



Sofia green policy and energy efficiency of the cities

Sofia Municipality

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- 1.Sredets
- 2.Krasno Selo
- 3.Vazrazhdane
- 4.Oborishte
- 5.Serdika
- 6.Poduyane
- 7.Satina
- 8.Izgreiv
- 9.Lozenets
- 10.Triaditsa
- 11.Krasna Polyana
- 12.Illinden
- 13.Nadezhda
- 14.Iskar
- 15.Mladost
- 16.Studentski
- 17.Vitosha
- 18.Ovcha Kupel
- 19.Lyulin
- 20.Vrabnitsa
- 21.Novi Iskar
- 22.Kremikovtsi
- 23.Pancharevo
- 24.Bankya

1 342 km²
1 of 28 regions in
Bulgaria

4 towns
34 villages
24 administrative districts

Population:
1.3 inhabitants

LEGEND

- The boundaries of Sofia region
- Boundaries of a region
- Administrative Center of a region
- The Municipality in the region



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Main priorities:

- ✓ Reduction of air pollution;
- ✓ Resource management and circular economy;
- ✓ Energy efficiency and GHG reduction;
- ✓ Adaptation to climate change.



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2011

✓Covenant of Mayors

Sustainable Energy Action Plan 2012-2020 adopted by City council in 2013

Commitment to reduce CO₂ emissions with 22% in 2020 compared to the baseline year 2007

2015

✓Compact of Mayors in 2015

Climate change mitigation and adaptation strategy



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Energy efficiency projects:

1. Renovation of private buildings - 2800 buildings in Sofia, savings between 30-50%
2. Renovation of public buildings;
 - Buildings with district heating systems;
 - Buildings with local heating systems – 120 -76 -10;
3. Utilization of biomass and energy from waste;
4. Pilot project „Elimination of air pollution from private local heating systems“ (PLHS);
5. Modernization of district heating system.



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Renovation and energy efficiency of private multifamily residential buildings

1. Project „Renovation of bulgarian homes“ financed by Ministry of regional development and UNDP

- 13 buildings were renovated
- 73 apartments
- Energy savings from 42%-65%
- CO₂ savings 476 t/y

2. Project „Energy renovation of bulgarian homes“ financed by OP „Regional development 2007-2013“

- 102 buildings approved
- Construction works completed in 51 buildings
- 93 apartments and garages
- Energy consumption before renovation: 2214,609 MWh
- Consumption after revovation: 1366,327 MWh
- Expected energy savings: >50%
- CO₂ before: 483,8 t/y
- CO₂ after: 294,87 t/y
- CO₂ savings 61%



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Renovation and energy efficiency of private multifamily residential buildings

3. National programme for energy efficiency of private multifamily residential buildings:

- 100 % grant
- 51 buildings approved
- Technical and energy audits completed
- Designs completed and approved
- Construction permits issued
- Public procurement procedures on going
- Completion of construction works in 2020



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Renovation of public buildings with local heating systems

- Feasability study for the utilization of biomass of municipal forests
- Sustainable biomass capacity 6200t/y
- Biomass might be used to substitute fossil fuel in 41 schools and 35 kindergartens.
- Savings 1 442 867 l naphtha/y;
- CO₂ savings 4 450 t/a.
- I - st phase pilot project for 9 buildings
- II - nd phase 70 buildings
- III – rd phase 41 buildings



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Pilot project for utilization of biomass

Pilot project for changing the fuel base in 5 municipal schools /9 buildings/ financed by programme BG04 Energy Efficiency and Renewable Energy. Total investment 400K euro.

Benefits from the project:

- Energy-efficient systems for heating, using renewable energy sources will be introduced at 9 municipal buildings (schools and kindergartens);
- Positive environmental impact by replacing fossil fuels with renewable energy;
- Improving the quality of life of children, minimizing the risk to human health and environmental risks;
- CO₂ reduction - 371,9 t/y;
- Financial savings - 142 890,09 BGN/y;
- Optimal spending of own resources through the utilization of biomass.





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Pilot project „Elimination of air pollution from private local heating systems“

- Local household heating systems produced 59% of PM₁₀;
- Feasibility study for different kind of incentives for the households to reduce the PM₁₀ pollution;
- Project objectives:
 - ✓ Identifying air pollution sources;
 - ✓ Defining measures for energy efficiency - project design and financial scheme;
 - ✓ Installing filters and boilers to private local heating systems;
 - ✓ Pilot project status – feasibility study



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Other measures – Public buildings with central heating system

- Partial measures to improve the energy efficiency of the buildings have been implemented in more than 95 % of the municipal buildings;
- Overall energy efficiency measures have been implemented in 76 buildings of schools and kindergartens;
- Energy plants using renewable energy sources were built in 3 kindergartens;
- Energy efficiency measures have been implemented in 18 schools with total investment 2 mln. BGN
- Project for reducing the energy consumption in 9 schools was implemented. Savings are 3 193,34 MWh/y. CO₂ emissions savings are 901,37 t/y.



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Project „Integrated System of Municipal Waste Treatment Facilities for Sofia Municipality“

1. MBT plant with RDF production:

- capacity – 410 000 t/y;
- RDF production – 180 000 t/y;
- recyclables – 39 000 t/y.

2. Installation for biological treatment Han Bogrov:

- Installation for biological treatment of separately collected bio-waste – capacity: 20,000 t/y;
- Installation for biological treatment of separately collected green waste – capacity: 24,000 t/y;

Results in 2015:

- Produced electricity – 1557 MW/h (385 682 BGN).
- Produced compost – 5 500 t.

3. Landfill Sadinata with total capacity 2,8 mln. m³.

Total investment – 346 mln BGN

Specific project targets:

- To reduce landfilled biodegradable waste to 75-80 kg/cap/y
- To achieve a level of 57% of recycling / second use
- To achieve at-source-waste recycling rate of 28% of total generated waste
- To reduce about 52% the total landfilled waste in comparison to the 2008 quantity
- Production of 5460 MWh/a electricity, 4560 MB h/a of which will be sold, around 80% of the total consumption of the installation.

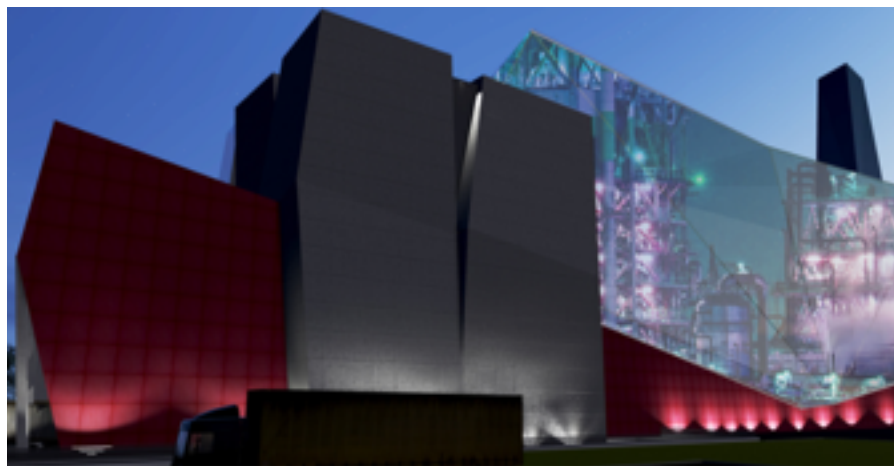




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Project „CHP plant with RDF utilization“ for financing from OP „Environment 2014-2020“-III phase



Specific project targets:

- Energy production:
 - 135 000 MWh electricity 30 000 households;
 - 390 000 MWh heat power 40 000 households;
- 10 % reducing the consumption of natural gas 65 000 000 Nm³
- Energy efficiency 93,4%
- Production of hot water

Project "Energy utilization of the sludge" for financing from OP „Environment 2014-2020“
Investment volume 20 mln BGN
Capacity 135 000 t/y



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THANK YOU FOR YOUR ATTENTION!

Maria Boyadjiyska – Deputy Mayor of Sofia Municipality

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