furnaces and boilers with modern, low-emission coal, gas or oil boilers. The expected environmental effect of Programme implementation (a significant reduction of air pollutants) was achieved. Reduction of summarized emissions of CO, NO_x, SO₂ and dust from new boilers by 89% positively affected the quality of air in Tychy.</p> <p>The Programme was implemented in two stages:</p> <ul style="list-style-type: none"> • Stage I in 2002-2004 [1], • Stage II in 2006-2007 [2]. 	
<p>Background and driving forces:</p> <p><i>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]</i></p> <p>In certain regions of Poland air quality is greatly affected by emissions from the residential sector. Among 4500 small stationary emission sources identified in Tychy in 2001 around 4 thousand of</p>	

them were equipped with old heating boilers. Reduction of the emissions from the combustion of various fuels in low-efficiency household furnaces was an important challenge considering social circumstances, technical problems and economic conditions.

Decisions of the Town's Council [1,2] on the development and implementation of the Programme resulted from:

- the Act on Environmental Law [3] setting the principles of environmental protection and conditions for the use of environmental natural resources,
- the IInd National Environmental Policy [4] aimed at, inter alia, the improvement of environmental quality and targeted at greening sector policies,
- Worsening air quality and exceeded air quality standards caused by combustion processes in old household heating installations,
- Complaints of the citizens concerning air pollution.

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 voluntary participation in the Programme was possible under certain conditions. The house declared in the application had to be located in Tychy (construction permit dated before 1996) and equipped with an old coal-fired boiler/furnace. Its owner had the right to make his own decision on the type of the new heating source and was obliged to participate in the costs of the whole investment.

The tasks of the Municipality included:

- the development, enacting and promotion of the Programme,
- application for external financial resources and provision of own sources,
- monitoring of the Programme implementation.

The Programme Operator was obliged to:

- prepare the Programme documentation,
- establish a Consumer Service Centre to provide technical information and advice,
- make formal arrangements connected with the participation in the Programme,
- prepare financial timetables and cost estimates.

Technical work under the Programme included:

- technical and economic analysis of the solution selected by the house owner,
- financing options for the investment and facilitation of the necessary formal arrangements,
- assembly and start-up of new boilers and central heating installations,
- testing of the functioning of the complete installation,
- carrying out training on the servicing of the boilers.

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 foreseen in the Programme the highest value/cost for an individual investment was not to exceed around 2500 EUR, out of which 70% was to be financed by the Municipality and 30% by the citizen-investor himself. If a more expensive option was chosen by the citizen (e.g. modernization of the stack installations or thermal isolation of the house), the surplus costs were to be covered totally by the investor with his own sources. The payback time for an investment connected with money saving due to the reduction of operation costs of a single boiler was 4 years.

The table below presents real calculation of costs of the Programme [5]:

Sources of funding the Programme	Costs [mln EUR]	Share in the Programme funding [%]
Citizens' own contribution	2.1	34
Credit/loan from regional environmental fund (WFOŚiGW)	3.5	57
Donation from regional environmental fund (WFOŚiGW)	0.4	7
Municipality's budget	0.1	2
Total costs	6.1	100

Credits/loans from the Regional Fund for Environmental Protection and Water Management (WFOŚiGW) in Katowice were repaid along with their interest rates from taxes and local fees in the period of 5 years.

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]

2200 old low-efficient coal-fired furnaces were replaced with modern low-emission boilers (meeting the requirements of a special voluntary certificate [6]), as follows:

- retort hearth coal boilers (58% of the total amount),
- piston feeder coal boilers (34%),
- gas boilers (7%),
- oil boilers (1%),

with a heating capacity up to 90 kW.

The environmental effect of Programme implementation between 2002 and 2007 is reflected by the following:

- 1) Annual reduction of emissions:
 - CO by 95%,
 - Dust by 91%,
 - SO₂ by 59%,
 - NO_x by 16%;
- 2) The total average sum of annual emissions of 4 pollutants was reduced by 89% (from 2946 Mg to 339 Mg),
- 3) Improvement of the effectiveness of fuel consumption and promotion of good quality coal (reduction of the average coal consumption by 5-10% and 33% in retort hearth boilers fired with EKORET® - qualified refined coal).

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

1. Resolution No. 0150/849/2002 of the Tychy Town's Council of 25 April 2002 on integrated air emission reduction programme for single-family houses and other household buildings equipped with individual non-ecological and low-efficiency coal boilers
2. Resolution No. 0150/XXXVIII/732/2005 of the Tychy Town's Council of 29 September 2005 on integrated air emission reduction programme for single-family houses for individual coal boilers in the years 2006-2007
3. Act of 27 April 2001 - Environmental Protection Law (Polish Official Journal of Laws 2001, No. 62, item 627, as amended) (in Polish)

4. Second National Environmental Policy, Council of Ministers, Republic of Poland, Ministry of the Environment, 2000
5. Database on Good Practices in Poland
<http://www.dobrepraktyki.pl/index.php?p1=4&p2=17&art=148&s=2>
6. Kubica K., Kryteria efektywności energetyczno-ekologicznej kotłów małej mocy i paliw stałych dla gospodarki komunalnej. Certyfikacja na znak bezpieczeństwa ekologicznego, IChPW, 1999 (*Energy and environmental efficiency of low-capacity boilers and of solid fuels for the municipal sector. Environmental safety certificate*)
7. Kubica K., Kubica R., Zawiejska A., Szyrwińska I. Ocena efektów ekologicznych i społecznych programu obniżenia niskiej emisji zrealizowanego w Tychach w latach 2002-2004 w dzielnicach obrzeżnych miasta, Katowice 2005 (*Assessment of environmental and social effects of the emission reduction programme implemented in Tychy between 2002-2004 in the surrounding areas of the town*)

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Apart from environmental effects mentioned above, the Programme implementation in Tychy also enabled to:

1) improve the quality of life of the citizens:

- to increase the safety and comfort of boiler maintenance,
- to reduce the potential for smog occurrence in the heating season,
- to lessen the negative impact of pollution on human health by reducing air emissions of pollutants and eliminating the possibility of firing waste in boilers;

2) achieve economic benefits:

- to reduce the house heating costs,
- to obtain significant reduction of exploitation costs,
- to enhance the development of local installation companies and increase the rate of employment,

3) improve:

- the technical quality of boiler houses,
- the quality of offered services.

The results of questionnaires [7] confirmed a high level of social acceptance of the Programme and of the companies involved in it (97% and 80%, respectively). Additionally:

- 1) Around 96% of responders expressed satisfaction resulting from the replacement of the old boiler,
- 2) It was noted that the following factors were most important in the decision-making on the replacement of the boiler:
 - environmental aspects (37%),
 - economic aspects (34%),
 - easy maintenance 22%).
- 3) Around 95% of the responders declared their will to promote the replacing of the boilers among their neighbours,
- 4) Almost 91% of the citizens involved in the Programme expressed a positive opinion on the accessibility to appropriate type of fuel.

Following effective implementation of the Programme the President of Tychy decided to share his experience with other local authorities by:

- promoting the outcomes of the Programme at a number of conferences,
- providing access to relevant information and documents, including the on-line database on good practices [5],
- formulating many recommendations likely to help other interested municipalities in the setting up and implementation of emission reduction programmes for up to 10- metre high sources (the so-called “short-stack emissions”).

Similar programmes using the experiences of the above Programme were implemented in many towns in Poland.