BEACON Bridging European & Local Climate Action

From Action to Impact: Supporting municipalities, schools and national governments in the transition to climate neutrality

On behalf of:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

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Climate Initiative
EUKI

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The Bridging European and Local Climate Action (BEACON) project is financed by the European Climate Initiative (EUKI). EUKI is a project financing instrument by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). It is the overarching goal of the EUKI to foster climate cooperation within the European Union in order to mitigate greenhouse gas emissions. It does so through strengthening cross-border dialogue and cooperation as well as exchange of knowledge and experience.

The information and views set out in this publication are those of the authors and do not necessarily reflect the official opinion of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety.

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INTRODUCTION

From 2018 to 2021, the BEACON project worked with 60 schools and kindergartens, 34 municipalities and seven countries across Europe to promote climate action and create common ambition to realise the Paris Agreement. Led by Guidehouse and with the support of the project's 11 partners, the team provided in-country and cross-border joint learning and networking opportunities as well as needs-based advisory services. As a result, policymakers, municipal actors, educators, and pupils gained technical and process-related skills that helped them develop, refine and implement measures to reduce greenhouse gas emissions.

Accompanying the BEACON project's report From Ideas to Action: *Supporting municipalities, schools and national governments in the transition to climate neutrality*, which provides an overview of the successes and learnings of the project, this interactive brochure zooms in on the specific stories of how schools and municipalities across Europe have created impact in the BEACON project.

As outlined in the report From Ideas to Action, the following overarching success factors played a key role in the BEACON project:

- Cross-border dialogue facilitated mutual learning, collaboration, and a sense of common identity.
- Sustained project support over 3+ years helped build robust networks, accompany the implementation of concrete projects and build capacities.
- The spirit of tailored support, flexibility, and innovation helped maximise BEACON's effectiveness.
- Targeting vertical collaboration helped close gaps in communication and collaboration amongst national, regional, and local decision makers.
- Leveraging knowledge of local partners organisation allowed for effective engagement with local stakeholders and tailored support.

BEACON also identified the following action areas for the future:

- To reach climate neutrality, national actors need to scale up climate activities and projects such as those initiated in BEACON by establishing support structures.
- Municipalities need capacities to set ambitious climate targets, develop effective strategies, and monitor their implementation in line with national targets and strategies.
- Platforms for continuous collaboration between relevant national ministries and regional/local governance levels need to be provided.
- Local actors need to make smart use of EU cohesion policy funds, green recovery funding as well as other EU funding opportunities and financing instruments.
- Professionals in municipalities and schools need to be equipped with the knowledge and skills to address climate change and climate change mitigation.

Written from the perspective of the municipalities and schools, you will find examples of empowerment, connection, innovation, and inspiration in the profiles throughout this brochure. You will also find good practices in local climate action made possible by BEACON's activities and support. From cross-border study tour exchanges with educators, technical energy tours through school buildings, or interactive climate action days with pupils to regional workshops and individual coachings with municipalities, the wide range of BEACON activities is reflected in the profiles. Where possible, quotes, photos, and videos are used to bring their stories to life.

The project also consisted of activities such as national and vertical workshops aiming to improve vertical collaboration on climate action. The summaries and results of these events and more can be found in the report *From Ideas to Action* and in Community Posts of the European Climate Initiative (EUKI).

About this brochure

The heart of this brochure consists of 83 profiles of the BEACON municipalities and schools. Depending on the type of profile (municipal climate partnership, municipality, or school), each profile contains the following sections, which is indicated by the respective icon:

- Climate and energy targets
- General impacts of/benefits from the BEACON project
- Climate action impact story
- Key learnings
- Next steps

In addition, the climate action impact stories are allocated to particular sectors, like transport or energy, or topics, such as governance and communication. An overview of the profiles related to each sector can be found on page 6 for municipalities and page 7 for schools. An overview in the form of a map can also be found on page 5. Numerous links have been built into the brochure, allowing you to jump, for example, from the overview pages to specific profiles, to explore the information.

The later portion of the brochure is dedicated to showcasing the numerous publications that were developed throughout the project. Here you can find a short summary of each publication, a peek inside it, and links to where the publications can be found on the EUKI website.

We hope you enjoy exploring the ways in which local BEACONs of climate action have shaped the transition towards a climate neutral future.

PARTNERS

Collaborating across Europe
The BEACON consortium consists of 11 organisations from across Europe. The activities are led by Guidehouse, adelphi and UfU supported by local partners in each of the BEACON target countries.

POLSKA SIEĆ Energie Cités

The Association of Municipalities Polish Network „Energie Cités" (PNEC)

Guidehouse

Guidehouse Germany GmbH

adelphi

adelphi

UfU Unabhängiges Institut für Umweltfragen

Institute for Environmental Issues (UfU)

SEVEn

SEVEn, The Energy Efficiency Center

FCiências.ID ASSOCIAÇÃO PARA A INVESTIGAÇÃO E DESENVOLVIMENTO DE CIÊNCIAS

Institute of Social Sciences – University of Lisbon (FCiências.ID)

Network partner:

ENERGYCITIES

Energy Cities

SNRB

SNRB Association

oer Orașe Energie România

Energy Cities Romania (OER)

НАЦИОНАЛЕН ДОВЕРИТЕЛЕН ЕКОФОНД NATIONAL TRUST ECO FUND

National Trust Ecofund Bulgaria (NTEF)

КАПЕ CRES | CENTRE FOR RENEWABLE ENERGY SOURCES AND SAVING

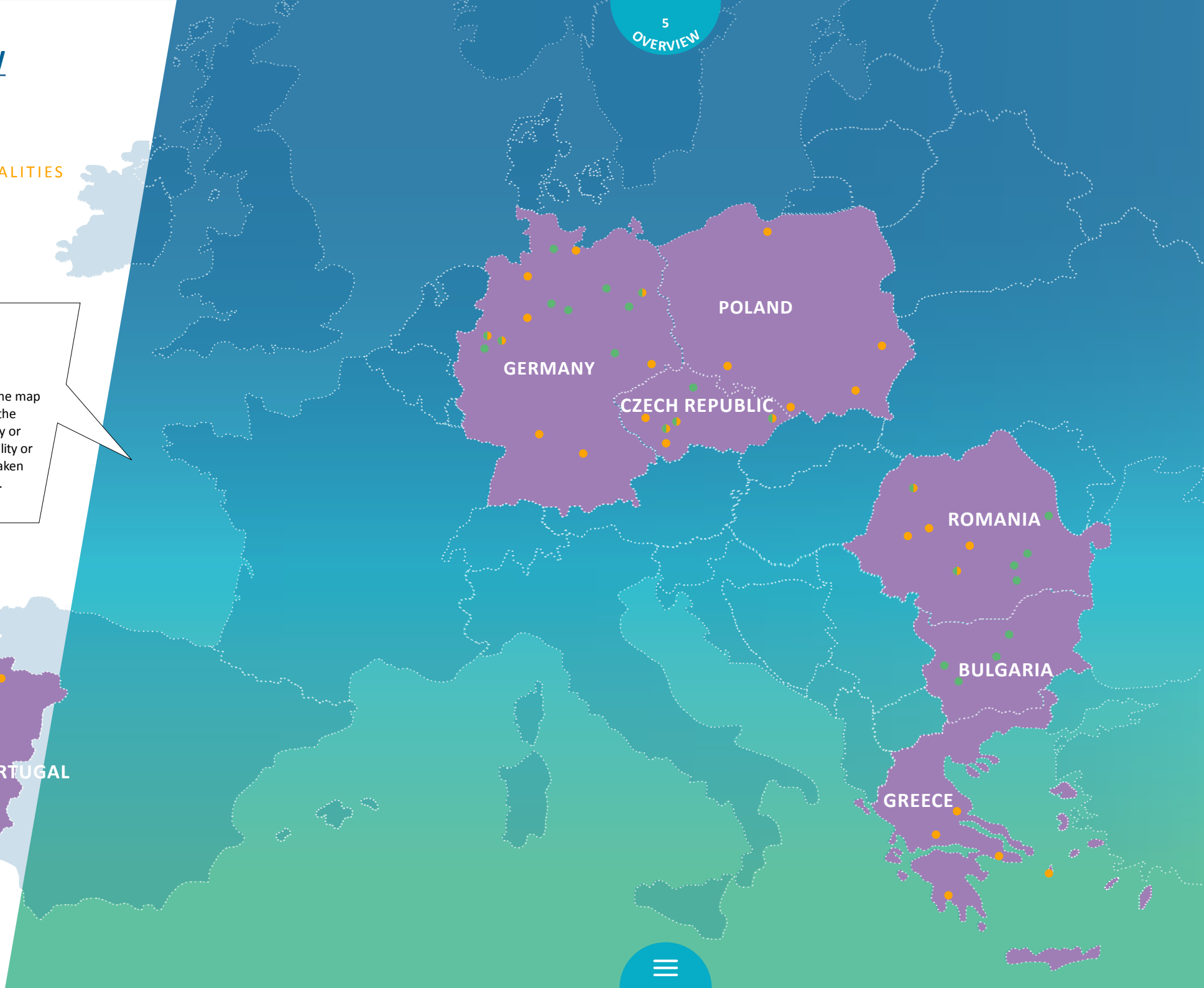
Centre for Renewable Energy Sources and Saving (CRES)

OVERVIEW

34
MUNICIPALITIES

57
SCHOOLS

Find out!
Hover over any dot on the map with your cursor to see the name of the municipality or school. Click on municipality or school and you will be taken to the respective profile.



MUNICIPALITIES

Mobility and transport

PARTNERSHIP
Bottrop – Agios Dimitrios
Pirna – Písek
Zamość – Schwäbish-Hall
Arnsberg – Alba Iulia
Bielefeld – Braga

GERMANY
Bielefeld
Arnsberg
Pirna

GREECE
Kalamata
Syros-Ermoupolis
Farsala

PORTUGAL
Ansião
Setúbal

POLAND
Cieszyn
Zamość

ROMANIA
Făgăraș
Deva
Alba Iulia

CZECH REPUBLIC
Písek

Financing

PARTNERSHIP
Pirna –Písek
Arnsberg – Alba Iulia

GERMANY
Arnsberg

GREECE
Agios Dimitrios
Dorida
Kalamata
Syros-Ermoupolis
Farsala

PORTUGAL
Ansião
Coruche

POLAND
Bielawa

ROMANIA
Alba Iulia
Deva

Energy production and distribution

PARTNERSHIP
Dorida – Coruche
Zamość – Schwäbish-Hall
Ritterhude – Sztum

GERMANY
Pirna
Greifswald

GREECE
Agios Dimitrios
Kalamata
Syros-Ermoupolis

PORTUGAL
Loulé

POLAND
Jasło
Sztum

ROMANIA
Alba Iulia
Deva

CZECH REPUBLIC
Písek

Energy efficiency

PARTNERSHIP
Bottrop – Agios Dimitrios
Dorida – Coruche
Pirna – Písek
Zamość – Schwäbish-Hall
Ritterhude – Sztum

GERMANY
Pirna
Ritterhude

GREECE
Agios Dimitrios
Dorida
Kalamata
Syros-Ermoupolis
Farsala

PORTUGAL
Ansião
Loulé
Setúbal
Viana do Castelo

POLAND
Bielawa
Cieszyn
Jasło
Sztum
Zamość

ROMANIA
Făgăraș
Deva
Râmnicu Vâlcea
Zalau
Alba Iulia

CZECH REPUBLIC
Milevsko
Písek
Přeštice
Rožnov pod Radhoštěm

Waste management

PARTNERSHIP
Zamość – Schwäbish-Hall

GREECE
Kalamata
Syros-Ermoupolis

PORTUGAL
Setúbal
Viana do Castelo

POLAND
Bielawa

CZECH REPUBLIC
Prachatice
Přeštice

Urban planning

PARTNERSHIP
Bottrop – Agios Dimitrios
Pirna – Písek
Arnsberg – Alba Iulia
Bielefeld – Braga
Ritterhude – Sztum

GERMANY
Bottrop
Eberswalde
Greifswald

GREECE
Kalamata

PORTUGAL
Ansião
Coruche
Setúbal

POLAND
Jasło

ROMANIA
Făgăraș
Deva

Local industry

GREECE
Kalamata

PORTUGAL
Coruche
Setúbal

Governance

PARTNERSHIP
Zamość– Schwäbish-Hall
Arnsberg – Alba Iulia
Ritterhude – Sztum

GERMANY
Pirna
Ritterhude
Greifswald

GREECE
Dorida
Kalamata
Syros-Ermoupolis

PORTUGAL
Ansião
Coruche
Loulé
Setúbal

POLAND
Cieszyn

ROMANIA
Deva
Zalau
Alba Iulia

CZECH REPUBLIC
Písek
Prachatice
Rožnov pod Radhoštěm

Communication and awareness

PARTNERSHIP
Bottrop – Agios Dimitrios
Pirna – Písek
Zamość – Schwäbish-Hall
Arnsberg – Alba Iulia
Bielefeld – Braga
Ritterhude – Sztum

GERMANY
Bottrop
Donauwörth
Arnsberg
Eberswalde
Pirna
Ritterhude
Schwäbisch Hall

GREECE
Kalamata
Syros-Ermoupolis
Farsala

PORTUGAL
Coruche
Loulé
Setúbal

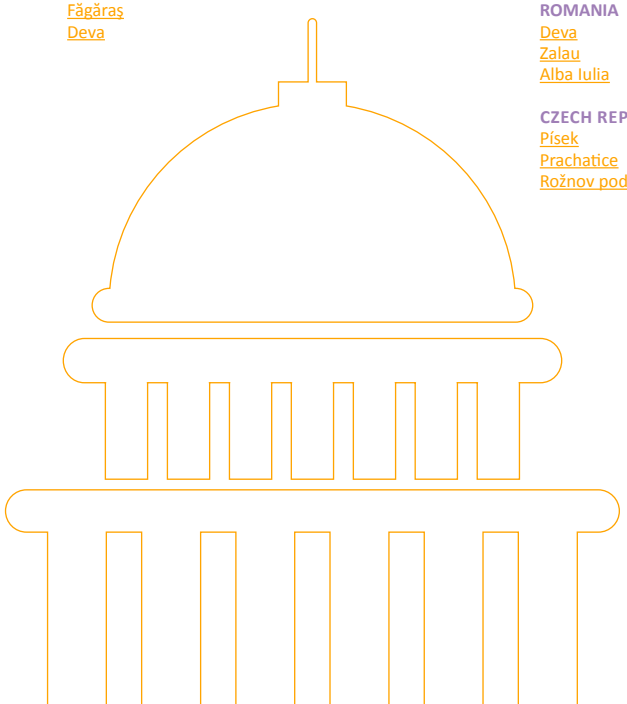
POLAND
Jasło
Zamość

ROMANIA
Făgăraș
Deva
Râmnicu Vâlcea

CZECH REPUBLIC
Milevsko
Písek
Přeštice

Syros-Ermoupolis

Find out!
Click on any of the yellow names of the the municipal climate partnerships or municipalities to be taken directly to their profile.



SCHOOLS

Resource efficiency

ROMANIA
Scoala Gimnaziala Mihai Eminescu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Goethe Kolleg
Scoala Gimnaziala Nr.20
Scoala Gimnaziala Liviu Rebreanu
Scoala Gimnaziala Cezar Bolliac
Scola Gimnaziala Nr 7
Colegiul Tehnic Energetic Dragomir Hurmuzescu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
ZŠ T.G. Masaryka
ZŠ Komenského
Gymnázium Milevsko
ZŠ a MŠ Josefa Kajetána Tyla
ZŠ Národka
ZŠ 5. Května
ZŠ Pod Skalkou

BULGARIA
Primary School Nikola Y. Vaptsarov
High School Hristo Botev
Primary School General Skobelev
Sports School Nikola Velchev
Primary school Hristo Maximov
56 Secondary School Konstantin Irechek
79 Secondary School Indira Gandhi
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii
Primary school PR Slaveykov
97 School Brothers Miladinovi

Exchange with other schools

ROMANIA
Gimnaziala Mihai Eminescu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Goethe Kolleg
Scola Gimnaziala Nr 7
Colegiul Tehnic Energetic Dragomir Hurmuzescu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
Gymnázium Milevsko
ZŠ a MŠ Josefa Kajetána Tyla
ZŠ Národka
ZŠ 5. Května
ZŠ Pod Skalkou

BULGARIA
Pavel Banya, Primary School Nikola Y. Vaptsarov
Sports School Nikola Velchev
Primary school Hristo Maximov
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii
97 School Brothers Miladinovi
Vasil Drumev High School of Mathematics and Informatics

Exchange with national and local authorities

ROMANIA
Scoala Gimnaziala Mihai Eminescu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Colegiul Tehnic Energetic Dragomir Hurmuzescu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
ZŠ T.G. Masaryka
ZŠ a MŠ Josefa Kajetána Tyla

BULGARIA
Sports School Nikola Velchev
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii

Capacity building and training

ROMANIA
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Goethe Kolleg
Scoala Gimnaziala Nr.20
Scoala Gimnaziala Liviu Rebreanu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
Gymnázium Milevsko
ZŠ a MŠ Josefa Kajetána Tyla
ZŠ Národka
ZŠ Zlatá stezka
ZŠ 5. Května
ZŠ Pod Skalkou

BULGARIA
Sports School Nikola Velchev
79 Secondary School Indira Gandhi
40 Secondary School Louis Pasteur
97 School Brothers Miladinovi

Climate curriculum development

ROMANIA
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Scola Gimnaziala Nr 7
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu

CZECH REPUBLIC
ZŠ Komenského
ZŠ Zlatá stezka

BULGARIA
Sports School Nikola Velchev
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii
Primary School Neofit Rilski

Engagement with pupils

ROMANIA
Scoala Gimnaziala Mihai Eminescu
Scoala Gimnaziala Ion Agarbiceanu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Goethe Kolleg
Scoala Gimnaziala Nr.20
Scoala Gimnaziala Liviu Rebreanu
Scoala Gimnaziala Cezar Bolliac
Scola Gimnaziala Nr 7
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
ZŠ T.G. Masaryka
ZŠ Komenského
Gymnázium Milevsko
ZŠ a MŠ Josefa Kajetána Tyla
ZŠ Národka
ZŠ Zlatá stezka
ZŠ 5. Května
ZŠ Pod Skalkou

BULGARIA
Primary School Nikola Y. Vaptsarov
Primary School General Skobelev
Sports School Nikola Velchev
Primary school Hristo Maximov
56 Secondary School Konstantin Irechek
79 Secondary School Indira Gandhi
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii
Primary school PR Slaveykov
97 School Brothers Miladinovi
DSBU
Primary School Neofit Rilski
Vocational High School of Restaurant and Hospitality
Secondary school Otets Paisiy
90 Secondary School Gen. Jose de San Martin
Vasil Drumev High School of Mathematics and Informatics
23 Kindergarden Zdrave
29 Kindergarden Slantse

Awareness raising

ROMANIA
Scoala Gimnaziala Mihai Eminescu
Scoala Gimnaziala Ion Agarbiceanu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Goethe Kolleg
Scoala Gimnaziala Nr.20
Scoala Gimnaziala Liviu Rebreanu
Scoala Gimnaziala Cezar Bolliac
Scola Gimnaziala Nr 7
Colegiul Tehnic Energetic Dragomir Hurmuzescu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Colegiul National Mircea Cel Batran
Scoala Gimnaziala Simion Barnutiu

CZECH REPUBLIC
ZŠ Komenského
Gymnázium Milevsko
ZŠ a MŠ Josefa Kajetána Tyla
ZŠ Národka
ZŠ Zlatá stezka
ZŠ 5. Května
ZŠ Pod Skalkou

BULGARIA
Primary School Nikola Y. Vaptsarov
Sports School Nikola Velchev
Primary school Hristo Maximov
56 Secondary School Konstantin Irechek
40 Secondary School Louis Pasteur
Elementary School St. Patriarch Evtimii
Primary school PR Slaveykov
97 School Brothers Miladinovi
DSBU
Primary School Neofit Rilski
90 Secondary School Gen. Jose de San Martin
Vasil Drumev High School of Mathematics and Informatics
29 Kindergarden Slantse

Incentive system for energy savings

ROMANIA
Scoala Gimnaziala Ion Agarbiceanu
Scoala Gimnaziala Nr.56
Colegul National Kretelescu
Liceul Tehnologic Transilvania
Colegiul Tehnic Lazar Edeleanu
Scoala Gimnaziala Anton Pann

CZECH REPUBLIC
ZŠ T.G. Masaryka

BULGARIA
Primary school Hristo Maximov
79 Secondary School Indira Gandhi
Elementary School St. Patriarch Evtimii
Primary school PR Slaveykov
97 School Brothers Miladinovi
DSBU
Primary School Neofit Rilski
23 Kindergarden Zdrave

Goethe Kolleg

Find out!
Click on any of the green names of the schools to be taken directly to their profile.

MUNICIPALITIES

As outlined in detail in the report *From Ideas to Action*, the following success factors apply to BEACON's approach in municipalities:

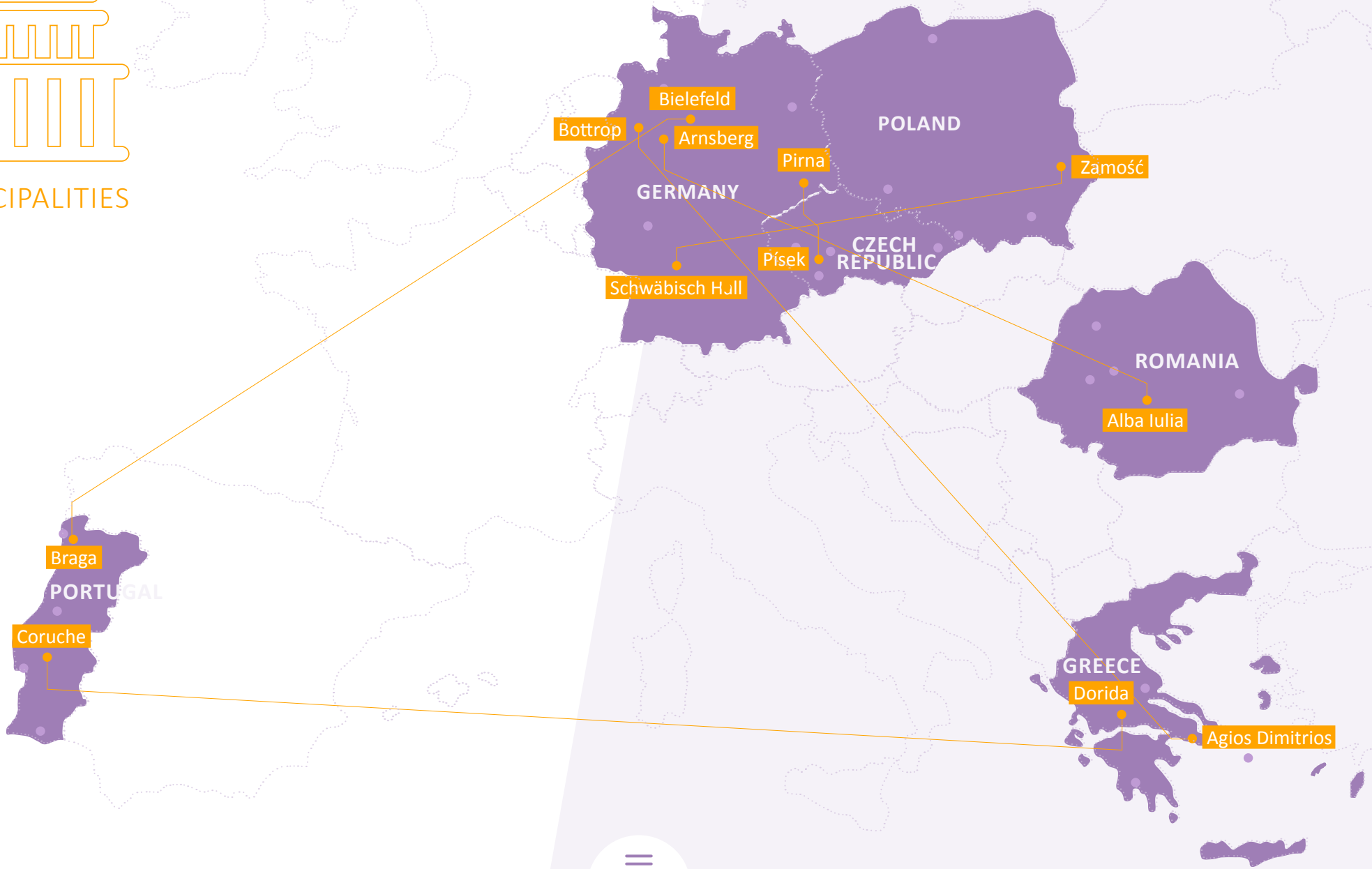
- Political leadership backing can advance local climate action
- With clear responsibilities in local administrations climate action can progress faster
- External experts can fill capacity or knowledge gaps and accelerate the pace of implementation
- External facilitators can provide collaborative dialogues leading to better results
- An overarching narrative can lead to mainstreaming climate action and linking various strategies

Mobility and transport
Financing
Energy production and distribution
Energy efficiency
Waste management
Urban planning
Local industry
Governance
Communication and awareness

MUNICIPAL CLIMATE PARTNERSHIPS

9 PARTNERSHIPS

MUNICIPALITIES



BOTTROP AND AGIOS DIMITRIOS

GERMANY AND GREECE

- The distribution of space in densely populated cities influences citizens' mobility choices.
- Sustainable urban mobility plans (SUMPs) provide an excellent framework for taking stock and setting agendas for sustainable mobility scenarios.

Bottrop and Agios Dimitrios are facing similar challenges in many areas. In terms of mobility, both cities are densely populated and aim to decrease car traffic in their centres, curb emissions, and dedicate more space to pedestrians and cyclists.

Bottrop has gained extensive experience in setting up and implementing a SUMP. Agios Dimitrios has plans to redesign its main traffic axis. It also would like to set up a SUMP and take a more structured approach, so Bottrop's SUMP was translated into Greek to provide inspiration.

During a field trip to a bike lane and bike café in Bottrop, it became clear that better infrastructure for cyclists also leads to improved liveability. To build new and improved infrastructure, it is crucial to have citizens' support.

To raise awareness and support in the local community, Agios Dimitrios participated in the European Mobility Week with an extensive programme for children and adults.

The municipalities have established a good working relationship and share many areas of interest, so the exchange will continue on a working level in the future.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"Coruche and Dorida have found through the BEACON project, a common field to act and develop an efficient energy action plan. The challenges are here and we will face them together as a team." *Theo Argyropoulos, Municipality of Dorida*

"The outcome of the exchange with Dorida is very beneficial to us. It must continue, because together we can take our projects to the next level."
Rosa Lopes, Municipality of Coruche

DORIDA AND CORUCHE

GREECE AND PORTUGAL

- Both municipalities struggle with extreme weather events (i.e. droughts) due to climate change; these events cause higher energy demand in buildings for cooling.
- Both municipalities have ambitious energy management targets.

Coruche and Dorida focused their meetings on the connection between climate protection and adaptation to climate change. For example, increasing the energy efficiency of municipal buildings plays an important role for both municipalities during the summer months. With the help of experts from Portugal and Greece, representatives from both cities exchanged ideas on how green roofs can increase the efficiency of PV systems on roofs through the cooling effects of evaporation. This could prove to be a model to increase the efficiency of PV systems and effectively reduce costs and emissions in both municipalities.

The municipalities will remain in contact with the Universities of Patras and Lisbon to work on project ideas and explore joint participation in a pilot project on green roofs and PV installations.

PIRNA AND PÍSEK

GERMANY AND CZECH REPUBLIC

- Both municipalities have benefitted considerably from a training on citizen participation in urban sustainability projects.
- Both municipalities have established smart city concepts they will implement in the coming years.

Pirna and Písek have implemented ambitious measures to curb their emissions. During their partnership, it became clear they are both striving for low emission mobility in their cities. However, with an ever-increasing number of cars in both cities, they are faced with the question how can we initiate change? The simple answer is: by educating future generations.

With the help of adelphi, both municipalities gathered successful practices for safe and sustainable mobility choices for school children, leading to a guidebook for schools, teachers, parents and pupils that is available in both languages and has elicited interest among many other BEACON cities.

With many overlapping areas of interest, Písek and Pirna's successful cooperation on sustainable ways to get to school is just the beginning.

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© adelphi

As a symbol of their ongoing cooperation beyond BEACON, both municipalities planted a tree next to one of their local schools. Pirna also invited Písek to participate in their regular exchange meetings with other climate managers from Germany.

"The partnership has been very useful to us. Ideas from Písek have in part been directly incorporated into our own project development."

Klaus-Peter Hanke, Lord Mayor of Pirna

ARNSBERG AND ALBA IULIA

GERMANY AND ROMANIA

- The potential for replicability of sustainable mobility solutions is high. Particularly promoting cycling and walking and related PR campaigns). As part of this, both municipalities take part in the European Mobility Week.
- Beyond the many constraints created by the COVID-19 pandemic, remote working has created an opportunity to engage an additional municipal staff in the virtual partnership meetings, essentially widening consideration for climate action in the respective administrations.

Alba Iulia and Arnsberg have focused their five climate partnership exchanges on planning and governance questions, discussing in particular how their smart city strategies and plans could support key climate action in their municipalities with a special focus on sustainable mobility.

Arnsberg has a Mobility Masterplan and invested substantially in creating pedestrian streets, bike express ways, one-way streets and more in recent years. They also created a map of e-mobility charging stations in Arnsberg and a bike/car sharing system. Their objective is to reduce transport related CO_2 emissions by at least 5% by 2030 (or by 14% in the climate-friendly scenario). Alba Iulia on the other hand, will soon transform about 300 streets in the city centre into pedestrian streets and bike lanes. This is estimated to reduce emissions by 4%. Currently most bike lanes in Alba Iulia are located in the mountains and are still accessible to cars. To achieve a modal shift, a connected network is required. Inner-city car pollution is still a big issue and another reason why these activities are being undertaken. Further planned investments include electric buses.

Regarding their smart city strategy and planning, the two cities have opted to follow a different approach. While Arnsberg's approach is characterised by careful preparation and planning, Alba Iulia followed a 'trial and error' strategy for selecting and implementing their key smart city projects and suppliers. In the framework of the BEACON project, the two municipalities shared their knowledge and experiences on these approaches, but also information about the technological solutions and local suppliers. Examples of this exchange included a visit to Arnsberg's market leading lighting company, while Alba Iulia presented their locally developed air quality monitoring tool.

Beyond these, several related themes were shared and discussed in partnership meetings such as how to engage youth and elderly citizens in climate action, how to integrate climate issues in the cities' image development, local energy and mobility management, and air quality monitoring.

The final pilot action of the twinning will involve Alba Iulia in the City Cycling campaign organised at EU level by a German NGO. The outcome for Alba Iulia will be the City Cycling app translated into Romanian and the free participation of Romanian bikers to a cycling contest.

The partners are planning a Climate ERASMUS for students and further exchanges for civil servants on climate action. Energy Cities proposed two campaigns: the Display Campaign and the ENGAGE campaign free of charge for the municipalities. They both also opted to engage in the European City Cycling campaign and a related cycling competition between the two cities in summer 2021 as well as the European Mobility Week in fall 2021.

"The BEACON project and the partnership with the city of Arnsberg within BEACON's twinning initiative has contributed significantly to the development of new perspectives for Alba Iulia in terms of energy efficiency and climate action projects that are essential for any European city today. The BEACON project was the space that once again brought to life the 47-year-old partnership between Alba Iulia and Arnsberg, not in a cultural sense, but more in terms of practical things that concern us all: climate action and energy efficiency. On top of all this, the content knowledge, the exchange of best practices between us at the decision making and working levels, the smart city initiatives and projects, and the physical and online meetings between the two municipalities have effectively contributed to strengthening European cohesion, gaining valuable new insights, and developing bold plans for the future for both municipalities."

Marius Filimon, Deputy Mayor of Alba Iulia

ZAMOŚĆ AND SCHWÄBISCH-HALL

POLAND AND GERMANY

"It is very important that people in Europe stand together and use the links established through town twinning to work together on issues and problems. Environmental and climate protection plays an important role in this and is an exciting topic in which young people in particular must become active. I am sure and hope that the BEACON project is a very good start in the cooperation with our Polish twin city Zamość and that it will develop into a sustainable cooperation."
Dr Karin Eißele-Kraft, Twin cities – International Relations Schwäbisch Hall

Since the beginning, cooperation between schools has been a topic at all partnership meetings between Zamość and Schwäbisch-Hall. At the first meeting in Zamość, the partners visited two schools undergoing deep refurbishment and discussed possible cooperation projects. At another meeting, the delegation from Schwäbisch-Hall, including two teachers from the Johannes-Brenz-Gemeinschaftsschule, planted a "friendship tree" in the yard of School No. 6 in Zamość. Plans were made to organise workshops in schools focusing on bicycle mobility as well as a Biking May in both cities in May 2020. During this event, which was a great success in Zamość in May 2019, students cycled to school and accumulated kilometres and points over the course of three weeks. This event could not be held in 2020 or 2021 due to the COVID-19 pandemic, but both schools and municipalities plan to host it in the future.

"Educational projects have a special significance. Thanks to projects like BEACON, in which Zamość participates, we are able to learn from the experiences of others and implement only the best practices. We have great young people, wonderful residents – that's why educational projects are extremely effective."
Katarzyna Fornal-Urbańczyk, BEACON-Coordinator Zamość

"It is very important, according to the residents, that they were involved in different activities and thus felt that they had a real impact on climate change policy and that they could contribute to a better environment. The BEACON project equips participants and local governments with knowledge and tools that they can use to develop new solutions and thus better adapt the city to the climate changes we have all been experiencing for some time." *Andrzej Wnuk, Mayor of Zamość*

- Teachers and students are keen to create common projects and learn from each other. The energy efficiency lessons conducted led to decreased energy consumption and related costs in the schools.
- The partnership meetings triggered the start of the Erasmus + programme in School No. 6 (Zamość) to enable further cooperation with the Johannes-Brenz-Gemeinschaftsschule (Schwäbisch-Hall).
- The Johannes-Brenz-Gemeinschaftsschule created an environment working group in which students of different grades developed their own projects on environmental protection and exchanged ideas with Zamość. The group paused their activities due to the pandemic but intend to start again after the summer 2021 vacation.

Both cities plan to relaunch the school partnership project in the next school year around the Green Classroom topic and conduct Biking May in 2022.
They also plan to continue exchanging and transfer know-how (e.g. on the renewal of the sewage plant in Zamość). Additionally, they will try to mobilise new funding resources for common projects and run similar awareness-raising campaigns.

"When it comes to climate and environmental protection, we must not only look at ourselves, but we must widen our view beyond our borders. We live in different societies, but in the same world with the same challenges. That's why we need to get to know each other, learn from each other and work together. The BEACON project is the starting point for a good cooperation of young people between both twin cities." *Heiner Schwarz-Leuser, BEACON-Coordinator Schwäbisch Hall*

BIELEFELD AND BRAGA

GERMANY AND PORTUGAL

- Bielefeld gained insights into the planning process and selected measures for its own work that were applied in Braga's four superblocks. Braga deepened its understanding of Bielefeld's approach to urban vehicle access regulation (UVAR) measures. A cross-cutting issue they discussed is how to obtain backing from the political level and from residents.
- Both cities benefitted from the involvement of a mobility expert, who gave feedback on the cities' plans during the online meetings and developed practical guidelines on participatory methods, which will be available in English, German, and Portuguese.

Braga and Bielefeld are advanced cities when it comes to sustainable mobility planning: Bielefeld is conducting a thorough redesign of its transportation hub, Jahnplatz, and Braga has developed superblocks in four neighbourhoods to reduce motorised traffic. They used the BEACON partnership to get inspiration and advice on how to take their projects further. Bielefeld wanted to learn about the development steps of the superblocks, and Braga was interested in taking its participatory processes to the next level. A tangible outcome of the partnership are the practical guidelines developed for the cities by an external expert. These guidelines list participatory methods that can be applied in the various planning stages of mobility projects – from the diagnosis to project design, implementation, and evaluation – and include examples and links to further resources.

Both cities plan to continue exchanging ideas on the development of their respective motorised traffic reduction projects. They will also stay in touch via the EUKI project, Three4Climate, which connects municipalities from Germany, Portugal, and Slovenia to the rotating presidencies of the Council of the EU.


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RITTERHUDE AND SZTUM

GERMANY AND POLAND

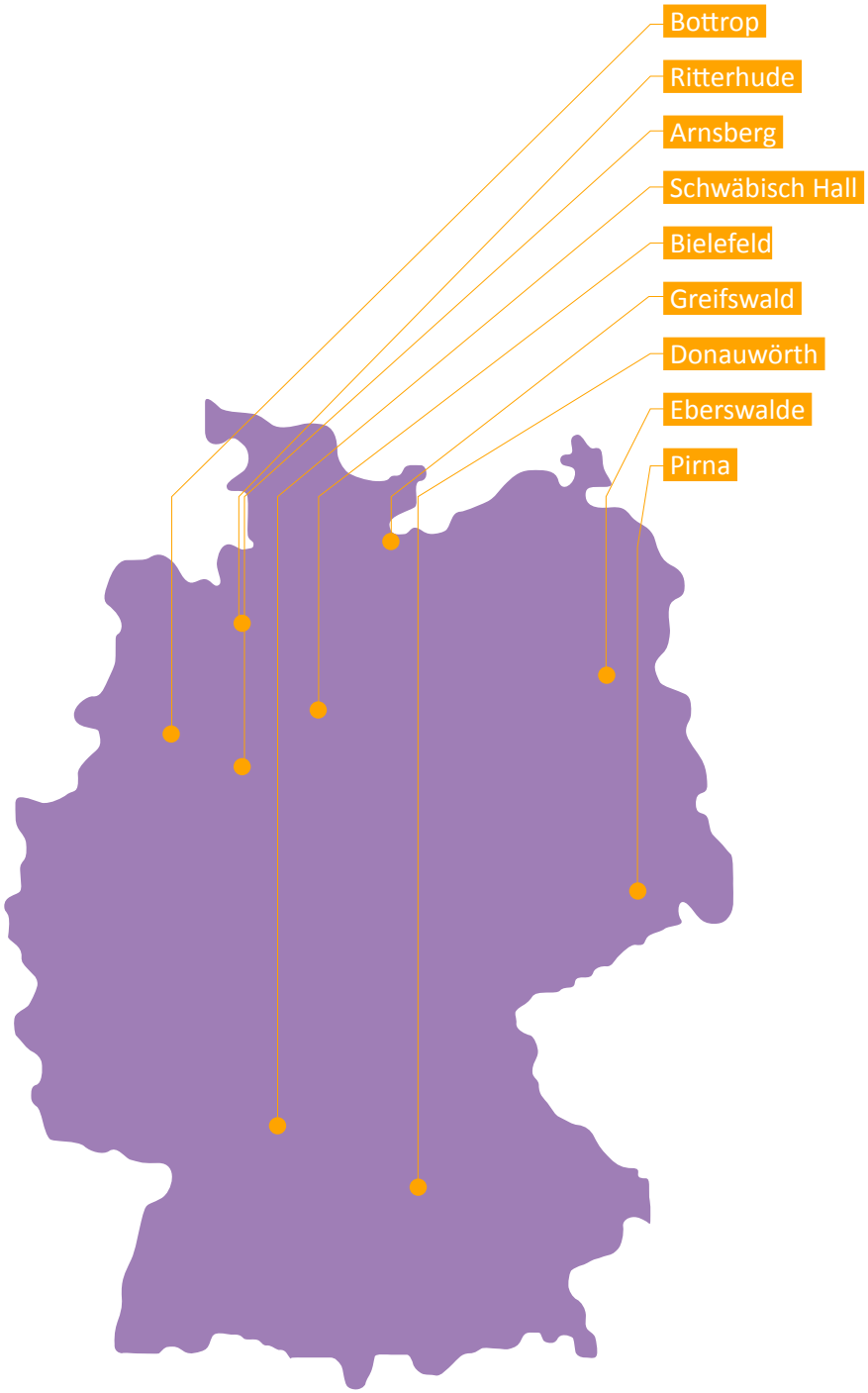
- Joint climate action projects between municipalities are beneficial, but creating institutional structures and having dedicated staff to pursue climate change mitigation issues on both sides of the partnership is essential for success.
- Securing political backing is necessary to facilitate favourable structural conditions for climate action.

The first step towards implementing climate change mitigation actions is securing the initial political will. This was, in part, already present in the city partnership between Ritterhude and Sztum, a long-standing town twinning that had already exchanged ideas on climate change-related topics during a previous project. Through the support provided by the BEACON project, however, the partnership was reinvigorated, putting climate change topics back on the political agendas. This renewed impetus is reflected in both municipalities creating new institutional structures to facilitate climate change action.

- Sztum created a new department for integrated development and energy as well as a new staff position for a climate protection and energy manager.
- Ritterhude pursued funding from Germany's National Climate Initiative and hired a climate change manager with a portion of the salary covered by the municipality itself.

These new structures have paved the way for new ideas for climate change mitigation projects. In one of BEACON's thematic workshops, attended by Sztum under its new departmental structure and with the Ritterhude climate change manager present, the municipalities laid the foundation for further discussions on the implementation of PV installations on municipal roofs, energy management and data collection, retrofitting municipal and private buildings, and more. The impact of the project is perhaps best summarised by the Mayor of Ritterhude who emphasised at several meetings that Ritterhude would not have pursued climate change mitigation issues to the extent it had without BEACON's municipal climate partnership.

The partners plan to exchange further on energy efficiency retrofitting, data collection and energy management, and funding opportunities.



MUNICIPALITIES

Germany

ARNSBERG

GERMANY

Population: 73,000 | **Contact:** Sebastian Witte, s.witte@arnsberg.de

Carbon neutrality by 2050

By working with the BEACON team and other municipalities on the project, we were able to gain new influences and project ideas, especially for the smart, sustainable city. Above all, we learned from our partner city Alba Iulia to develop a different perspective on project management and how to deal with climate projects. We will also focus more on EU funding.

We want to continue our long-lasting city partnership with Alba Iulia as a climate partnership and fill it with new ideas and new momentum. The focus of our future cooperation will be on the smart city and its technology applications, climate-friendly mobility, and education for climate protection. We want to position ourselves as close partners in the future, especially through mutual visits by students, citizens, and municipal staff.

"BEACON has shown to me how important cooperation between European municipalities is. Only at the level of the cities and municipalities can we face the challenge of climate change and shape the necessary transition to sustainable European cities successfully."

Ralf Paul Bittner, Mayor of Arnsberg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© Bielefeld


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BIELEFELD

GERMANY

Population: 340,000 | **Contact:** Olaf Lewald, olaf.lewald@bielefeld.de

- Reduce CO_2 emissions by 80%–95% in 2050 (base year 1990)
- Reduce final energy consumption by 50% (base year 2008)
- Increase share of renewable energies to 80% (base year 2016, 20.8%)
- Reduce share of motor vehicle traffic to 25% (base year 2017, 51%)
- Bielefeld aims to reduce car traffic by 50% until 2030. For this the city is hiring more than 20 new employees for the mobility office.

Through BEACON, Bielefeld has further intensified its exchange and knowledge transfer with partners in Europe. Through networking and mutual learning, we can avoid mishaps, learn from good practice examples, and further develop solutions for urban climate protection challenges.

"We will move from a car generation to a mobile generation and from the 'motorway' to the 'multiway'."

Gregor Moss, Director of Economic and Urban Development


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BOTTROP

GERMANY

Population: 117,000 | **Contact:** Tilman Christian, tilman.christian@bottrop.de
Katrin Knur, katrin.knur@bottrop.de

Carbon-neutral in 2040 (not yet politically confirmed)

Central topics in Bottrop that were also covered by BEACON include energy efficiency and energy savings, eco-friendly mobility, and climate-friendly urban redevelopment – for example via nature-based solutions. The professional networking opportunities with European partners and the best practice examples we learned from them were particularly important for us.

BEACON's virtual thematic workshop, "Nature-based Solutions to Climate Change Mitigation and Adaptation in Urban Areas", presented a great opportunity for us to learn about other interesting projects. Learnings from this workshop contributed to the Green Bottrop campaign, which is a step towards nature-based solutions in our community. The aim of Green Bottrop is to initiate additional small-scale and citywide blue and green projects in Bottrop.

"We want more blue and green spaces in Bottrop so everyone can enjoy a higher quality of life."
Tilman Christian, Head of Green Spaces and Environment Department

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DONAUWÖRTH

GERMANY

Population: 20,000 | **Contact:** Andreas Reiner, Andreas.reiner@donauwoerth.de

Our aim in the BEACON project was to find better ways to communicate about climate change-related topics. That aim was reached by expanding our understanding of the different ways to communicate with our citizens and stakeholders. We printed the BEACON floor sticker with energy savings tips and sent them to all schools in the city of Donauwörth. We also gave copies of the *Climate Change Challenge* comic book to our local library and schools. A neighboring city also asked to display the comic book in their library, doubling the outrech to nearly 40,000 inhabitants.

EBERSWALDE

GERMANY

Population: 41,833 | **Contact:** Severine Wolff, s.wolff@eberswalde.de

Eberswalde understands climate protection and climate adaptation as a cross-sectional, integrated task with not only energy and climate policy elements, but also social, economic, cultural, and ecological requirements. Therefore, the city does not pursue quantitative goals, but rather qualitative goals of climate protection and adaptation, which activate and implement the existing potentials of the city in a more flexible way that is adapted to the specific municipal context.

The first workshop in Alba Iulia helped us recognise the possibilities of using smart city approaches for climate protection and generate new ideas for our own projects. The visit to this European pioneer city led to a critical questioning of the state of digitalisation in our town. As a result, the topics of digitalisation and smart city became more prominent in our city and will be more integrated deeper into the different aspects of urban development, participation, or general citizens' services in the future. The next step will be the development of a digital or smart city strategy, for which various discussions were held with project partners and experts during the course of the project.

In the context of updating our climate protection concept, some of the ideas and measures presented by the partners over the course of the project will be incorporated. In particular, the measures for adapting to climate change, for dealing with rainwater and the further qualification of urban green spaces, as well as the diverse forms of participation presented, whether digital or analogue, will be taken up by Eberswalde.

"That is exactly what European projects (should) have as their task – to bring people together and connect them."

Severine Wolff, Urban Development Manager of Eberswalde

In particular, Eberswalde benefitted from the national and international exchange of experiences during the project. We learned how climate protection works in different countries and the different challenges local authorities must deal with. Even apart from the many creative ideas for implementing local climate action, which can be considered the biggest success of the project, a lot of common ground was found among the participants. In addition, the project led to many personal friendships, which will certainly last beyond the project.

GREIFSWALD

GERMANY

Population: 55,000 | **Contact:** Michael Haufe, m.haufe@greifswald.de

- Reduce CO_2 emissions by 95% by 2050
- Reduce greenhouse gas emissions in heating sector by 40% by 2030

Inspired by examples from other partners in the project, Greifswald has launched a guideline on climate protection and climate adaptation in urban land use planning. This is being developed by an external expert in collaboration with the relevant departments of the municipal administration. A charging infrastructure concept for e-mobility and a strategy for sustainable development have also been prepared since the start of the project.

In the future, Greifswald will be able to maintain a good urban microclimate and better adapt to climate change with its development plans. The BEACON workshop on nature-based solutions was particularly helpful in this respect. Innovative examples from, among others, the Polish partners in the project were adopted in our planning. In particular, this involves the retention of precipitation water in populated areas via, for example, green roofs. Greifswald is now planning green roofs for its newest school building, and the municipal housing company strives to install PV systems or green roofs on all new buildings.

"The BEACON publication Sustainable mobility on the Way to School is sensational. We've found it very useful."

Michael Haufe, Environment and Energy Manager of the City of Greifswald

PIRNA

GERMANY

Population: 39,346 | **Contact:** Thomas Freitag, thomas.freitag@pirna.de

Thanks to the BEACON project our municipality now has a broader understanding of how other municipalities in Europe are working on climate action. We learned that we should focus on securing EU funds to finance several climate protection projects. The project also presented a good opportunity to create connections and exchange project ideas with municipalities in Germany and beyond.

We discussed the smart city concept for several years without having a proper understanding of what that means for us and how to approach the topic. After participating in BEACON workshops and partnership meetings, we learned how municipalities, especially in Eastern Europe, are working in this field. In 2019, we initiated a participative process to develop a smart city concept for the city of Pirna. Through some workshops in our municipal climate partnership meetings with the municipality of Pisek (Czech Republic) we received further input, which was directly incorporated into our smart city concept. The concept was approved in the municipal council in March 2021, creating a solid foundation on which to implement smart city projects in future.

RITTERHUDE

GERMANY

Population: 14,684 | **Contact:** Ulrich Müller, Hannes Többen h.toebben@ritterhude.de

Ritterhude is developing a Sustainable Energy and Climate Action Plan (SECAP) that will deliver targets and a midterm strategy to reach the targets.

Inspired by the BEACON Project and the opportunity to have a close exchange of experiences with the polish twin city Sztum, two strategic projects have been developed and implemented.

The first one is the development of a SECAP by the new climate manager, which has been employed thanks to funding from the National Climate Initiative.

The second project is the refurbishment of residential buildings. The housing area of 60 ha with 2,420 inhabitants is characterised by owner-occupied single-family houses. Based on an integrated, energetic refurbishment concept, a refurbishment management team will provide advice to homeowners to plan investments. This project receives financial support from a KfW funding scheme.

"The BEACON project was an excellent opportunity to enhance the partnership with our twin city Sztum. The project resources, especially the availability of professional interpreters enabled a high level of exchange of experiences and the development of future cooperation ideas in the climate and energy sector."

Ulrich Müller, Advisor on Climate Protection and Energy Projects


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SCHWÄBISCH HALL

GERMANY

Population: 40,900 | **Contact:** Heiner Schwarz-Leuser, Energy Manager
heiner.schwarz-leuser@schwaebischhall.de

- Member of Climate Alliance
- Member of Klimapakt Baden-Württemberg
- 100% renewable energy electricity by 2030 (already achieved in 2018)
- 100% renewable energy in heating by 2035

The BEACON project represents one of the ways in which Schwäbisch Hall is involving younger generations to address climate change, which is essential if we are to effectively tackle the issue.

An essential element of the BEACON project was the exchange of schools between Schwäbisch Hall and our Polish twin city, Zamość. Teachers from both communities took part in the BEACON meetings. In Schwäbisch Hall, an environmental working group was founded at the Johannes-Brenz-Gemeinschaftsschule to deal with climate protection issues at school. In this context, an inaugural digital exchange with Polish students also took place.

"When it comes to climate and environmental protection, we must not only look at ourselves, but we must widen our view beyond our borders. We live in different societies, but in the same world with the same challenges. That's why we need to get to know each other, learn from each other and work together. The BEACON project is the starting point for a good cooperation amongst young people in both twin cities."

Heiner Schwarz-Leuser, Energy Manager and BEACON coordinator Schwäbisch Hall

MUNICIPALITIES

Greece

AGIOS DIMITRIOS

GREECE

Population: 71,294 | **Contact:** Maria Manousaki, manousakim@dad.gr

Having until now implemented a large number of actions and projects that contribute significantly to reducing CO_2 emissions and energy savings, the Municipality of Agios Dimitrios is expanding its commitments by joining the Covenant of Mayors for Climate and Energy. With its accession to the Covenant of Mayors for Climate and Energy, the municipality is committed to reducing its CO_2 emissions by at least 40% by 2030 compared to 2015 and increasing the resilience of the city by adapting to the effects of climate change.

To reduce its energy costs and contribute to climate change mitigation, Agios Dimitrios is implementing the energy refurbishment and installation of PV panels on 35 schools and sports and municipal facilities. Through the concept of Energy Performance Contracing almost 2.5 million Euros will be invested. This is the most ambitious climate-related project in Agios Dimitrios to date, aiming to reduce the energy consumption by 3,561 MWh yearly through PV panels of 2,381 KWp. The energy produced will, through net metering, cover the needs of other municipal facilities or energy-poor citizens. This results in emissions reductions of 1,396 tCO_2 per year, which is equivalent to 41,673 trees.

© DAD

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With the support and inspiration from BEACON's coaching, advisory, and exchange activities, Agios Dimitrios has implemented projects through co-financed programmes and its own resources such as energy refurbhishment of municipal buildings, expansion of pedestrian areas, and the renovation and environmental upgrade of public spaces.

Through funded programmes, the municipality will proceed with projects such as the *Bioclimatic regeneration of El. Venizelou area*, which involves the reconstruction of the area with green and blue spaces, pedestrian routes, and the maximisation of green spaces. Another such project deals with e-mobility. Ten electric vehicles will be added to the municipal fleet, including minibuses in the public transport routes and two charging stations will be installed.

23 MUNICIPALITIES

DORIDA

GREECE

Population: 13,627 | **Contact:** ArgyropoulosTheodoros, argyropoulosdorida@gmail.com

- Energy savings up to 20% until 2021
- 20% reduction in CO_2 emissions by until 2021 and 60% by 2050 compared to 2011

BEACON gave Dorida a push to implement its Sustainable Energy Action Plan (SEAP) and develop a vision and mainstream climate action via:

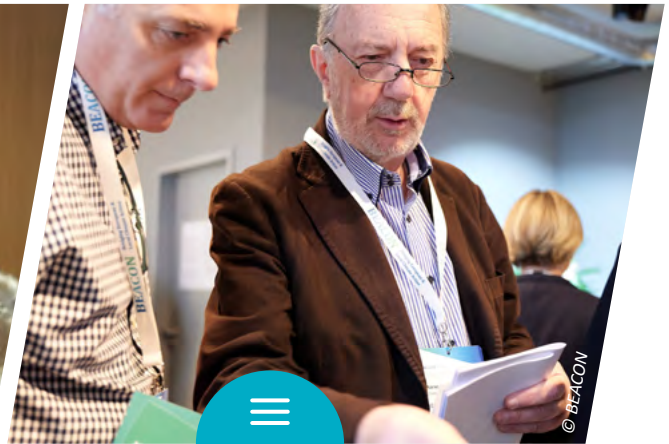
- Internal restructuring and cooperation
- Setting up a monitoring and energy management system
- Facilitating collaboration with local stakeholders
- Implementing new climate action measures

Dorida now has a roadmap that includes implemented and nearly final projects as well as proposals in the approval stage of funding schemes. One such project designed with the support of BEACON includes the replacement of street lighting with LED bulbs, which resulted in 20% energy savings compared to the reference year 2011.

"BEACON project led us to connect with other municipalities and share good practices and knowledge, showing us the way to implement our goals in energy management."

Argyropoulos Theo, Head of the Revenue and Estate Department

Through our participation in the BEACON project, we have been able to exchange experiences and good practices with other European municipalities, which will ultimately help us reach our climate targets and goals. The project has also helped us identify European funding programmes for (energetic) upgrades to our municipal buildings and our energy management programme.



As a result of BEACON, we plan to develop and implement an energy management system (ISO 50001) to monitor energy data of buildings and the municipal car fleet and ultimately reduce energy consumption and CO_2 emissions.

FARSALA

GREECE

Population: 18,545 | **Contact:** Tasos Liapis, a.liapis@dimosfarsalon.gr

- 20% reduction in CO_2 emissions by 2021 and 50% by 2050 compared to 2018
- Reduction of energy consumption in municipal buildings and facilities
- Implementation of ISO 50001 in five municipal buildings

Via the BEACON coachings and the collection of consumption data for facilities of Farsala, we realised that we must upgrade our municipal buildings, particularly the schools. As a result, we have begun the upgrade of the Town Hall with the financial support of a Corporate Development Framework Agreement based on the European Structural and Investment Funds. The energy upgrade includes the following measures:

- Thermal insulation system of the building shell
- Replacement of window frames and glass with new thermal insulators
- Replacement of old light fixtures and bulbs with new fixtures and LED lightbulbs
- Upgrade of the existing oil-based heating system to use natural gas

In addition, the building will be certified in compliance with ISO 50001 with the implementation of an energy management system. The estimated annual emissions reduction from the project is 63.48tCO_2. Four schools will also be upgraded in 2021, resulting in emission reductions of 350 tCO_2.

© Farsala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Through the BEACON project, we have gained knowledge from and shared experiences with municipalities across Europe. We learned about the benefits of establishing an energy community and have improved our knowledge on the financing of energy projects, such as energetic renovations of municipality's buildings.

Within the timeframe of BEACON, Farsala has established an energy community, including the local water treatment company, a daycare centre, and several municipal associations. The project has received approval by the municipal board. The administration intends to first set up PV in buildings and public spaces, and demonstrate the benefits with net metering. Citizens can then join the energy community, which is used as a basis for social energy policy.

Farsala plans to continue financing the energy community and developing it with the participation of the public. Legal and technical issues are being explored for the monitoring of energy data of municipal buildings and car fleets to reduce energy consumption and CO_2 emissions. We will also continue to undertake measures to raise public awareness for climate action.

25 MUNICIPALITIES

KALAMATA

GREECE

Population: 69,849 | **Contact:** Vasileios Dionysopoulos, vdionyso@kalamata.gr

- 40% reduction in greenhouse gas emissions by 2030 compared to 2012
- Multiple mobility targets according to the municipality's Sustainable Urban Mobility Plan

Joining the Covenant of Mayors with BEACON support has triggered many internal discussions and consultations between the various departments, increasing the overall awareness of climate action and making climate change mitigation an integral part of our work. The municipality's Sustainable Energy and Climate Action Plan (SECAP) is the first strategic plan that places Kalamata's many different efforts under the same umbrella (e.g. green buildings, green energy, urban mobility, urban planning, recycling). Most importantly, it has helped us develop plans to improve and create measurable targets for future projects and actions. We expect this strategic planning to positively impact the city of Kalamata and bring long-lasting benefits to our residents and businesses.

"There is no project today that is not related to climate change."
Vasilis Dionysopoulos, Head of e-Governance Department


© Kalamata


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The benchmarking that took place during the first coaching with the BEACON team identified the municipality's challenges related to tackling climate change. Kalamata has since taken steps in many of those areas, including joining the Covenant of Mayors for Climate and Energy and preparing a SECAP. Mobilised by the BEACON project, Kalamata has also set up a Municipal Energy Community to benefit from related funding opportunities and utilise a more flexible administrative framework for energy projects.

The Municipality of Kalamata has set up a Municipal Energy Community to attract funding and increase its operational capabilities related to energy production and distribution projects. Kalamata expects it will dramatically increase our ability to produce renewable energy. We also expect it to expand the available options for distributing this energy, thereby helping us achieve a major target of this action, which is to tackle energy poverty.

The municipality has planned many new climate change-related projects for the immediate future and has applied for relevant funding. These projects include, for example, energy upgrades of all municipal buildings, installation of PV systems, integrated systems for energy and water consumption monitoring, systems for real-time monitoring of environmental parameters, extensions to the bicycle path network, and urban regeneration plans.

SYROS-ERMOUPOLIS

GREECE

Population: 21,507 | **Contact:** Michail Zouloufos, michalis.zouloufos@gmail.com

BEACON has enabled the cooperation and exchange among all relevant stakeholders on the island of Syros so that no local actor has to tackle climate action challenges on their own. Two major collaborations came out of this process:

1) The initiation of a Local Climate Forum comprising several local private and public actors to initiate a climate campaign and cooperation.
2) The Municipality of Syros-Ermoupolis and the General Hospital of Syros have signed an agreement to participate in an array of climate action projects such as a feasibility study of energy efficiency investments for the hospital's buildings.

Through this collaboration and information and best practices exchanged through BEACON, the Syros Hospital has achieved:

- Participation in Global Green and Healthy Hospitals Network
- Participation in EUKI project, 'Low carbon healthcare in the Mediterranean region'
- Recognition by Silver International Award on Climate Resilience (by Global Green and Healthy Hospitals Network)
- Participation in RACE TO ZERO United Nations' programme as a founding member
- Declaration by Ministry of Health of Hellenic Republic a novel digital Hospital

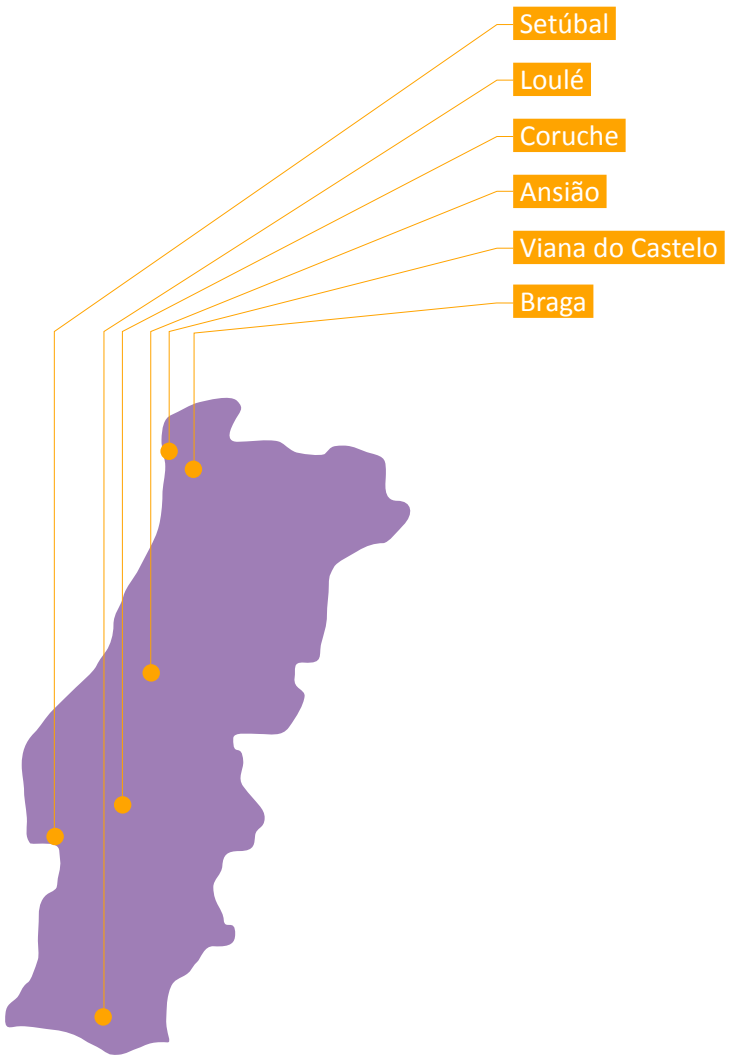
At the internal level, the municipality is developing an energy management system and intends to move forward with certification on the ISO 50001 energy management standard.

Syros-Ermoupolis has benefitted from BEACON in identifying good practices, in collaborating on larger-scale mitigation projects, on setting clearer and more ambitious climate targets, and realising better policies.

Syros-Ermoupolis will continue with ISO 50001 certification, the Local Climate Forum, and large-scale projects such as a wind farm for the local water company.

"BEACON acted as a beacon of climate awareness for Syros."

Michail E. Zouloufos, Project Manager



MUNICIPALITIES

Portugal

ANSIÃO

PORTUGAL

Population: 12,073 | **Contact:** General: geral@cm-ansiao.pt
Alexandre Moreira, alexandre.moreira@cm-ansiao.pt

Ansião is working to improve energy efficiency in public lighting by replacing all municipal lighting with LED bulbs, which will result in a 61% reduction in annual electricity consumption. This is equivalent to a reduction in primary energy consumption from 451 toe per year to 173 toe per year and a reduction in emissions from 756 to 291 tCO_2 per year.

We are also focussing on sustainable mobility by, for example, creating and improving pedestrian paths and guaranteeing accessibility to public spaces and buildings.

Through BEACON, Ansião has benefitted from trainings, an exchange of good practices, and a partnership network with other municipalities.

In 2021 Ansião plans to implement a system for the collection of construction waste aimed at small construction sites exempt from licensing to minimise waste dumping in the nearby forest.

CORUCHE

PORTUGAL

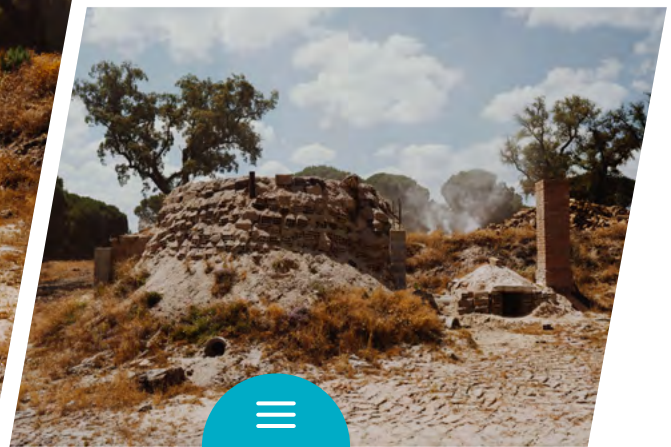
Population: 19,944 | **Contact:** Rosa Lopes, rosa.lopes@cm-coruche.pt
Hugo Cotrim, hugo.cotrim@cm-coruche.pt

34% reduction in greenhouse gas emissions by 2020

BEACON created an opportunity to tackle a long-standing issue in the community, the decarbonisation of the local charcoal industry. With approximately 300 ovens, the aim has been to reduce the industry's emissions and its detrimental impacts on human health.

BEACON helped create political buy-in; supported development of an action plan/ roadmap; facilitated collaboration with local oven owners and the technical and environmental departments of the municipality; and helped establish a strategy for financing the oven conversion. The steps of the process include:

1) Transform 30 ovens (pilot)
2) Mobilise additional oven owners through a stakeholder engagement workshop with the aim to create a local oven owner association
3) Secure financing to scale up solutions
4) Replicate the methodology to address further climate change mitigation issues and co-create local mitigation pathways with relevant stakeholders (i.e. rice producers)



The possibility of working in partnership with the Greek municipality of Dorida allowed us to get to know projects that can be replicated in Coruche and also work on a project together involving green roofs. The BEACON project also played a key role in the decarbonisation of the local charcoal industry, ultimately leaving a positive impact air and water quality, biodiversity, the landscape, human health, and carbon emissions.

The next, critical step in the project is the submission of an application for partnership between the association of charcoal oven operators and the council for the adaptation of coal production into an industrial unit without environmental or human health impacts.

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LOULÉ

PORTUGAL

Population: 70,622 | **Contact:** Lídia Terra, lidia.terra@cm-loule.pt

- 40% reduction in energy consumption and greenhouse gas emissions compared to 2008
- 3 MWp of installed capacity of renewable energy in municipal buildings and schools by 2030

At the beginning of the BEACON project, the Climate Action and Circular Economy Division (DACEC) started preparing the Sustainable Energy and Climate Action Plan, which required the involvement and collaboration of several departments of the municipality. BEACON's innovative approach helped us strengthen interdepartmental relationships. This contributed to Sustainable Energy and Climate Action Plan (SECAP) development and the emergence of other innovative mitigation and adaptation projects with the departments that participated in this session. With this support, we could promote cohesion and advancement of existing projects in the various municipal services while avoiding duplication of efforts. Our membership to the Covenant of Mayors and Sustainable Energy and Climate Action Plan is in the approval process.

Our involvement in BEACON has led to a closer working relationship between the DACEC with the other municipal departments and companies as well as increased capacity in the municipal administration regarding circular economy and green public procurement topics. It also led to the emergence of pilot projects in the area of climate action.

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The DACEC was focused on strategic planning and implementation of the municipal climate action policy at the beginning of the project.

The various capacity building meetings on circular economy allowed DACEC to structure its work in this area and start preparing the Municipal Roadmap for Circular Economy in conformity with European and national strategic guidance on the topic. Since the BEACON training on green public procurement, which was attended by more than 30 municipal technicians and 20 municipal departments, we anticipate better integration of this sustainable practice throughout the municipality.

We plan to implement the Roadmap for Circular Economy, adopt green public procurement criteria in a greater number of public contracts, continue fruitful interdepartmental dialogue, and implement our SECAP. We also plan to use the Climate Change Mitigation Kit for the promotion and monitoring of climate action.

SETÚBAL

PORTUGAL

Population: 121,185 | **Contact:** Carla Guerreiro, vereacaocarlaguerreiro@mun-setubal.pt

- 40% reduction of greenhouse gas emissions by 2030 compared to 2011
- Adapting Setubal to the main risks of climate change

With the support of BEACON, the Setúbal Municipality Climate Action Plan 2030 was produced, and we consolidated the Setúbal Climate Action Team.

We updated our SECAP with external stakeholder input, which will be used as strategic basis for further action. We improved collaboration among several departments by involving them in sessions related to different sectors in the SECAP plan (mobility, energy, urban planning, and communication). The final SECAP will be presented to the municipality as well as the general public and the key local stakeholders to mobilise engagement and funding.

"These connections between municipalities are very important (...) the commonalities and differences serve as learning experiences."

Carla Guerreiro, Environmental Councillor

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Having a closer collaboration with the local industry and the private sector was a goal of Setúbal's within the BEACON project. Through coachings to increase the support of the industry in the municipal climate action process, we were able to establish channels of communication and collaboration with local small and medium-sized industries.


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We will implement our Climate Action Plan and monitor our progress on various climate action targets. We also plan to develop a Local Adaptation Plan in collaboration with the regional energy agency and funding from EEA grants.

VIANA DO CASTELO

PORTUGAL

Population: 90,000 | **Contact:** Fabíola Oliveira, gtf@cm-viana-castelo.pt
Elizabeth Matos, elizabeth@cm-viana-castelo.pt

We aim to apply the five Rs of sustainability expressed in the Municipality's mission (rethink, reuse, refuse, reduce, and recycle). We also plan to continue implementing energy efficiency and sustainable mobility projects. In 2020, Viana de Castelo's municipality added five more options to the Municipal Strategy for Climate Change Adaptation (EMAAC VC), including the areas of urban planning, agricultural, and forestry waste.

BEACON facilitated the implementation of the Viana Abraça 2 project, which aims to improve the treatment of organic food waste from the source to recycling, thus implementing a circular economy approach to waste management. This management will be done in cooperation with RESULIMA, a waste management company that produces biogas from its landfill facilities primarily using organic waste. By using and commercialising biomass, the municipality of Viana reduces the incineration of organic waste that causes the release of CO_2 contaminates the soil, and causes respiratory problems in the local population.


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As a result of BEACON, our administration has become more aware and empowered to take action on climate. We have a greater understanding of the concept of climate action in regards to different fields and sectors and have recognition of this from municipal leadership and colleagues. We have also become aware of the need to create a local governance model for climate action and sustainability, which we did not consider before the BEACON project.


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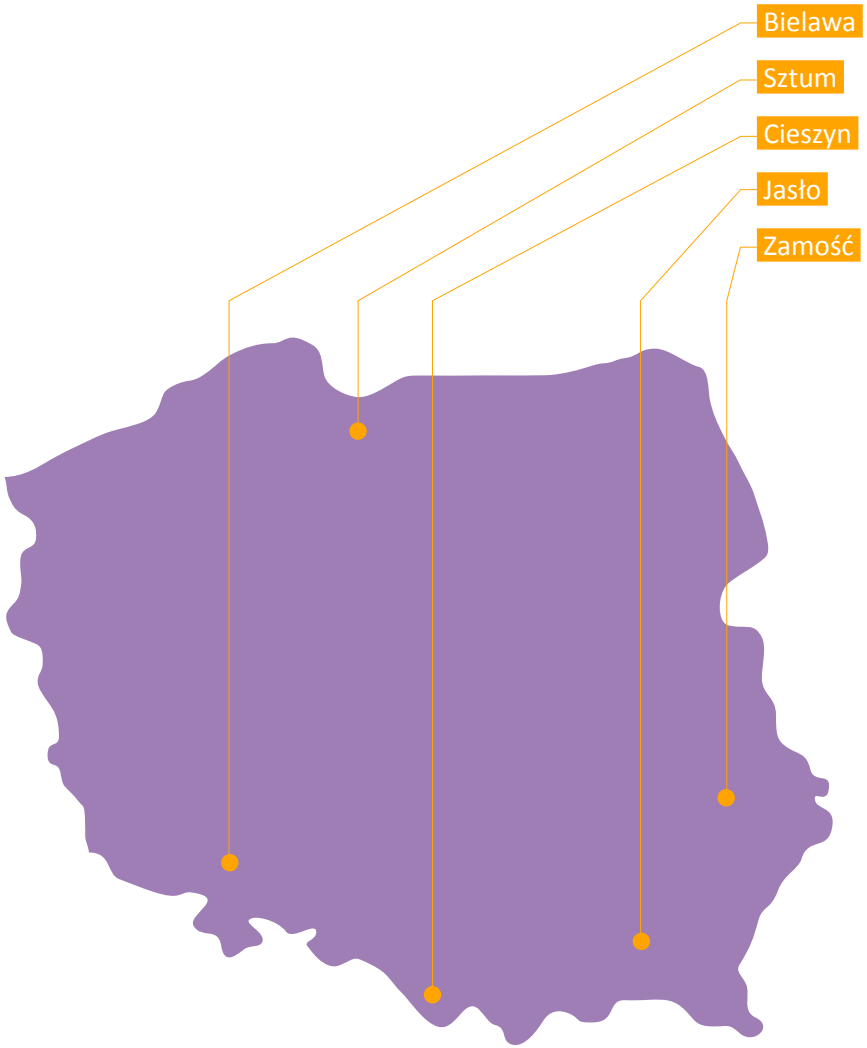

MUNICIPALITIES

Poland

BIELAWA

POLAND

Population: 28,352 | **Contact:** Ewa Wnuk, ewnuk@um.bielawa.pl

As a model eco-city, Bielawa is increasing the attractiveness of the city and improving the quality of life of its residents through energy efficient street lighting, the use of renewable energies in public buildings, and the replacement of inefficient and polluting heat sources in private homes. In addition, Bielawa is making efforts to green the city and increase its biodiversity.

Through the BEACON project, the municipal staff could deepen and broaden their knowledge on climate action. The roles and responsibilities of staff contributing to climate change mitigation efforts were further defined. Furthermore, the BEACON project activities and the participating municipalities inspired the city to take action in the field of green space development and nature-based solutions. A team dedicated to the EU Structural Funds at the municipality have since obtained funding for a project on these topics. Watch this video to find out more: https://www.youtube.com/watch?v=o90yzROpMAw


© PNEC

The same team dedicated to EU Structural Funds was also awarded a grant for the modernisation of a street lighting system in Bielawa. The challenge was to make an inventory of lighting according to ownership structure because a portion of the street lighting belongs to the municipality and part to TAURON, an energy holding company. The inventory was successfully completed with the help of external specialists.

As a result, in 2021–2022 Bielawa will realise an investment of PLN 1,605,153, of which 74.3% will come from EU Structural Funds. The project includes the installation of 844 LED bulbs along with the replacement of power supply cables and protection in pole cavities, painting of poles, lighting of four pedestrian crossings, renovation of 19 street lighting control cabinets, and the removal of nine lighting cabinets.

The Low Emission Economy Plan of Bielawa until 2020 is being updated with expert support provided by the BEACON project. The plan, which should be finalised in summer 2021, will include an overview of the status quo and current problem areas, an update to the baseline emissions inventory, short- and medium-term tasks, long-term strategy and objectives, and a monitoring plan, among other things.

We plan to continue our efforts to subsidise the replacement of inefficient and polluting coal boilers with environmentally friendly ones in private homes. We are planning the construction of a multi-functional hall, which should serve as an example of functional, ecological solutions and passive building design. It will include new technologies and a PV installation for optimal cost recuperation. We also plan to green the city and further increase biodiversity in terms of vegetation. We will continue to actively seek external funds for our investment opportunities.


© Bielawa


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CIESZYN

POLAND

Population: 34,000 | **Contact:** Eryk Stępień, estepien@um.cieszyn.pl

The City of Cieszyn aims to strengthen its position in the group of Polish cities developing concepts for sustainable energy cities. We are doing so by developing the city's energy planning and management system and optimising activities related to energy production and use throughout the city. An important goal is to consistently reduce energy consumption in individual sectors and to reduce emissions of air pollutants (including greenhouse gases) from energy consumption in the city.


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© Cieszyn

Participation in the BEACON project brought our attention to the fact that development of energy planning and management in the city is impossible without monitoring the energy and water consumption in municipal facilities. BEACON supported us in the search for a ready-made solution to monitor the consumption of utilities in municipal facilities, which was found in another BEACON municipality, Rožnov. Issues with the available systems led us to develop our own system for monitoring consumption with a spreadsheet. The preparation of a suitable spreadsheet and the input of historical data was supported by BEACON.

Thanks to BEACON, municipal staff has a better understanding of many topics related to climate change mitigation, and the topic has been introduced to the public discourse and city strategy. We have a broader perspective on the implemented and planned actions of the city and their effects in the context of mitigation and adaptation. We were also inspired by the good practices that we learned about from Poland and across Europe. The knowledge gained in BEACON was also used to prepare the application of Cieszyn to Local Development, which is a programme co-financed by the EEA and Norway Grants for small and medium-sized cities to strengthen social and economic cohesion by improving the quality of life for all residents.

Another activity inspired by participation in the BEACON project was the development of the Strategy for Electromobility of the City of Cieszyn 2020–2030. Among other things, the strategy resulted in signing a contract for the purchase of two electric buses, which will appear on the streets of Cieszyn in early 2022, as well as the design and construction of charging stations for electric buses. The aim of the strategy is to determine measures to reduce emissions of pollutants and greenhouse gases from public and private transport. Some measures include:

- Creation of an energy centre for municipal transport
- Replacement of a portion of the municipal fleet with low or zero-emission vehicles
- Construction of accessible charging infrastructure for electric and hybrid (plug-in) vehicles
- Construction of a park-and-ride lot connected to a high frequency bus line
- Construction of bicycle paths within the city


© Cieszyn


© Cieszyn

By the end of 2021, a Low Emission Management Plan of the City of Cieszyn will be developed. Within this framework, a catalogue of actions to reduce final energy consumption and emissions of pollutants and greenhouse gases will be created. In addition, a timetable for implementation will be outlined, potential funding sources will be indicated, and entities responsible for the implementation of the measures will be identified. An important element of the plan will be a monitoring system.

JASŁO

POLAND

Population: 34,185 | **Contact:** Bogusław Pięta, energetyk@um.jaslo.pl

Jasło strives for climate neutrality, particularly in terms of air quality and water management. We also strive for energy self-sufficiency by increasing the share of energy coming from renewable sources and decreasing the energy intensity of facilities in the city.

© City Hall of Jasło

An anti-smog resolution, which is binding in the Podkarpackie voivodeship, required that an inventory of heat sources in single-family homes be conducted. The resolution defines, among other things, the types of heat sources that may be used in the future to heat households.

With the support of BEACON partner PNEC, Jasło conducted an inventory of current heat sources, which took the the form of questionnaires to 4,000 residents. The aim was to estimate the number and type of heat sources in single-family houses in the municipality, particularly coal-fired furnaces. The information contained in the survey will be used to find appropriate forms of support for the inhabitants, both in regards to furnace replacement and thermo-modernisation of the buildings.

The results will be used to prepare a report that will serve as a basis for further actions to improve air quality. Educational materials on the more efficient use of coal-fired furnaces (until replacement) were distributed along with the survey.

© Jasło Town Hall

Within the BEACON project, we exchanged experiences and good practices in the field of climate protection activities with other local governments in Poland and other BEACON countries. The project allowed us to broaden our knowledge on climate change mitigation measures, and monitor them and possible sources of financing. Through our participation in the project, we are better able to identify problems related to climate change.

Jasło aims to increase the amount of biodiverse areas in the centre of the municipality. Inspired by BEACON's thematic workshop on nature-based solutions in 2019, Jasło conducted an inventory and assessment of the current state, seeking to understand how grey infrastructure could be replaced with green infrastructure. Jasło now aims to create new green areas and revitalise existing ones.

- Continue the modernisation and improvement of public building stock
- Intensify activities aimed at introducing closed-cycle municipal waste management
- Reduce the share of grey infrastructure in favour of blue and green infrastructure
- Implement educational and awareness-raising measures among the city's inhabitants on the need to take actions to mitigate climate change

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SZTUM

POLAND

Population: 17,479 | **Contact:** Leszek Tabor, burmistrz@sztum.pl
Ewa Ruczyńska, ewa.ruczynska@sztum.pl

37 MUNICIPALITIES

- Energy self-sufficiency
- Reduction of CO_2 emissions by at least 40% by 2030

Sztum faces issues with poor air quality and energy poverty. Through inspiration provided by BEACON activities and Sztum's partner city Ritterhude in particular, Sztum collected data for an energy poverty inventory from the statistical office, a topographic objects database, and site visits to residential buildings. We analysed the data and performed additional calculations with a QGIS tool to select the oldest districts where single-family houses are located and a number of buildings that are potentially affected by fuel poverty. The selected houses were inspected and then given pointers on how to address the building issues – lack of thermal insulation, old and leaky windows, asbestos removal, etc. The residents of these dwellings will be asked to fill out a questionnaire, which will form the basis for an application to the national Stop Smog programme and the National Fund for Environmental Protection and Water Management.

As a result of BEACON, we have developed a partnership with the municipality of Ritterhude, which has created friendly competition and mutual inspiration regarding engagment with citizens on climate action. We have also drawn from the experiences of other BEACON municipalities and exchanged good practices in the areas of renewable energy, energy communities, and energy management, to name a few.

With the support of BEACON we were awarded a grant in the first EUCF call. The EUR 60,000 grant will finance the preparation of the investment concept for the energy transition in local water and sewage management. Through BEACON, we have also been supported in implementing our Low Emission Economy Plan, joining the Covenant of Mayors on Climate and Energy (in November 2020), preparing our Sustainable Energy and Climate Action Plan (SECAP), and establishing the Department of Integrated Development, which is responsible for activities related to climate change mitigation and adaptation.

Building on the work in BEACON, Sztum is planning to apply for an agreement with the National Fund for Environmental Protection and Water Management to co-finance heat source replacement and thermo-modernisation as part of the Stop Smog programme. We are also preparing an investment concept called "Energy transformation in the water and sewage management in the City and District of Sztum" as part of the European City Facility, and plan to introduce an energy management and monitoring system. Sztum has also expanded its capacity for climate action and related topics by creating a position in the city administration dedicated to the implementation of the national government's Clean Air programme.

All images © Sztum

ZAMOŚĆ

POLAND

Population: 60,618 | **Contact:** Katarzyna Fornal-Urbańczyk, katarzynaurbanczyk@zamosc.pl

- Strive to achieve zero-energy economic growth (i.e. economic development that does not increase the demand for primary energy)
- Provide financial support for residents to eliminate inefficient heat sources
- Increase the amount of green areas by 10% using blue-green infrastructure as a tool to adapt the city to climate change
- Reduce the number of combustion vehicles in the city and expand cycling infrastructure

To tackle issues surrounding the inefficient use of energy in public buildings and private properties as well as traffic smog, a number of activities were undertaken in the context of BEACON. In addition to hiring two municipal energy managers, Zamość introduced a pilot programme in schools on energy efficiency and introduced renewable energy sources solutions to planned investments in the modernisation of public buildings, including a PV installation at a sewage treatment and water supply facility as well as educational buildings. We also drafted an Electromobility Development Strategy and hosted awareness-raising events. On three occasions, Zamość hosted an open air event with stands, information points, posters, and competitions related to climate action that were inspired by BEACON workshops and the "Campaigning for climate change mitigation" publication. BEACON also inspired Zamość to eliminate plastic.

© Zamość

"It's very important for citizens to get involved in a variety of activities so they understand that they have a real impact on the environment, that they are changing their surroundings for the better. The BEACON programme equips participants and the local governments with knowledge and tools that help them develop new solutions and better prepare the city for climate change, which we have all been experiencing for some time now."

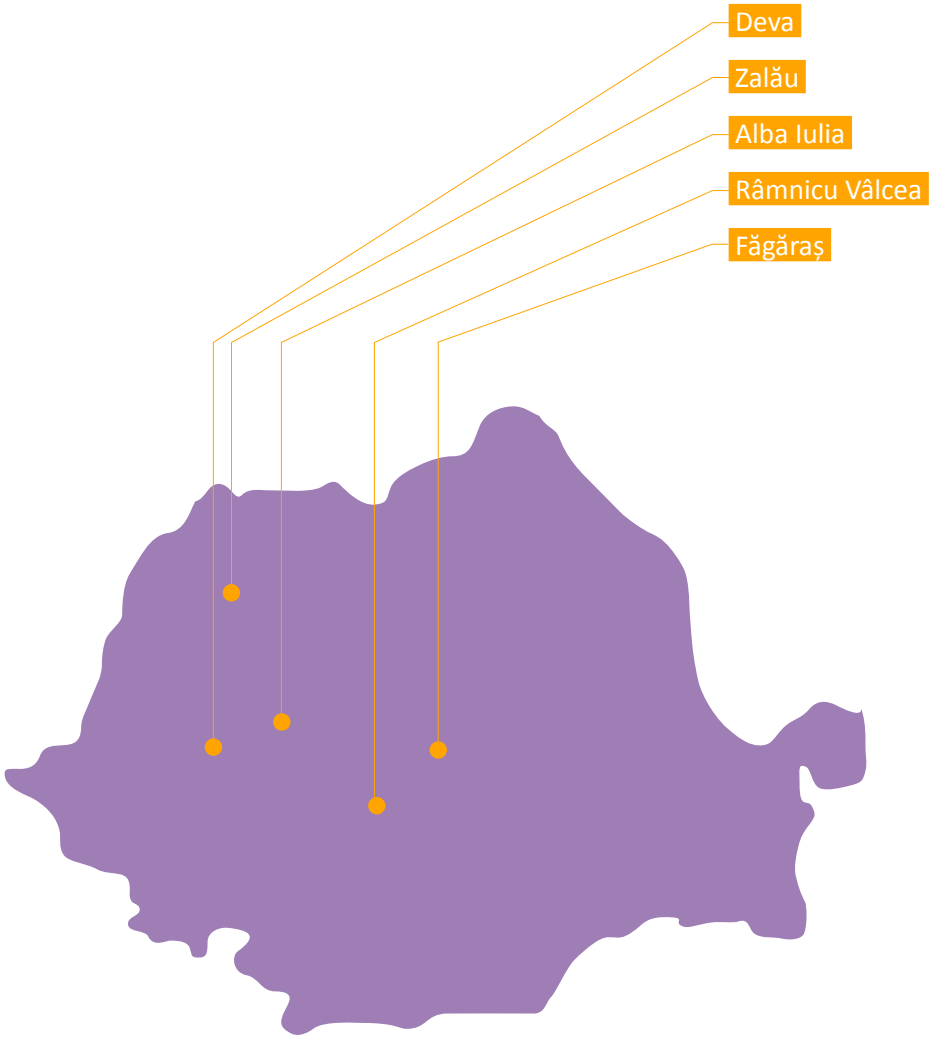
Andrzej Wnuk, Mayor of Zamość

© Zamość

We can safely say that thanks to the BEACON project we managed to gain a lot of practical knowledge on how to identify problems and take climate action. We did our best to pass on the experience and knowledge we gained to citizens and students, increasing ecological awareness via workshops and other events. We noticed an increase of interest in the city administration and citizenry in climate-related subjects, which was previously limited to air quality and carbon-intensive heating. The project showed that sometimes with simple changes in planned tasks, we can mitigate the effects of climate change. We have also expanded our capacity for climate work by creating two positions for municipal energy managers.

Zamość has faced droughts and flooding, so inspired by the BEACON workshop on nature-based solutions, Zamość decided to use BEACON's advisory support to implement installation of demonstrative rain gardens along with an educational workshop for citizens and schools in October 2020. The city has implemented further blue-green infrastructure projects, such as flower meadows, encouraging residents to mow their lawns less, and establishing a green/outdoor educational classroom in which the walls are created by greenery and trees. All ideas were developed in the workshops with residents, students, and representatives of local associations to increase knowledge and awareness of climate action and blue-green infrastructure. A framework for such measures, the Municipal Climate Change Adaptation Plan until 2030, was adopted in December 2020.
Watch this video to learn more about what Zamość has been doing in regards to climate protection (in Polish).

The City of Zamość plans to develop and implement investments to increase energy efficiency and the utilisation of renewable energy solutions. These include the continuation of subsidies for inhabitants to replace old heating systems and thermal retrofitting of schools, taking into account decreasing dependence on fossil fuels and increasing the share of clean energy consumption. We will also build on the partnership established with Schwäbisch-Hall by planning and implementing similar climate action measures as well as continuing friendly competition and education activities in schools and during municipal events. Building on the knowledge gained at BEACON workshops, we will develop blue-green infrastructure as a primary tool for climate change mitigation.



MUNICIPALITIES

Romania

ALBA IULIA

ROMANIA

Population: 63,536 | **Contact:** Gabriel Pleșa, Mayor, gabriel.plesa@apulum.ro
Liviu Stanciu, liviu.stanciu@apulum.ro

40% reduction in CO_2 emissions by 2030 compared to 2008

The BEACON project helped Alba Iulia address one of the most critical issues for climate action, funding. With the support of BEACON partner the Romanian Network of Energy Cities (OER) and the Alba Local Energy Agency (ALEA) through coachings and advisory services, Alba Iulia submitted an application for the European City Facility programme for an in-depth, energetic evaluation process of Horea, Closca si Crisan high school's main building. The grant is needed for an energy audit, a roadmap, and the energy passport for the main building of the high school as well as a feasibility study and the elaboration of a strong investment concept.
The application was submitted in autumn 2020, but was not selected. The Alba Iulia team is preparing the application to be filed again in May 2021, given the importance of the aforementioned actions. The expected impact of the investment project would be as follows:

- 30% reduction of energy consumption at the building level
- 35% less CO_2 emissions associated with energy consumption
- 30% of building energy supply provided by local renewable energy sources
- Improved indoor air quality
- Increased awareness and knowledge regarding the sustainable use of energy for final building users (mainly students)
- Creation of a model building for energy efficient educational buildings in Romania

"The BEACON project and the partnership with the city of Arnsberg within BEACON's twinning initiative has contributed significantly to the development of new perspectives for Alba Iulia in terms of energy efficiency and climate action projects that are essential for any European city today. The BEACON project was the space that once again brought to life the 47-year-old partnership between Alba Iulia and Arnsberg, not in a cultural sense, but more in terms of practical things that concern us all: climate action and energy efficiency. On top of all this, the content knowledge, the exchange of best practices between us at the decision making and working levels, the smart city initiatives and projects, and the physical and online meetings between the two municipalities have effectively contributed to strengthening European cohesion, gaining valuable new insights, and developing bold plans for the future for both municipalities."

Marius Filimon, our Deputy Mayor, Alba Iulia

The BEACON project brought to our attention the quantity of qualitative knowledge regarding implementing commitments defined under the Covenant of Mayors.
Focused on urgent climate changes measures, BEACON paved the road to sustainability in terms of understanding the importance of energy efficiency and climate action. The value of the support provided by the BEACON team can already be seen in different projects that Alba Iulia is planning or has already begun implementing. Much of the information and knowledge gained in the BEACON project is now incorporated into our EU-funded projects. But, more importantly, the team formed within BEACON has a clearer vision about climate change, energy, and sustainability.

Alba Iulia plans to continue its old partnership with Arsnberg. An important part of this collaboration will be the exchange of information related to the smart city strategies developed by the two cities. Important segments from Alba Iulia's smart city strategy will be sent to Arnsberg to debate the approaches of both cities. A buildings app that Arnsberg developed and Alba Iulia's app for cycling are also subjects of further discussion.

DEVA

ROMANIA

Population: 61,123 | **Contact:** Mariana Miha, mariana.miha@primariadeva.ro

44% reduction in CO_2 emissions by 2030 compared to 2008

BEACON 's advisory services supported our integrated, sustainable local planning efforts. By participating in BEACON events, we received support in energy management as well as the revision and completion of the Sustainable Energy and Climate Action Plan (SECAP) with input from experts. BEACON also provided legislative advice on request and aided us in database management.

We also received support and advisory services for communication actions with citizens by training the staff in organising participatory meetings and developing materials that were disseminated during the meetings. In the field of sustainable mobility, we were advised in drafting the specifications for the purchase of 26 electric buses for local public transport and received technical support for the realisation of the new Sustainable Urban Mobility Plan.

"Thank you, BEACON, for your support! Through the projects implemented and being implemented, we want to leave a clean city for future generations."

Nicolae – Florin Oancea, Mayor of Deva

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Through BEACON, the staff from the technical, communication, and development programme departments of Deva were trained by the BEACON team in how to approach climate action in future municipal projects. Through the Development Strategy, the Sustainable Urban Mobility Plan, and the SECAP we could outline the list of climate change mitigation and adaptation projects for the next financing cycle, 2021–2030.

One of our success stories related to the BEACON project is the education of children in terms of climate change and sustainable mobility, through the participation of 951 pupils from Deva in the 'Oscar Snake Hoinar' campaign from 2019 to 2020. They saved 1,097 kgCO_2 emissions by not traveling by car for 7,833 km.

A PV study was also conducted for five school buildings in the municipality, which will facilitate the introduction of additional renewable energy projects. The personalised trainings offered by BEACON were helpful in expanding the capacities and knowledge of our staff in regards to climate mitigation-related topics.

In the future, our municipality will continue projects on sustainable urban mobility, increasing the energy efficiency of public and residential buildings, and educating our children. We strive to use the experience gained through the BEACON project in the wider community.

FĂGĂRAȘ

ROMANIA

Population: 30,714 | **Contact:** Dacia Săpătoru, daciasapatoru@yahoo.com; energetic@primaria-fagaras.ro

22% reduction in CO_2 emissions by 2020 compared to 2010. The municipality plans to renew its commitment to emissions reductions and draft a Sustainable Energy and Climate Action Plan (SECAP) with a target for 2030.

Făgăraș benefitted from advice provided by BEACON in the process of developing and implementing a campaign and activities around European Mobility Week 2019 (16–22 September 2019). BEACON partner OER provided advice regarding communication materials and how to implement the activities. Their support resulted in:

- Better promotion and coherent, clear, and concise communication of planned events and actions
- Fair, transparent, and inclusive mechanisms for competitions and contests
- Simplified procedures and online tools to measure the effects of the campaigns

Following the involvement of OER and the services offered by the BEACON project, the actions resulted in over 3,000 participants in competitions; the organisation of two raffles linked to the number of kilometres traveled by participants on foot; prizes like bicycles, helmets, and other bike accessories; and attention from local media outlets, such as Salut Fagaras.

© XXX

"The Făgăraș micro-region must be able to promote a green, inclusive, local bioeconomy based on sustainable consumption and protection of resources, which advocates for social cohesion, biodiversity, social and ecological integrity and that advocates for the well-being of nature, people and animals."

Sucaciu Gheorghe, Mayor of Făgăraș

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Before BEACON we were focused solely on reducing emissions at the municipal level. Since BEACON we understand that our development vision must include a set of territorial measures and strategic actions to model the Tara Fagaras micro-region.

The annual Traffic Snake Game campaign took place under the coordination of OER with the direct involvement of primary school teachers. The pedestrian bus was implemented and maintained, increasing the number of (pedestrian) passengers. The students also made an anthem for this campaign that can be found on the school's website. In 2019 and 2020, 769 children participated in the game and saved 995 kgCO_2 emissions and reduced car travel by 7,107 km.

The set of tools presented in BEACON's Vision Workshop training-of-trainers will be shared with all schools in Făgăraș. Schools will be encouraged to establish and implement some clear, short-term climate action measures with the goal of reducing greenhouse gas emissions in different sectors like buildings and transport.

RÂMNICU VÂLCEA

ROMANIA

Population: 98,776 | **Contact:** Simona Iliescu, simona.iliescu@primariavl.ro
Mirela Turcu, mirela.turcu@primariavl.ro

Râmnicu Vâlcea commits to reducing CO_2 emissions in its territory by at least 40% by 2030 compared to 2008, mainly through improved energy efficiency and greater use of renewable energy sources and increasing its resilience by adapting to the impacts of climate change.

During the BEACON project we tried to focus on reducing CO_2 emissions by implementing energy efficiency projects in our city as well as communication and citizen participation projects regarding climate change activities (awareness, adaptation, and mitigation activities). These awareness activities allowed us to show citizens the impact of climate change in our city and in their everyday lives and to gain their support for these kind of projects. Râmnicu Vâlcea received the Partner award from the European Local Democracy Week (an initiative of the Council of Europe) in 2019 and 2020 for the activities that involved the local community in the local administration's decisions. The 2020 award submission was developed with BEACON partners OER and SNRB.

"We want a healthier environment, we want greener jobs for our residents and we want a higher quality of life in our city. We want a cleaner town for our children."

Eusebiu VETELEANU, former Vice Mayor, current City Manager of the Municipality of Râmnicu Vâlcea (28 September 2018 at the Covenant of Mayors' Change Now International Summit)

© Râmnicu Vâlcea Municipality

© Râmnicu Vâlcea Municipality

Thanks to BEACON, we have access to more information regarding the climate actions taken by other municipalities that might be replicated in our city and might inspire our future projects. We developed more energy efficiency projects in the last three years in BEACON than in previous years, and we have more trained personnel and more teachers and students involved in climate change actions as a result.

Thanks to BEACON, we have updated our energy consumption database, which includes data on water, central heating, and gas and electricity consumptions in the municipality's public buildings that are being monitored. This has allowed us to prioritise the refurbishment of public buildings and choose the six public buildings now being refurbished via the support of European funding. An additional eight private buildings are being renovated. Râmnicu Vâlcea is implementing 23 total climate change mitigation projects developed with European funds, with a total value of 352,663,100 RON (about 71,972,000 €). We are also implementing two park landscaping projects, one project for the rehabilitation of public lightning, one social development project, and four urban mobility projects.

The energy consumption database is a real asset to reporting processes our city must comply with, either for the national level, the Covenant of Mayors, or any other reports or technical analysis we need to perform on the public buildings stock. Through BEACON, an external expert was commissioned to conduct a PV study for all Romanian BEACON municipalities. The buildings that were subject to this study are also monitored through the online database. The study covering 14 public buildings will provide estimates of the amount of green energy production, tCO_2 saved, how much electricity is covered, price, and building load – all of these are computed for each building and can be used for applying to various financial instruments.

We plan to remain in touch with the BEACON team (staff and other municipalities) so that we can exchange information and ideas about new projects that could help us mitigate climate change. We will continue to have a permanent dialogue with our citizens so that we can have their support on implementing further climate change actions in our town. With this support, we will continue to develop mobility and transport, energy efficiency, and urban planning projects.

ZALĂU

ROMANIA

Population: 69,157 | **Contact:** Rodica Ciurte, ciurterodica@zalausj.ro

Reducing CO_2 emissions by 40% by 2030 compared to 2009

Through BEACON expertise provided in technical meetings, we were supported in updating our Sustainable Energy and Climate Action Plan (SECAP). Our SECAP includes 123 well-defined new or ongoing measures that will reduce our CO_2 emissions by 15.7% until 2020 and by 40% until 2030 compared to 2009. The most important measures include the reduction of energy consumption in public buildings and residential buildings, such as:

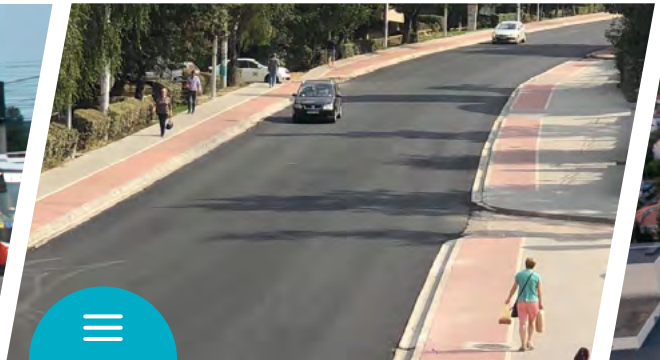
- Thermal rehabilitation of social housing, blocks C11, C12 (40 dwellings), C3 (52 dwellings), and the Astalis block
- Improved energy efficiency in 44 educational buildings
- Improved energy efficiency of 70% in 40 blocks of flats with a usable area of 88,896 m^2
- Development of electric public transport in the city

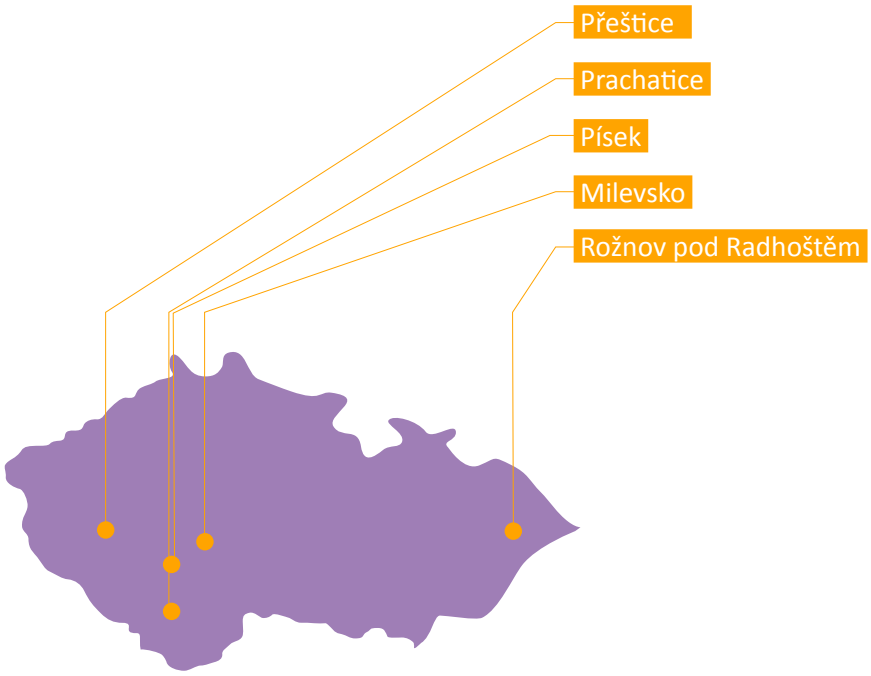
"Increasing greenhouse gas emissions and the need to reduce our carbon footprint is a reality and we are aware that we need to contribute to a substantial reduction. The Sustainable Energy and Climate Action Plan is a strategic document that will shed light on the efforts and priorities of Zalău City Hall in the stages that will be taken for Zalău to become an adaptable city and ready to face climate change." *Ionel Ciunt, Mayor of Zalău*

We have developed an informal structure for internal cooperation among all relevant departments to tackle climate and energy issues. We have improved cooperation on climate action between the municipality and schools in Zalău, and we have strengthened our network with other Romanian municipalities, OER, and other European organisations.

We were also able to update our energy consumption database and improve recordings from our energy management systems. These enhancements included the data related to numerous characteristics of 120 municipal buildings, including administrative buildings, social buildings, and education institutions (kindergartens, schools, high schools). The data collected included electricity consumption, heating, and cold water/hot water monitoring and various technical reports regarding the specific energy consumption in buildings. With this information, Zalău is better prepared to develop measures in the field of energy efficiency in buildings and improve the strategies that contain such measures.

We plan to continue implementing measures regarding sustainable mobility and energy efficiency in public buildings. We also plan to implement awareness-raising and informational measures regarding climate change with local schools.





MUNICIPALITIES

Czech Republic

MILEVSKO

CZECH REPUBLIC

Population: 8,343 | **Contact:** Vít Král, kral@zivemilevsko.cz

Certification under ISO EN 50001

When the BEACON project began three years ago, most residents of Milevsko were not familiar with climate action. BEACON made it clear that climate change and climate action is much closer than we thought. We focused on the future of a district heating plant that heats most of the homes in Milevsko. An analysis showed that the plant should be replaced or refurbished because of its use of carbon-intensive lignite. The BEACON team helped open the discussion on the future of this plant. Also through the project, three schools in Milevsko introduced energy-saving projects, one of which is a deep renovation project.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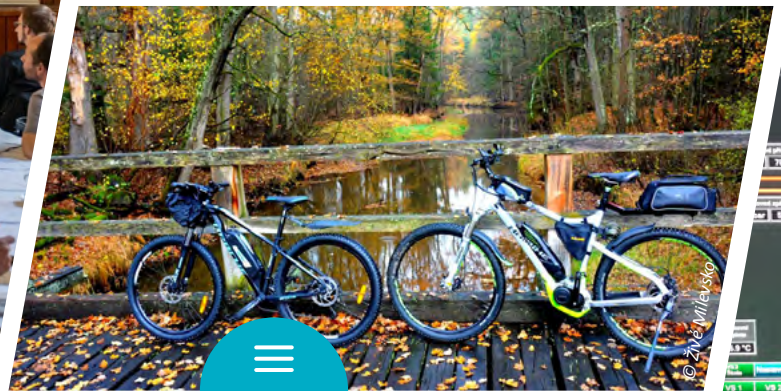
Milevsko has grasped climate action. We have started to implement the SMART city concept and complemented these efforts with additional climate action measures. Thanks to BEACON, we are working towards energy management certification via the ISO EN 50001 standard, which would contribute to decreasing emissions in the municipality.

Milevsko plans to become certified under the ISO EN 50001 energy management standard. We also plan to implement the deep renovation of a school building and to continue the dialogue on decarbonisation with the local industrial park that operates the district heating plant.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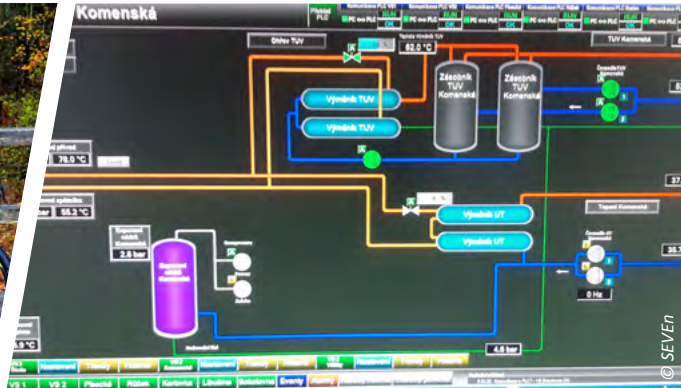

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PÍSEK

CZECH REPUBLIC

Population: 30,279 | **Contact:** Jan Venclík, Head of Investment Department, jan.venclik@mupisek.cz
Edita Kučerová, Foreign Relations Officer, edita.kucerova@mupisek.cz

Climate and energy targets are to be determined under the Sustainable Climate and Energy Action Plan (SECAP) that is under development.

BEACON enabled several investments in the context of the heating plant refurbishment, supporting the switch of the municipal heating plant from lignite to biomass in 2021:

- Introduction of heat accumulation tanks that absorb energy surpluses, save them in a fluid heat medium, and then release them back in to the heating network when needed.
- Interconnection of the heating network with a biogas station equipped with a cogeneration unit, which translates into net energy savings of 2.7 GWh per year and a reduction of 2.44 ktCO_2 emissions per year for 20 years.
- Introduction of a new biogas station, newly built natural gas boilers in reserve or peak operation, and a cogeneration natural gas unit, which will generate electricity with waste gases reused to produce heat. The latter can supplement the main biomass boiler during the winter period.

The largest municipality participating in BEACON in the Czech Republic, Písek, has intensified efforts to decarbonise its economy. Energy-saving projects in public buildings and decarbonisation of the district heating plant were conceived and partially completed with BEACON assistance.

BEACON facilitated a fruitful partnership. Písek and Pirna engaged in a series of meetings and mutual visits. They were able to dive deep into climate action topics and share detailed information and good practices. Písek shared its experience of decarbonising the heating plant while Pirna brought the knowledge of extending biking infrastructure. Both municipalities also learned about public relations and involving the public in municipal projects.

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Písek will continue the dialogue with Pirna and develop a SECAP under the Covenant of Mayors.

© Písek

© Písek

PRACHATICE

CZECH REPUBLIC

Population: 11,203 | **Contact:** Marie Peřinková, Head of Environment Department, mperinkova@mupt.cz

The municipality has developed a climate action policy paper that cements climate action in municipal politics and has engaged in educational and awareness-raising activities at local schools.

Climate action is rooted in Prachatice. Our participation in BEACON highlighted the prevalence of climate action in municipal policies. An analysis of the refurbishment options for the district heating plant and the feasibility of energy management implementation showed municipal leadership the significance of climate action in day-to-day municipal operations. When the potential benefits of engaging in climate action became clear, the municipality agreed to adopt a climate action policy.


© Prachatice


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In BEACON, Prachatice focused on waste management to reduce the amount of waste produced in apartment buildings. The study on this topic resulted in a wealth of recommendations and insights. It highlighted upcoming changes in the way Czech municipalities manage waste. With the impending ban on waste dumps, municipalities will face the pressure of increasing waste disposal prices and having to pass on this higher cost to citizens. Prachatice is now prepared for this transition, which also brings with it a reduction of greenhouse gas emissions.

Prachatice plans to adopt a climate action strategy, followed by specific action plans.

PŘEŠTICE

CZECH REPUBLIC

Population: 7,275 | **Contact:** Karel Naxera, Mayor, naxera@prestice-mesto.cz

- Introduce an energy management system
- Reduce waste production and emissions through a weighing and tracking system

In 2018 when BEACON began, the municipal government of Přeštice, a small town of 7,000 in western Bohemia near Pilsen, had recently decarbonised its heating plant, switching from natural gas to biogas. However, no one associated this measure with climate action and thought about energy simply in terms of securing energy supply. Today, 22 public buildings have been assessed and included in a proposed municipal energy management scheme. Our perception of energy has expanded. The mayor has adopted a comprehensive approach to energy and climate that includes energy consumption, energy efficiency, and innovative solutions.

Přeštice plans to introduce an energy management system and has a pipeline of the building renovation projects, which will ultimately improve building energy performance.

© Přeštice

© Přeštice

Přeštice has started to decrease our climate footprint by saving energy, reducing waste, and more importantly, changing our mindset.

Přeštice is one of the first municipalities in the Czech Republic to introduce a sophisticated waste weighing system. Each garbage can in the town is weighed and reported. Though the system is still in a pilot phase, the data points to a difference between the amount of waste that is billed and the amount that is actually collected. Closing this gap will allow better pricing and prepare the municipality for impending dump closures in the coming years. Overall, Přeštice signals that producing excessive waste is a luxury and its processing is costly both in terms of money and carbon footprint.

Přeštice also wanted to use BEACON to enhance communication and education around climate action in the municipality, but resources for this in the administration were scarce. BEACON partner SEVEn prepared a communication strategy reflecting the needs and target groups of Přeštice. The municipality then decided to create the position of a communication officer, who would, among others, integrate climate change and climate action into their work. This person received training as part of a BEACON coaching, thereby building capacities in the administration in the long term. SEVEn also supported Přeštice with the review of a broadcast app used for municipal communication, “Mobilní Rozhlas”, which proved particularly relevant in the context of the COVID-19 pandemic.

ROŽNOV POD RADHOŠTĚM

CZECH REPUBLIC

Population: 16,000 | **Contact:** Jan Cieslar, Energy Manager, jan.cieslar@roznov.cz

Deep renovation of public buildings

In Rožnov pod Radhoštěm, BEACON did not start from scratch. Rožnov had already been employing an energy manager and had prepared strategic documents on sustainability to guide the municipality until 2030. BEACON helped Rožnov initiate a large-scale undertaking on the renovation of municipal buildings. Implementation began after the town's leadership adopted the idea. As of June 2021, three of eight steps in the process have been carried out, and in early July 2021, the tender for the renovation provider will be issued. Not only will the buildings be refurbished, but energy management will be performed for ten years and will oversee the achievement of 20% energy savings according to the contract. This translates to savings of 2 million CZK and 1 GWh per year for the next ten years.

© Rožnov

BEACON has helped Rožnov to take bold steps towards a low-carbon energy future. Already active in energy management and climate action, Rožnov has undertaken an ambitious renovation project to significantly decrease its energy consumption and emissions.

Rožnov is exploring the establishment a positive energy district.

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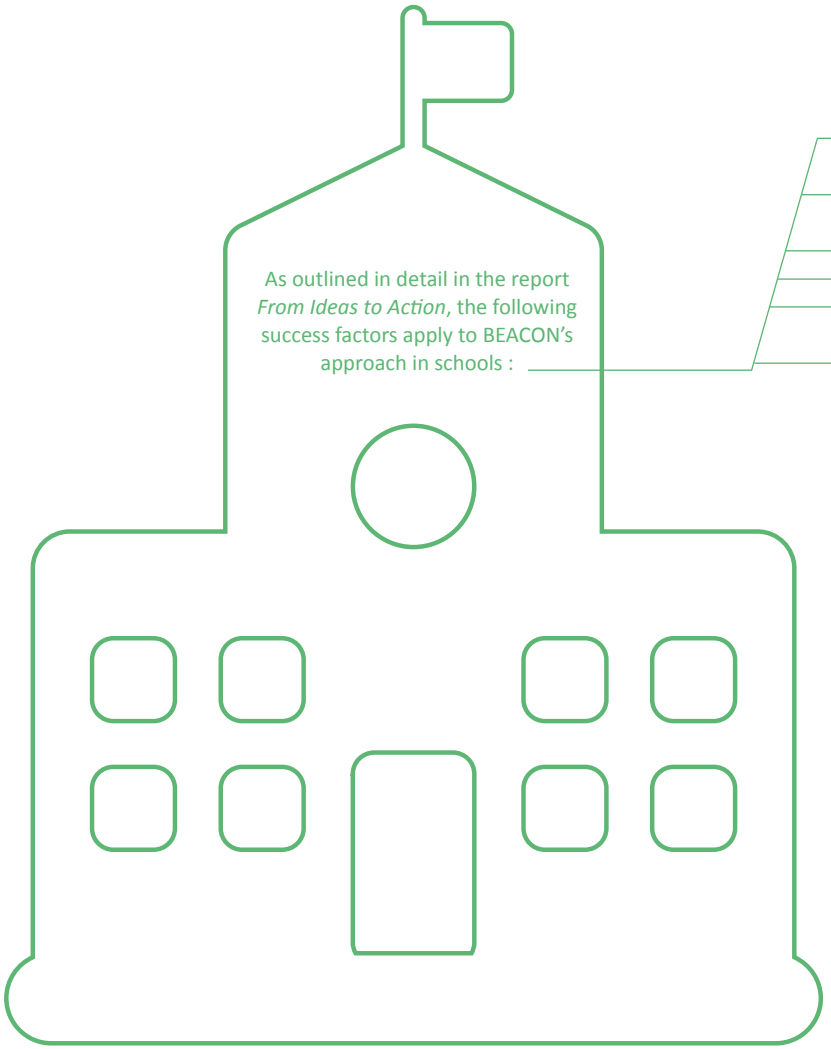
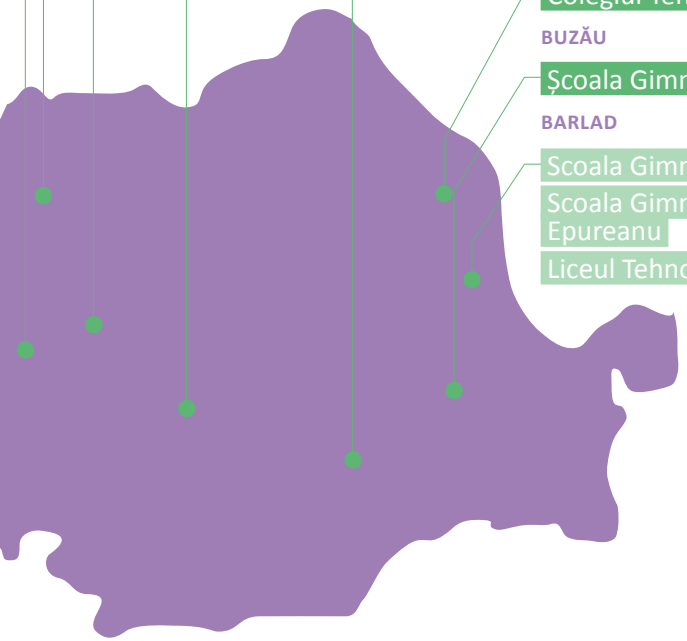


SCHOOLS

As outlined in detail in the report *From Ideas to Action*, the following success factors apply to BEACON's approach in schools :

- Involvement of all actors in the school and beyond creates an inclusive team spirit around climate action measures
- A close cooperation between school and municipality can achieve long-term energy savings and emission reductions
- Exchanging and networking with peers leads to lasting climate action learnings
- Integrating climate action in school curricula ensures continuity and quality of teaching
- Extensive training and capacity building are necessary to carry out successful climate action projects
- Tailored (financial) incentive systems for energy saving measures can ensure continued activities and efforts in the schools



DEVA

Colegiul Tehnic Energetic Dragomir Hurmuzescu

Liceul Tehnologic Transilvania

ZALĂU

Scoala Gimnaziala Simion Barnutiu

ALBA IULIA

Scoala Gimnaziala Mihai Eminescu

Scoala Gimnaziala Ion Agarbiceanu

RÂMNICU VÂLCEA

Scoala Gimnaziala Anton Pann

Colegiul National Mircea Cel Batran

BUCHAREST

Școala Gimnazială Nr. 56 București

Deutsche Schule Bukarest

Colegul National Kretulescu

Goethe Kolleg

Școala Gimnazială Nr. 20 București

Școala Gimnazială Liviu Rebreanu București

Scoala Gimnaziala Cezar Bolliac

PLOIEȘTI

Colegiul Tehnic Lazar Edeleanu

BUZĂU

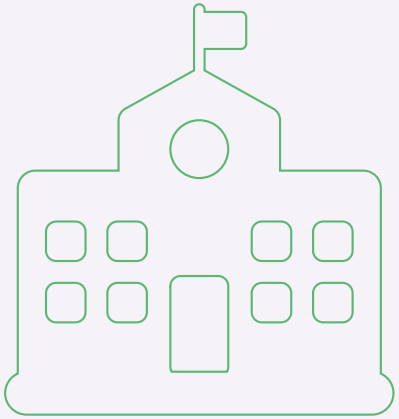
Școala Gimnazială Nr. 7

BARLAD

Scoala Gimnaziala Episcop Iacov Antonovici

Scoala Gimnaziala Manolache Costache Epureanu

Liceul Tehnologic Petru Rares



SCHOOLS

Romania

SCOALA GIMNAZIALA MIHAI EMINESCU

ALBA IULIA | ROMANIA

Grade/levels: 1–8 | **No. of students:** 1,056

The school was refurbished in 2010. However, when BEACON started, no one in the school administration was responsible for proper building maintenance. The heating system was adjusted by teachers and other administrative personnel. For these reasons and more, we fully embraced the idea of the BEACON project because it could help us improve user behaviour, especially among students. Using the measuring instruments was the most interesting activity for our students, particularly measuring CO_2 concentration during classes. Along the way, BEACON partner SNRB Association answered all of our questions about energy efficiency and climate change mitigation.

The results from the energy tour and the proposed measures have been shared with the new mayor, and we are confident that some of them will be included in the next budget proposal. BEACON gave us a direct channel to the local authorities and opened communication channels regarding an incentive system for conducting energy savings measures in the school, which is now on the municipality's agenda.

"I was reserved at the beginning of the project, but the programme, pedagogical materials, network, and the partner involvement made this project special. Now, I really want to further develop and use everything we have learned."

Adriana Constantin, Principal

BEACON helped us create a student network on saving energy and transform participating students into climate protection ambassadors. The open classes on energy efficiency held during the pandemic were interesting for children, and the energy team is still one of the most popular groups in the school. Also, during the BEACON trainings, study visits, and workshops, we had the opportunity to exchange good practices, teaching methods, and ideas with other colleagues and start both a formal and informal teacher network.

- Continue the energy-saving programme with the support of SNRB
- Develop training programmes based on the BEACON materials
- Provide input in the process to include climate action in the national curricula

SCOALA GIMNAZIALA ION AGARBICEANU

ALBA IULIA | ROMANIA

Grade/levels: 0–8 | **No. of students:** 730

With the support of BEACON in 2020, we installed five thermostats in five classes of the school and renovated our indoor gym facilities. Through BEACON we also did extensive pedagogical work in the school so that pupils are now well informed about climate change (mitigation).

The groundskeeper and the administrator of the building have learned a lot about our school building's technical profile with the help of BEACON. They also involved more students in these activities. The groundskeeper took two classes on an energy tour of the building. He was moved by the diploma the students made for him at the end of the year where they wrote "The one that saves the planet."

With the help of the BEACON project, we managed to apply for other national projects. the Ministry of Environment developed the Environment Fund from the revenues from the sale of greenhouse gas emission certificates. The Environment Fund budget allocates funding for the new Energy Efficiency in Schools Program. Our school applied to this program in May 2021 and hopes to further support of energy efficiency efforts with this funding.

We aim to participate in more projects like BEACON. We also aim to implement more interactive activities about climate change such as the bike cinema and the Earthbate competition.

ȘCOALA GIMNAZIALĂ NR. 56 BUCUREȘTI

BUCHAREST | ROMANIA

Grade/levels: 0–8 | **No. of students:** 1,056

The school has benefitted immensely from the set of measuring equipment provided by the project, which includes devices to monitor electricity consumption, temperature, and CO_2 levels in classrooms. Pupils learned how to use these tools during information sessions and workshops organised by the project.

Students have been made aware of how important it is to save energy at school and at home. They learned the proper way to air out rooms, the optimal temperature for learning and concentrating, and ways to save electricity (e.g. turning off the light when leaving the room, pulling back the curtains to let light in, unplugging appliances or turning them off). Students learned that saving energy and water lowers costs. They implemented all these measures at school and at home. The children's parents recognised that financial savings can be achieved through this approach. Energy consumption in the school decreased by 20% in 2020 compared to 2019. Many more issues were addressed in the project, but in our school, the most important was the acquisition of skills by the students to reduce energy, waste, and water consumption.

"We have learned that saving energy brings benefits both to the environment in which we live, but also financial benefits by reducing the cost of energy and water bills."

Monica Popa, teacher

We aim to continue our involvement in similar hands-on climate and energy projects.

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DEUTSCHE SCHULE BUKAREST

BUCHAREST | ROMANIA

Grade/levels: 0–12 | **No. of students:** 150

At the beginning of the project, a portion of the school moved to a new building. Learning proper end-user behaviours at the beginning of the project helped us use the new school building. The new building is modern with a heating system and temperature controls in each classroom.

On the eve of our move to the new building we asked the students to write down what their expectations are for the new location. We were surprised to discover that some of them noted a better temperature in the classroom, places to leave bicycles, or sensor lighting. They would not have had these notions if other energy efficiency projects like fifty/fifty had not been implemented in the school in previous years. After we moved buildings, one of the most fun activities the students took part in was putting the BEACON floor stickers around the school.

"With the help of this project I discovered how many amazing things solar energy can do. We built small toy cars and added a tiny solar panel and then magic happened. I think when I will grow up I want to build cars that don't pollute at all."

Sebastian, grade 5

With the support of the school and of the parents council, the most involved pupils in the project had the chance to visit Berlin during the spring break and see a German school implementing an energy efficiency project by BEACON partner UfU. This excursion was exciting for the pupils and left an exceptional impression on them. They became BEACON ambassadors, promoting energy efficiency and telling their peers about their experiences in Berlin. Their experience was a good example of how to incentivise students and staff to engage in energy efficiency measures in private schools in Romania.

We would like to bring the BEACON bike cinema to an event in the school. We will also continue to closely monitor and promote proper usage of the building and climate-friendly behaviour.

COLEGUL NATIONAL KRETULESCU SUPERIOR SCHOOL OF COMMERCE

BUCHAREST | ROMANIA

Grade/levels: 9–12 | **No. of students:** 930

The BEACON project is a pioneer initiative for promoting energy efficiency in schools. This project facilitates the involvement of young people and teachers in climate action through specific technical and capacity-building actions like training teachers and encouraging collaboration with local authorities.

The biggest impact the BEACON project has had is initiate the desire among both teachers and students to contribute to the achievement of the Sustainable Development (SDG) Goal 12 (responsible consumption and production) and SDG 13 (climate action).

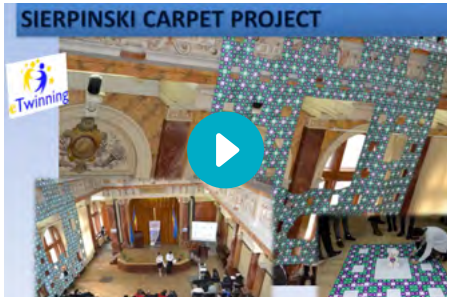
Our high school has three buildings and a sports hall, which is a historical monument. The sports hall has not been renovated in the last 20 years and consumes the most heat and energy of all our buildings. The BEACON project found that energy efficiency improvements would help reduce costs for the municipality that manages the buildings. During the school year 2019-2020, the team of 13 student volunteers carried out temperature and CO_2 measurements in all the building blocks for one month and compiled the results in a microclimate study.

With European funds, from February 2021, the City Hall of Sector 3 has started the renovation of the main building taking into account the recommendations made by BEACON for energy efficiency, e.g. replace the electricity and heating installations, seal windows and add double glazing, and add insulation to the building envelope to reduce heat loss.

"Being part of the BEACON project broadened my professional horizon to include concrete actions to reduce climate change through the transfer of expertise from Germany via UfU. At the same time, the collaboration with SNRB meant effective teamwork, seriousness, smiles, and the creation of a new BEACON family. Thank you!"

Prof. Dr. Gabriela Dîrloman, teacher

Our high school can transfer the experiences, good practices, and knowledge of how schools can become more energy efficient to other schools in Bucharest. Our high school strives to become a Centre of Excellence, where teacher trainings, debates, and workshops with students, teachers, and local authorities can take place.



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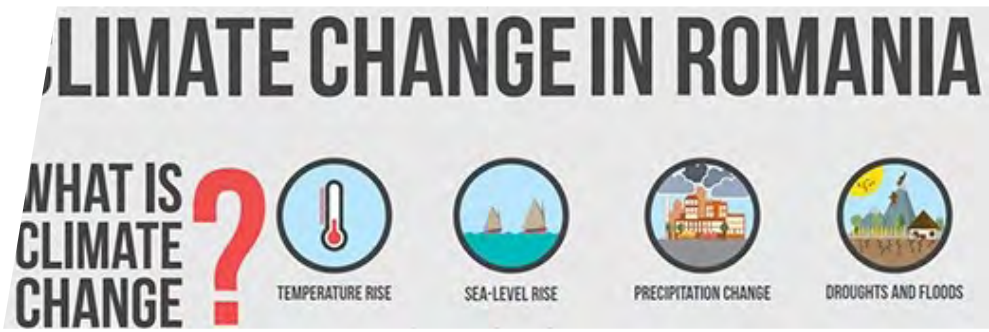
GOETHE KOLLEG

BUCHAREST | ROMANIA

Grade/levels: 5–8 | **No. of students:** 250

Improvements have been made in the knowledge and consciousness of students regarding water consumption, electricity consumption, and ventilation of the rooms. The health outcomes for building users have also improved.

The BEACON project has generated real enthusiasm among the students involved in its activities. Students found the open lessons during the Week of the Other Way particularly interesting and a great way to make their ideas known among the larger student body. During this special week, which takes place every school year, students engage in different types of pedagogical activities beyond standard in-classroom lessons and methods. Students have the opportunity to use the measuring equipment provided by BEACON, capture and interpret results, draw conclusions, and ultimately change behaviours. The behavioural changes had an impact on the school's electricity bills, which decreased even during a cold winter. Similarly, the training sessions for teachers and the study visit to Germany were instrumental in gaining knowledge that contributed to the successful implementation of the project.



Fridays for Future was also particularly successful in our school as the students participated with great enthusiasm, showing solidarity with the other demonstrators from around the world. They learned that more awareness is needed in schools and the larger citizenry about climate change, environmental pollution, and degradation of the planet's natural resources. The students tried to make their voices heard and propose solutions for their community.

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We plan to become involved in other projects aimed at reducing pollution and energy consumption, and raising climate action awareness among as many students as possible. We also aim to continue the measures that contribute to reducing energy bills. Despite the progress made in BEACON, more needs to be done to raise awareness among all building users so that, we can transform the school into a more energy efficient building.

Both images © SNRB

ȘCOALA GIMNAZIALĂ NR. 20 BUCUREȘTI

BUCHAREST | ROMANIA

Grade/levels: 0–8 | **No. of students:** 885

The school has benefitted from the set of measuring instruments provided by BEACON for monitoring electricity consumption, temperature, and CO_2 levels in classrooms. Pupils learned how to use these tools during lessons and workshops organised by BEACON partner the SNRB Association. The pupils also actively participated in other climate action-related activities and interactive games.

Students learned about the importance of saving energy and cutting costs at home and at school. They learned how to maintain optimal thermal comfort for learning and practical methods to reduce energy consumption, including proper techniques for airing out classrooms, measuring the temperature, turning the heating off or down as needed, managing the CO_2 concentration in the classroom, and other ways to save energy. The students participated in BEACON's open classes and the teachers participated in teacher trainings, receiving pedagogical support for their climate-related lessons.

"We have learned that energy efficiency can not only be useful in terms of reducing energy bills but also fun and empowering for the students."

Veronica Dumitrache, teacher

Students learned that by reducing their heating consumption, electricity, and water they would not only have lower utility bills but also have a smaller environmental footprint. The energy team started a school caravan and visited all classes to explain the impact of energy-saving measures to their peers. They emphasised that energy efficiency is not a burden – it can be fun and every student can be a teacher at home or in the community. Many topics have been addressed in the project, but the most important development has been the acquisition of skills by the students to help reduce waste and energy and water consumption.

Our schools would like to continue our involvement in these kinds of projects and plans to have a climate action community day during the next school year.

ȘCOALA GIMNAZIALĂ LIVIU REBREANU BUCUREȘTI

BUCHAREST | ROMANIA

Grade/levels: 0–8 | **No. of students:** 902

The school has benefitted from the set of measuring instruments provided by BEACON for monitoring electricity consumption, temperature, and CO_2 levels in classrooms. Pupils learned how to use these tools during lessons and workshops organised by BEACON partner the SNRB Association. The teachers have also benefitted from trainings on teaching and implementing energy efficiency measures in the classroom.

Students learned through BEACON that even small behavioural changes in the spirit of climate action can result in lower energy bills and a better school environment. They learned how to maintain optimal thermal comfort for learning and practical methods to reduce energy consumption, including proper techniques for airing out classrooms, measuring the temperature, turning the heating off or down as needed, managing the CO_2 concentration in the classroom, and other ways to save energy. The students participated in BEACON's open classes and the teachers received pedagogical materials translated into Romanian, such as the LENA Handbook.

"We had fun implementing the BEACON project in our school. It is an intuitive project and helps us shape young personalities."

Amalia Mihaila, teacher

Students learned that being part of the energy team is a big responsibility, but it also can be a lot of fun. They became energy ambassadors and held presentations at the school's scientific events. They also became energy leaders at home, teaching their parents about how they can save energy and money at home. They demonstrated that every student can be a teacher at home and in the community.

Our schools would like to continue our involvement in these kinds of projects and plans to have a climate action community day during the next school year.

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SCOALA GIMNAZIALA CEZAR BOLLIAC

BUCHAREST | ROMANIA

Grade/levels: 1–8 | **No. of students:** 680

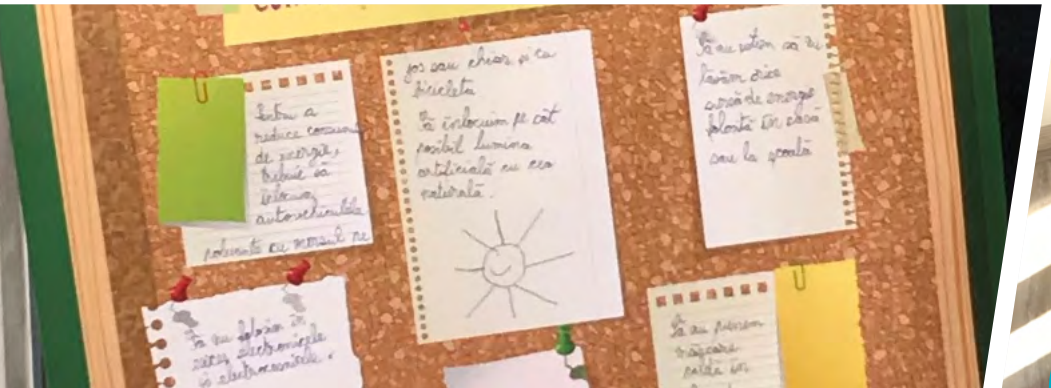
Our school was fully renovated before the BEACON project, but we were not aware of proper end-user behaviour. The BEACON project taught us how to use the school building and answered all of our questions about energy efficiency. Through the project, we were also connected to a great network of schools.

Measuring the temperature and CO_2 concentration in the school using the measuring instrument supplied by BEACON was an activity that all pupils loved. The energy team was thorough and looked in all corners of the school to discover the warmest classroom. A year into the project, the energy team became a popular group, and for the next year, we asked pupils to apply for a position on the team. The teacher in charge received over 75 applications, a reflection of students' interest and our efforts to expand awareness on energy, climate, and recycling.

Going forward, teachers will continue applying for more projects on climate-related issues and organising events for Earth Day and Mobility Week.

"I want to be in the Energy Team so bad that I promise to check that all the lights in the school are off before going home."

Mircea, age 9



ȘCOALA GIMNAZIALĂ NR. 7

BUZĂU | ROMANIA

Grade/levels: 0–8 | **No. of students:** 1,074

As a result of bilateral discussions facilitated by BEACON, Buzău City Hall built a central heating plant through a project with European funds, which the school has benefitted from since January 2021. With the new heating system, the school can better control the temperature and implement energy-saving measures promoted through the project.

Since 2018, our sixth graders have benefitted from a range of information on climate change mitigation-related topics and have participated in a variety of activities and events like Water Day, Earth Day, and Environment Day. The popular elective course initiated by BEACON on Environmental Education and Protection provided a space to learn to apply hands-on methods and learn about energy efficiency and other climate-related topics.

"Children, when they can and want to, change the world!"
Mariana Bicoiu, teacher

Our school was visited by BEACON project partners from the Grundschule Finow school in Eberswalde on 11-13 November 2019. Over the course of 2 days, a number of activities took place including an excursion to the natural Mud Volcanoes, a tour of our school, a workshop on energy efficiency, and lessons on climate-related topics like calculating their carbon footprints. During the visit, we exchanged ideas for activities and agreed to organise a joint climate change day, which will take place when pandemic-related restrictions allow.

Our schools plans to get involved in similar climate-related projects going forward.

COLEGIUL TEHNIC ENERGETIC DRAGOMIR HURMUZESCU

DEVA | ROMANIA

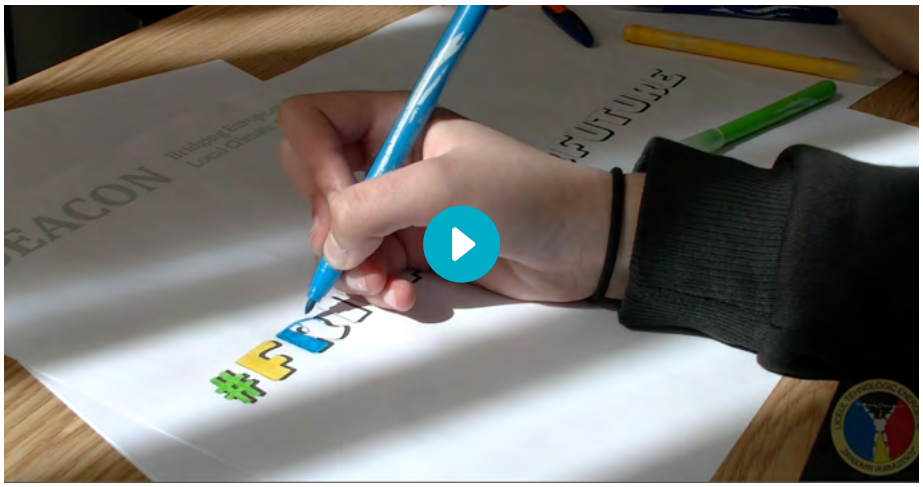
Grade/levels: 1–12 | **No. of students:** 1,500

As part of the BEACON project, the school received a kit with instruments to measure temperature, CO_2 concentration, and lighting intensity in the classrooms. Following the measurements carried out in the three buildings that make up the school complex, it was found that the maximum permitted values for temperature and CO_2 concentration exceeded the maximum permitted values and the the lighting intensity was insufficient.

Three teams from our school took part in the Earthbate debate organised by SNRB Association. Topics included the effects of climate change and how to mitigate it, energy efficiency, and environmental protection. Students worked in teams, gathering ideas and information, formulating arguments, and learning what climate impacts on the environment mean and how they can be mitigated. The debates were observed by classmates, teachers, and parents. The arguments and solutions proposed by the debate teams were articulate and well researched, creating an ideal setting for effective peer-to-peer learning.

https://www.facebook.com/watch/?v=2005253843101929

"It is not for school but for life!" *Adrian Alexa, teacher*



We plan to share the BEACON experience with other schools by becoming a Centre of Excellence in Romania. We will also continue monitoring energy consumption and finding or improving ways to reduce it, which will be enabled by the renovation of the school as foreseen by the municpality of Deva. We also plan to continue implementing measures to increase awareness and a sense of responsibility towards the environment and environmental issues, which will constitute a key component of our approach going forward, both among students and members of the larger community.

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LICEUL TEHNOLOGIC TRANSILVANIA

DEVA | ROMANIA

Grade/levels: 1–12 | **No. of students:** 1,200

Through the BEACON project our high school was able to obtain funding for an energy efficiency renovation building from the municipality of Deva. We strengthened links with the local community and administration and benefitted from all of the materials (e.g. measuring instruments), information (e.g. best practices from other schools), and inspiration (e.g. vision workshops) provided by BEACON activities.

Arguably the most impactful activity in our school was the climate action day in May 2019. Organised by the BEACON energy team, 122 student volunteers from both our high school and the partner high school participated in a day of challenges. The pupils conveyed positive messages on climate action via competitions in role-playing, drawing, painting, and poetry. The competition was open and advertised in the local newspaper. Regional representation of the Education Ministry and the City Hall of Deva were invited to observe and judge. The jury was impressed by the creative ideas of the students. Afterwards, the students agreed to continue the activities and competitions and implemented a calendar of BEACON-inspired events. It included things like days to walk, bike, or take public transport to school; days to green and clean the school grounds; and days to plant trees or flowers and set up an eco-garden with the support of local authorities. The students were enthusiastic about putting theoretical concepts into practice and showed interest in actions that could become part of the fabric of the school, not as voluntary efforts but rather as part of the curriculum.

"In the hope for a sustainable future, the BEACON project invites you to act together so we can protect the planet that sustains us! In conclusion, it's up to us!"

Casoni Larina and Gavrilă Denis, grade 11, presenting their school's climate action activities at a regional event

We plan to support SNRB Association in the implementation of curriculum expansion and the creation of a Centre of Excellence to multiply our experiences to other schools in Deva and the surrounding area. Our staff also plans to participate in further teacher training opportunities. Another aim is to support setting up an advisory board that puts all the actors involved in the administration of the school building and the users of the school building at the same table.

COLEGIUL TEHNIC LAZAR EDELEANU

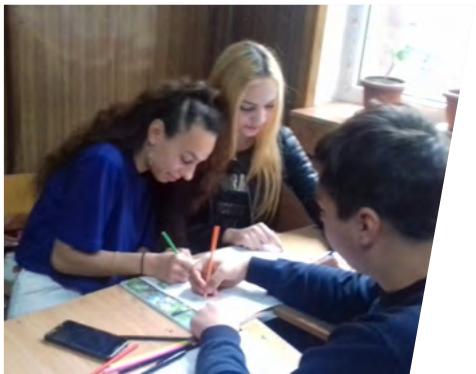
PLOIEȘTI | ROMANIA

Grade/levels: 5–12 | **No. of students:** 1,000

A key outcome of implementing the BEACON project in our school is that students are now keen to reduce electricity and water consumption and they want to participate in activities to promote environmental protection measures and climate change mitigation.

Stickers were placed in classrooms and technology labs to encourage students to reduce electricity consumption. Instructions for efficient water usage and ventilation were displayed in the bathrooms and classrooms.

"Dare and succeed!" *Livia Manole, teacher*



We involved students in the Friday for Future actions to encourage them to take action on climate and start making behavioural changes. Through their participation, students were empowered and part of a larger European and global youth network.

We would like to implement a climate curriculum; train as many teachers as possible in the field of climate change; organise and implement awareness-raising programmes for pupils, school staff, and parents on saving energy; implement energy-saving measures; and implement an incentive scheme for saving energy with the municipality.

SCOALA GIMNAZIALA ANTON PANN

RÂMNICU VÂLCEA | ROMANIA

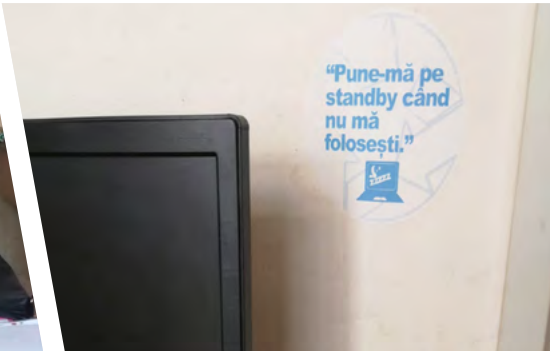
Grade/levels: 1–8 | **No. of students:** 1,392

The kit of measuring equipment provided by BEACON was systematically used by the students to measure temperature, lighting, and CO_2 concentration. As a result of the data and analyses, electric heaters and room thermostats were installed in all classrooms as needed, improving thermal comfort for end users and reducing heat consumption. Solar shading films were also installed in classrooms where measurements showed that brightness and temperatures were well above permissible levels.
In 2020, electricity consumption was reduced by 45% compared to 2019, and water consumption reduced by 28% compared to 2019.

Eight students on the energy team, three teachers, and an administrator made use of the BEACON measuring equipment tool kit, both in school and at home. Furthermore, at least 50 students participated in events such as the climate action day, Fridays for Future, Earth Day, and World Water Day.

"Turn off the light bulb, turn on the light!" *Prof. Diaconescu Cristina, project coordinator*

We plan to continue the work initiated through BEACON in various ways. First, we aim to promote and disseminate project activities in local media and with SNRB Association. We also plan to support the creation of a Centre of Excellence to scale BEACON-inspired educational activities and support the establishment of a Community Centre for Lifelong Learning with similar offerings for the wider community. Lastly, we plan to continue hands-on activities such as teachers' training and work with the school's energy teams.



COLEGIUL NATIONAL MIRCEA CEL BATRAN

RÂMNICU VÂLCEA | ROMANIA

Grade/levels: 0–12 | **No. of students:** 1,645

With the measuring devices provided by BEACON, we were able to conduct real, impactful assessments of the building's energy consumption with students. We have also benefitted from other informational materials provided by the project about energy efficiency and climate change.

Our school building is a large historic building that is not well insulated. The students' energy measurements showed that a lot of energy is lost from the old windows, resulting in energy costs as high as EUR 20,000 per month in the winter months. The students' calculations indicate that if some simple forms of insulation were installed on the windows, we would save at least EUR 5,000 per month. Until the building can be better insulated, the BEACON team was able to convince the vast majority of teachers and students to reduce heating in the classrooms where possible, to turn off the computers and the lights when they are not needed, and to completely turn off faucets in the sinks around the school.

As a next step, we plan to insulate the school building and replace the existing windows with more efficient ones.

SCOALA GIMNAZIALA SIMION BARNUTIU

ZALĂU | ROMANIA

Grade/levels: 0–8 | **No. of students:** 900

The BEACON project has increased the awareness of our students regarding climate change and its importance in everyday life. During the project, the students shared the information they learned with their peers at school and researched ways to improve the quality of their lives as well as those of their families and the larger community. The BEACON project also expanded the students' perspective on recycling and repurposing materials and finding ways to save energy.

The BEACON project changed how we address environmental issues in our school. The teacher trainings with pedagogical input on energy efficiency, reducing CO_2 emissions, and using the measuring equipment were the missing elements in our previous approach to these topics. The students were divided into teams, each with a different responsibility such as measuring temperature, light intensity, or CO_2 levels in the rooms, and then encouraged each other to adjust these levels as needed. The impact of the exercises with the measuring equipment were quickly apparent. For example, students began to use natural light more than overhead lighting. Having the measuring devices in the classrooms encouraged them to air out the room or turn down the heat to create a better atmosphere for learning. Despite not being able to regulate the heating system, energy consumption decreased by 2.5% from 2019 to 2020, and water consumption also decreased over the project duration.

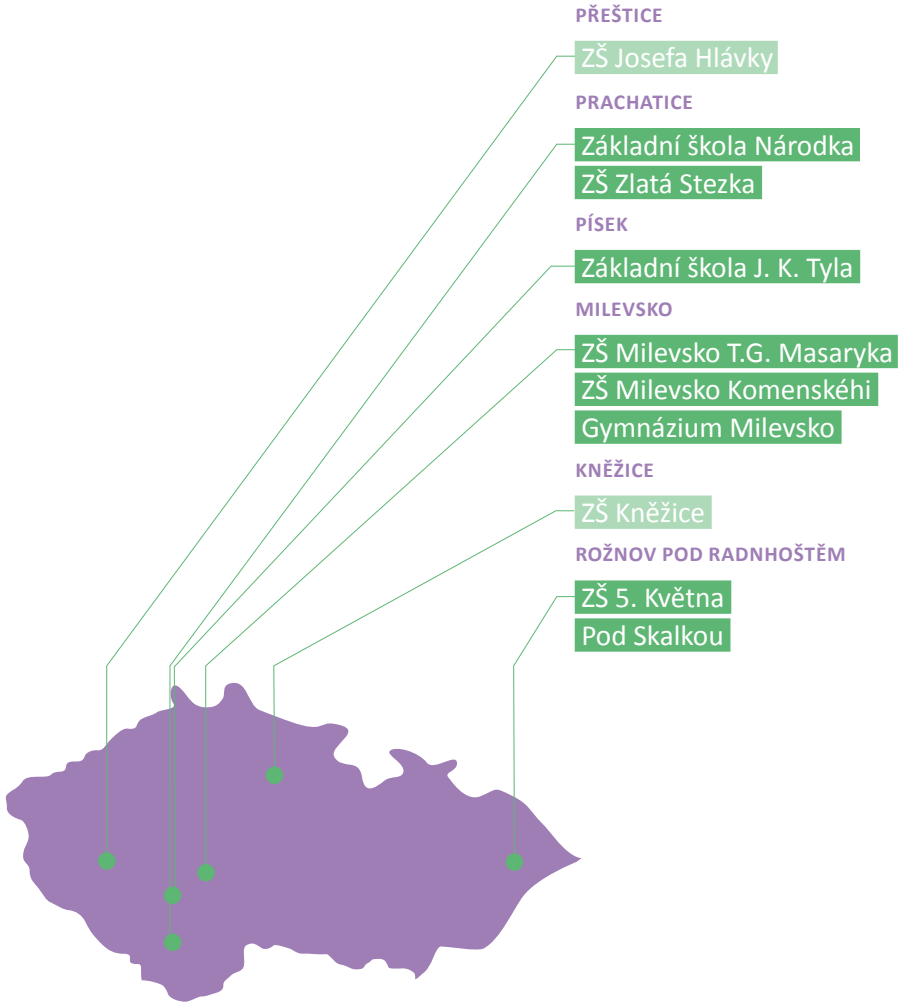
"BEACON has taught me how to be responsible with the environment, to take care of our planet."

Alexia, grade 7

Through the project, teachers and students were offered the experience to visit other schools and take part in climate action activities like a Model UN climate conference organised by students, calculating their carbon footprint, environmentally friendly gardening around the school, and building an energy laboratory with eco-friendly materials. We took all of the examples we learned about back home with us. These experiences serve as a real source of inspiration, particularly as they were characterised by a spirit of openness and collaboration. We have since shared our experiences with other schools.

We also held a climate action day in our school with the participation of 900 students. During the event, students had the opportunity to try the bike cinema and participate at the vision workshop, along with representatives from local authorities. During the event students could also learn about climate changes through different games, and we had a fashion show with clothes created from recycled materials.

The next steps are to continue to work towards BEACON's aims by spreading the value of such activities through (social) media sources, disseminating information with different institutions that could get involved in the future, organising workshops with the representatives from the local high polluting factories, and organising vision workshops with local authorities to find solutions and make our school a beacon for climate protection.



SCHOOLS

Czech Republic

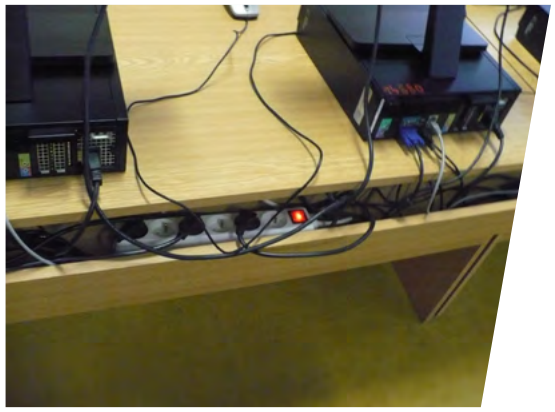
ZŠ MILEVSKO T.G. MASARYKA

MILEVSKO | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 560

Climate action has been anchored in the school's educational activities. New boilers and new heating controls have been procured with the advice of BEACON specialists.

As a result of BEACON's energy tour of the school, a project to modernise the heating system was launched. The entire boiler room is now being reconstructed and new boilers and new heating controls will be installed. BEACON experts also supported the selection and design of the boiler room.



As part of BEACON's efforts to implement an incentive system in schools, our school is exploring ways to cooperate with the city and be rewarded for our energy savings efforts. The school principal and energy team lead is working with Milevsko to develop an arrangement whereby the school will share the efforts and successes in saving energy with the municipality in the annual report. In return for their efforts, the school would get financial support from the city in the form of, for example, new measuring instruments or a paid excursion for the students.

We have planned additional energy saving measures such as replacing windows and insulation of walls and the roof.

ZŠ MILEVSKO KOMENSKÉHO

MILEVSKO | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 410

- Improving user behaviour
- Non-investment measures, e.g. measuring equipment and teaching materials

The first BEACON energy tour brought significant changes in the form of improved user behaviour. We have observed that the use of ventilation and lighting has improved significantly throughout the building. During the energy tour, errors in the thermostats were identified, and the settings of the entire heating system were fixed.

We plan to reconstruct the entrance area and upgrade the windows with triple glazing.

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GYMNÁZIUM MILEVSKO

MILEVSKO | CZECH REPUBLIC

Grade/levels: 6–14 | **No. of students:** 500

Climate action is now anchored in the school's education activities, and the climate action days helped raise awareness about climate change and energy savings.

For the climate action days, we procured meteorological equipment and performed series of experiments to illustrate the changing environment in the town of Milevsko and its surroundings. Water scarcity and changes in precipitation were the key topic to show the necessity of climate action. The school also used all of the BEACON material at the event, including the measuring devices, publications, and methodological guidance.

We plan to host climate action days beyond BEACON in the future and further anchor climate change and climate action in our educational offerings.

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ZÁKLADNÍ ŠKOLA J. K. TYLA

PÍSEK | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 500

Our school has been refurbished in cooperation with the Písek municipality and, as a result, significantly decreased energy consumption. The proposal for energy-saving measures was prepared by BEACON specialists after the first energy tour of the school building. Through BEACON, multiple student energy teams were established to promote leadership, peer learning, and to raise awareness on climate action and energy savings.

Our school successfully cooperated with the municipality in the past to reach an agreement on a refurbishment project with energy performance contracting (EPC). This project was extended during the BEACON project and resulted in a 30% reduction in energy consumption. In addition to building renovation, the energy team was created and includes socioeconomically disadvantaged pupils. The team has contributed to improvements in energy efficient behaviour that supplement the benefits of building refurbishment and increased climate action awareness among the pupils. The school has used all of the materials and resources provided by BEACON.

In the future, we plan to continue the work of the energy team and further showcase the renovation project.

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ZÁKLADNÍ ŠKOLA NÁRODKA

PRACHATICE | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 500

BEACON's climate action days have helped raise awareness on climate action and energy savings. New lighting has been procured for the school with the advice of BEACON specialists.

Climate action days were held to raise awareness on climate change and how to mitigate it. The school organised the events in cooperation with the municipality. Various external experts were invited to present on particular topics, and they supported the field trips to water, waste, and energy facilities in the region. Waste management and excessive packaging were the key topics to show the necessity of climate action.

We plan to carry out further climate action days in the coming school years and further anchor climate change and climate action in our educational offerings.

ZŠ ZLATÁ STEZKA

PRACHATICE | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 360

The topic of climate action was integrated into our school's educational activities. We have seen great involvement of pupils in activities around environmental facilities, food, and waste. A number of energy-saving, non-investment measures have also been implemented such as informative stickers or rules for checking the temperature in classrooms.

The set of measuring instruments provided by BEACON is used across all grade levels in our school. Pupils quickly learned how the devices work and what to do if the various values like temperature and CO_2 are not at the optimal levels. The materials have been a great benefit and addition to lessons. Teachers would love to have more devices and textbooks to further expand pupils' knowledge about correct climatic conditions and proper building usage for reduced energy consumption.

We are planning the acquisition of a larger number of CO_2 meters, preferably the installation of one in each classroom.

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ZÁKLADNÍ ŠKOLA 5. KVĚTNA

ROŽNOV POD RADNHOŠTĚM | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 420

Thanks to BEACON, climate action is now anchored as a topic in our educational activities. Our school engaged in cooperation with the Rožnov municipality and piloted the incentive system for energy-saving projects in the school. As a result, the town hall is now considering funding these in all other Rožnov schools. To realise these projects, the work of our existing environmental team was extended to include energy-saving tasks.

The topic of our BEACON-sponsored climate action day was water. A travelling exhibition from the observatory in Valašské Meziříčí, a nearby town, was displayed in the school building. The exhibition depicted the water cycle, weather, and meteorology. On the day of the event, each class did a series of experiments, lectures, and games focused on a water-related topic. These included the significance of water for humans, nature, and the climate system; use, treatment, and control of water; protection of water systems; and water savings at home and in school.

In the future, we want to finalise the incentive system in cooperation with the Rožnov municipality and extend it to remaining schools in the town.

All images © ZŠ 5. května

ZÁKLADNÍ ŠKOLA POD SKALKOU

ROŽNOV POD RADHOŠTĚM | CZECH REPUBLIC

Grade/levels: 1–9 | **No. of students:** 550

In the BEACON project, we learned how to use the measuring equipment. This improved our existing cross-cutting environmental education as the hands-on experience with temperature and CO_2 concentrations helped us illustrate climate action and anchor it in day-to-day teaching.

After the first energy tour of our building by the BEACON project, we carried out micro-measures and non-investment measures in the form of stickers on switches, windows, and heating units. Students and staff enjoyed the set of measuring equipment so much that additional CO_2 meters have since been purchased to improve air quality throughout the building. We created and updated the heat map of our classrooms to control for excessive heating.

We plan to purchase even more measuring equipment to be used throughout the school and in lessons so that more pupils can use the devices.

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SOFIA

56 Secondary School Konstantin Irechek
79 Secondary School Indira Gandhi
40 Secondary School Louis Pasteur
90 Secondary School Gen. Jose de San Martín
97 Sofia Secondary School Brothers Miladinov
23 Kindergarten Zdrave (Health)
29 Kindergarten Slantse (Sun)

SAMOKOV

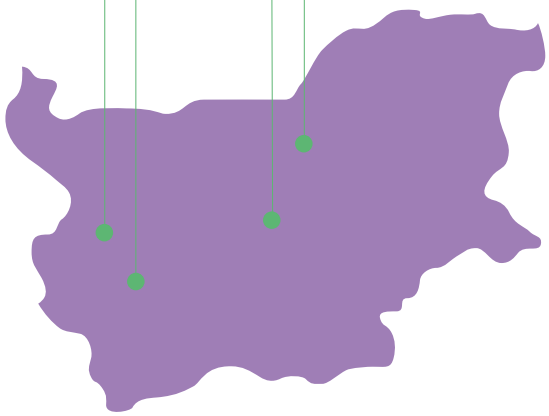
Sports School Nikola Velchev
Secondary School Otets Paisiy
Primary School Hristo Maximov

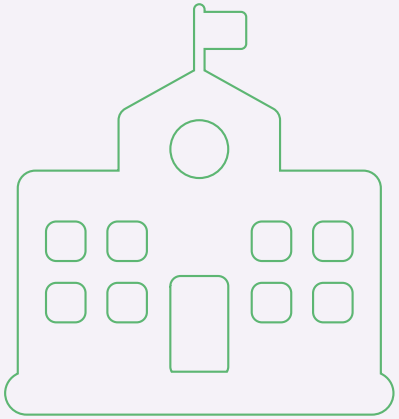
PAVEL BANYA

Primary School Nikola Y. Vaptsarov
High School Hristo Botev
Vocational High School of Restaurant and Hospitality
Primary School General Skobelev

VELIKO TARNOVO

Primary School Neofit Rilski
Vasil Drumev High School of Mathematics and Science
Elementary School St. Patriarch Evtimii
Primary School Petko Rachov Slaveykov





SCHOOLS

Bulgaria

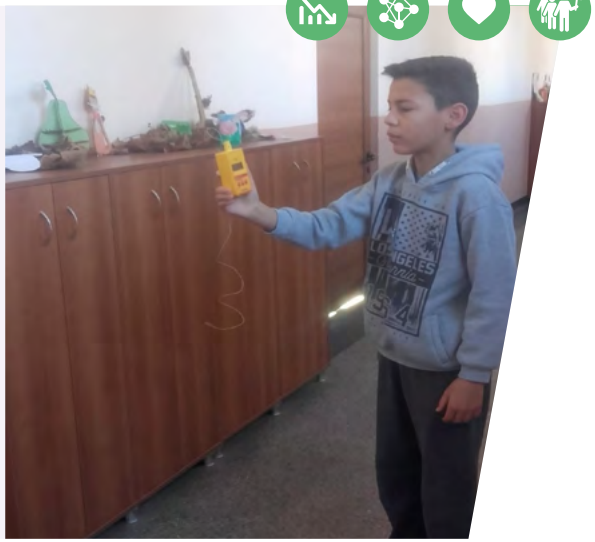
PRIMARY SCHOOL NIKOLA Y. VAPTSAROV

GABAREVO/PAVEL BANYA | BULGARIA

Grade/levels: 1–7 | **No. of students:** 81

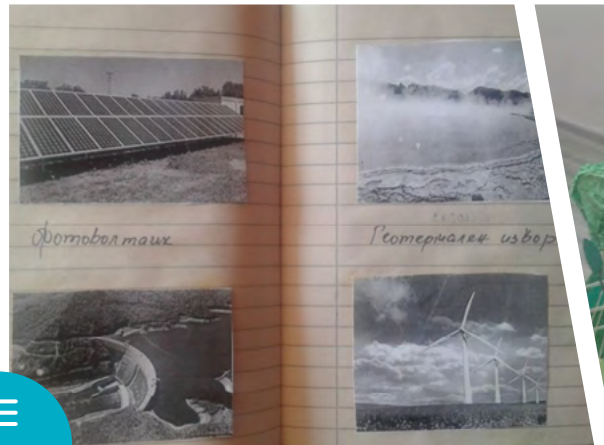
With the experiences gained through the project, students have put into practice the many ways energy and water can be saved. They also tried to involve their classmates and family members in the cause of climate action through energy efficiency.

Because the project was launched in the school, students have become more familiar with climate issues and challenges. The information helped them to better appreciate the benefits of saving energy and resources. For example, they regularly conducted temperature, light, and CO_2 measurements and summarised the results in tabular and graphical form. The students are still sharing their positive experiences and learnings from such activities with their classmates.



The thematic models of future Pavel Banya made by students during the project will continue to be displayed in the school corridors, making it easier to motivate and involve other pupils in the implementation of energy efficiency measures.

"Even a very small effort of one can impact and make a big change for the others." Grade 5 student



80 SCHOOLS

HIGH SCHOOL HRISTO BOTEV

PAVEL BANYA | BULGARIA

Grade/levels: 1–7 | **No. of students:** 114

Since the start of the project, the students' behavioural changes have contributed to a 3% reduction in electricity costs.

The third grade students in the "I love nature – I am part of it" club were particularly interested in preserving and maintaining the purity of rivers and other bodies of water in the village of Alexandrovo, Commune by taking action to reduce pollution and littering. The students were outraged to find that the river Tundja, which passes through the village, carries unpleasant traces of its citizens. The students placed drawings and signs along the river encouraging people not to pollute and dump waste in the river. Such activities help the students understand the importance of reducing waste and resource consumption.

"The river is choking."

Todorka Dimova, teacher and the leader of a club from the energy efficiency project with third grade students

We will continue to work with energy efficiency education and cost-cutting activities in extracurricular activities.

VOCATIONAL HIGH SCHOOL OF RESTAURANT AND HOSPITALITY

PAVEL BANYA | BULGARIA

Grade/levels: 8–12 | **No. of students:** 200

The results of the project were positive, especially in terms of the attitudes and behaviours of the participants, and the school is actively working towards promoting the project ideas and improving the understanding of sustainability at school and at home.

After a preliminary study of the attitudes and interests of the students in grades 8–11, an Eco Club was formed. Two years in a row the Eco Club celebrated Forest Week by organising a landscaping event in the schoolyard. Teachers and students participated in this event. They planted a tree as a symbol of their work in the BEACON project. The message was: "We prepared the soil, we planted the tree, we will make sure it develops and grows! We work towards building environmental awareness and engaged behaviour on global and regional issues."

We plan to initiate green classrooms, a format for environmental education outdoors, and conduct eco-patrols on school grounds.

"We sowed hope for a better future."
Selime Sherif, grade 11

PRIMARY SCHOOL GENERAL SKOBELEV

SKOBELEVO/PAVEL BANYA | BULGARIA

Grade/levels: 1–7 | **No. of students:** 85

The school started the project with great interest but not enough knowledge. In the beginning, we worked on saving energy and using the measuring equipment provided by NTEF. Over time, teachers utilised the ideas and information from the internet and the materials from the trainings. The hope is that climate education will become a way of life for the students. We want climate education to be part of the curriculum in every subject for greater engagement with the material by every teacher and student.

The members of the energy teams conducted a range of actions in the school to convince their classmates and teachers to save energy. They took measurements with the measuring equipment provided by the project, analysed the information, and used it to decide what energy-saving actions should be undertaken. The children liked these actions, but they particularly enjoyed doing crafts using recycled materials to demonstrate how resources can be reused and saved. One example was to make traditional martenitsas from recycled and natural materials. Wearing martenitsi are a Bulgarian tradition around welcoming the spring. Inspired by the Recycling Art Academy, another craft was to make a table lamp from plastic bottles that the students collected.

A special campaign was organised on the eve of Black Friday, in which the students made an info board encouraging others not to buy unnecessary items at promotional prices. Using natural materials and unwanted items, we showed how we can save resources and generate less waste.

Other thematic crafts made by the students included making 3-D letters using plastic bottles and recycled materials and making models and symbols of the Earth's processes using natural materials like pumpkins.

The school will continue to work with two energy teams in the future: primary and secondary. We have applied for similar projects to expand our efforts and aim to involve the local authorities and the local population who also require education on climate action and energy saving. We will also seek the assistance of volunteers, non-governmental organisations, and companies that are seeking to introduce sustainability into their business.

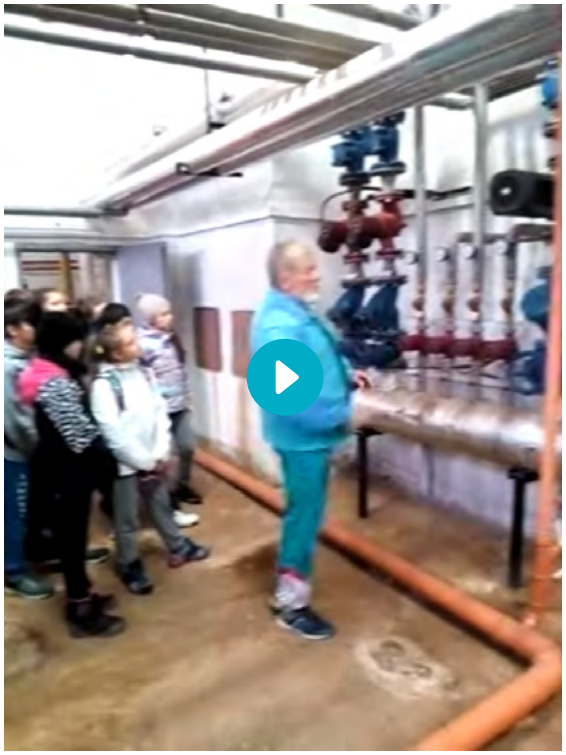
SPORTS SCHOOL NIKOLA VELCHEV

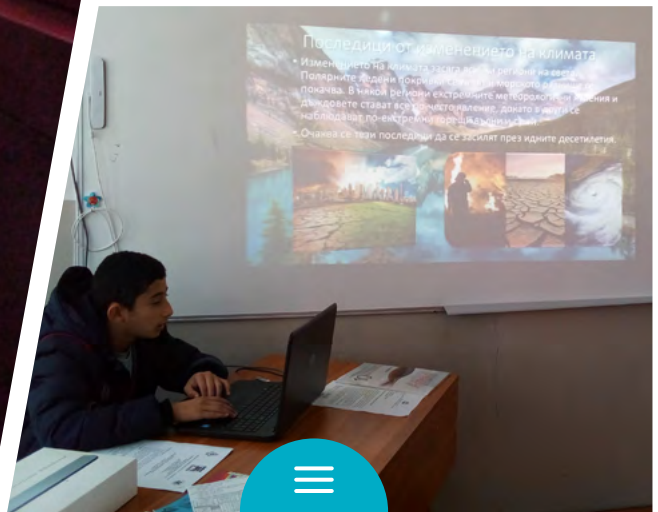
SAMOKOV | BULGARIA

Grade/levels: 5–12 | **No. of students:** 164

We held meetings to introduce the BEACON project to the teaching staff, parents, and students, in which we explained the different stages of activities, the effects of energy saving, and the benefit of long-term temperature measurement. Together with representatives of BEACON partner NTEF, we conducted an energy tour of our school and formed energy teams with students from the sixth through ninth grades. We prepared a schedule for measuring temperatures throughout the school, familiarised students with the rapid response thermometer, and made diagrams of the school floorplan. Then we conducted an energy tour with the students. During the tour we visited the boiler room where our building manager explained the structure and mechanics of the steam boilers in detail to the students.

"The educated person saves energy."
Andon Stefanov, grade 8





SECONDARY SCHOOL OTETS PAISIY

SAMOKOV | BULGARIA

Grade/levels: 1–12 | **No. of students:** 400

Thanks to the project, interest in the topic of climate protection and energy saving has increased in the school. Many pupils, teachers, and staff have started to change their habits regarding the use of heating and electricity. Participants in the teams have deepened their knowledge of the link between the efficient use of energy and climate protection. They have developed skills in teamwork and operating the measuring equipment, and their participation in science classes has increased.

The theme of our work in the BEACON project was students teaching students. The first participants broadened and deepened their knowledge about energy and climate change and started to promote their learnings among classmates, parents, teachers, and school staff. The following year, they passed on their experiences and introduced the activities to the supporters of the two newly established clubs for climate protection through energy efficiency. On their own initiative, the older students conducted classes for younger students, conveying both knowledge about climate change and habits for maintaining proper climatic conditions in the classroom.

The school staff seeks to continue the targeted and consistent integration of climate action into learning via projects, discussions, practical sessions, etc., as well as the involvement in initiatives with other schools.

PRIMARY SCHOOL HRISTO MAXIMOV

SAMOKOV | BULGARIA

Grade/levels: 1–7 | **No. of students:** 150

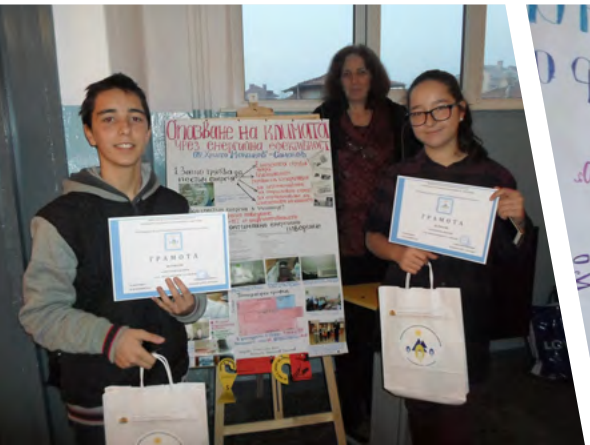
More than 60% of the student body participated in the project. They shared experiences with fellow students and introduced them to energy-saving rules. Our pupils now recognise the energy-saving potential of their school and are happy to share their learnings with other schools.

As part of the project, the students took thermometer measurements and produced a temperature profile of the school. They identified weak points in the building's energy consumption and drew up energy efficiency measures that they submitted to school management. They also established rules on behaviour to reduce energy consumption and communicated these rules to their teachers, parents, and classmates. To raise awareness, they hung signs in the school and had their classmates commit to energy-saving rules by signing a contract.

Students from the second team gave a lesson to and shared their experiences with the German teachers from the partner school, Grundschule in Lehnin, in Potsdam, Germany.

The children interviewed residents of Samokov to find out what their fellow citizens know about energy efficiency and how they save energy. The children gave the feedback that they felt happy and empowered in their role as journalists. They handed out the brochures with their energy-saving rules to the interviewees.

We will continue to save energy in school. We will educate students who have not participated in the project through interest-based activities or project-based learning in science classes.



56 SECONDARY SCHOOL KONSTANTIN IRECHEK

SOFIA | BULGARIA

Grade/levels: 1–12 | **No. of students:** 850

Our school was one of the first in Sofia to receive support to implement energy efficiency measures. Since then, we have a clear idea of the importance of reducing energy consumption, both in creating a healthier environment for students and in contributing to reducing greenhouse gas emissions. However, it has also become clear to us that the behaviour of teachers and pupils and the way we use our school building can significantly reduce our carbon footprint. The educational projects we have worked on with NTEF that have allowed us to connect with many other schools in Bulgaria have contributed most to this understanding.

The most remarkable experiences for the participants in the school's energy team were related to their interactions with their classmates, teachers, and parents. The energy team participants truly felt responsible for their mission and understood themselves as leaders in their community. The challenge for them was to convince the teachers of the other classes that it was important to follow the new rules. Their peers were immediately accepting. The biggest moment of pride was realising they had saved approximately 5% energy in one heating season. Virtually all of the school's 850 students and their teachers contributed to this achievement.

The work of the energy teams continues in each successive class. We carry what we learn into other projects the school is working on, and into regular classroom activities with the students.

"The most important outcome of this project is the changed self-confidence of the participants and their feeling that what happens to the planet is up to them. These children will never be the same again. They are now carrying climate action within them."

Maya Nikolova, School Director

79 SECONDARY SCHOOL INDIRA GANDHI

SOFIA | BULGARIA

Grade/levels: 1–12 | **No. of students:** 845

Since the start of the project, energy-saving measures and the separate collection of plastic and paper has been established in the school.

A bike cinema training and exhibition was one of the favourite activities of the school. The children who attended were extremely impressed. They showed curiosity and interest in the way energy is harnessed and came to the conclusion that joint action and efforts lead to better results.

"How much energy 10 children expended, and how little electricity we produced to make the video. You can't do it alone!" *Emma, grade 3*

Sixty students were involved in activities around Earth Day 2021. With great willingness and diligence, they made a number of crafts that involved repurposing old materials. They turned old tyres into flowerpots by painting them to resemble their favourite cartoon characters. From the coloured caps, wooden skewers, and unwanted materials, the children made flowers and outlined the contours of Bulgarian embroidery, an activity inspired by a visit to a playground in the town of Elin Pelin earlier in the year. This activity served as a fun, tangible reminder of the importance of recycling and reusing materials.

Our school will continue to work towards engaging more teachers and students. One of our main goals is to involve the parents, showing the children that only by joining forces together, at home and at school, will we achieve the desired results.

"The planet is not disposable!" *Galya Kirilova, elementary school teacher*

40 SECONDARY SCHOOL LOUIS PASTEUR

SOFIA | BULGARIA

Grade/levels: 1–12 | **No. of students:** 858

Teacher training, an awareness campaign among students, training on how to use the energy team's measuring devices, and small but persistent steps have convinced the school community of the need to reduce their ecological footprint and the waste of natural resources.

Innovation in the management of the school's resources through environmental education encouraged the participation of teachers and students in BEACON's practical activities, which led to a reduction in the school's impact on the environment and consumption of water and energy. The resulting cost savings benefit the municipal budget and reduce the amount of maintenance needed in the school. This is thanks in large part to BEACON energy managers strictly monitoring the use of electricity and heat in the classrooms. The enthusiasm of the students and teachers in grades 1–4 has resulted in planting two trees per class, 40 in total, which the children have adopted and lovingly care for.

Fourth grade students, led by their teacher Rumiana Tenzhova, developed environmental projects in English: GO GREEN. They showed the main sources of pollution and gave important tips for nature conservation. They underlined the importance of recycling.

"Old habits die hard, we can't make the change alone."

Antoaneta Krastanova, School Director

We shared our experiences in BEACON with a school in Burgas and a school in Samokov in the context of the Innovation in Action national programme of the Bulgarian Ministry of Education. During the workshops, the colleagues and students were impressed by what the young pupils from our school introduced: ventilation, control of energy use, informational posters, signage, and reminders for efficient use of water, electricity, and heating. The educators present from our school became familiar with additional optional lessons on ecology and transferred the learnings to our school. We also gave lessons on recycling and reusing waste.

In the coming two years, we will continue to work on the improvement of skills and exchange of experience through international, national, and municipal environmental projects and programmes. We will also raise awareness in the school and local community about environmental issues and conservation through campaigns.

90 SECONDARY SCHOOL GEN. JOSE DE SAN MARTÍN

SOFIA | BULGARIA

Grade/levels: 1–12 | **No. of students:** 570

More and more students and teachers are adjusting the heating valves and turning off the lights when they are not needed.

A workshop on energy efficiency was conducted at the school in February 2020. The students participating in the project, two groups of fifth and sixth graders presented their activities, talked about the benefits of saving energy at school and at home, and shared the results they achieved. They gave a demonstration to approximately 40 primary school students on how to use the different measuring devices provided by the project. The young students see the older ones using the equipment year-round when visiting the classrooms, so they were happy to finally participate in the metering on this day – to touch the meters, read the values, and ask questions. You could see the joy on their faces. Guests of the workshop included many parents and representatives of various non-governmental organisations with which our school collaborates. One fun part of the workshop was a quiz created by the students with questions to the guests and prizes in the form of stickers with energy-saving tips to take home.

At a parents' meeting attended by more than 50 parents of future first graders, the students presented the various activities offered at the school. In a special moment, the children impressed the audience when they responded with witty answers and arguments to parents' probing questions about the project activities related to saving electricity.

"Since participating in the energy efficiency project, my son also monitors the heating valves at home, follows us around and makes a note if we haven't turned off the lights. I am impressed!" *Assen Assenov, parent, member of the school's Public Council*

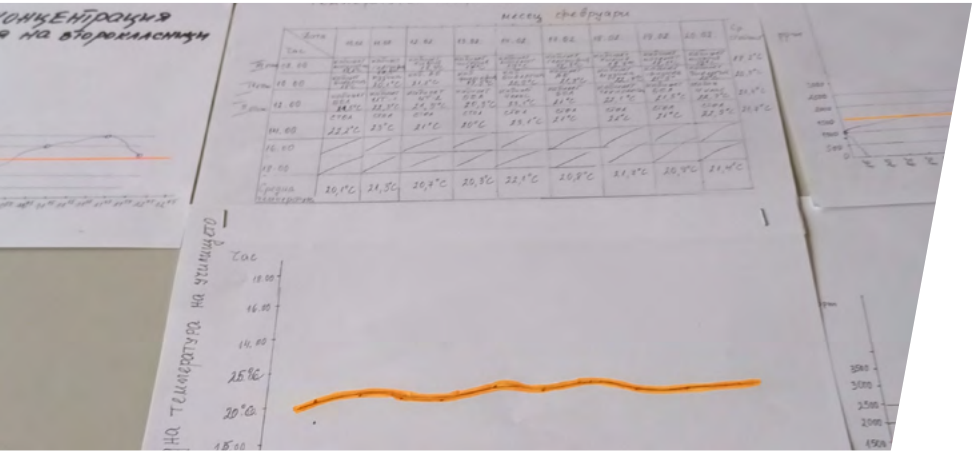
We believe that the Energy Efficiency Clubs will become a tradition and all new students will be involved in energy-saving activities from an early age.

97 SOFIA SECONDARY SCHOOL BROTHERS MILADINOV

SOFIA | BULGARIA

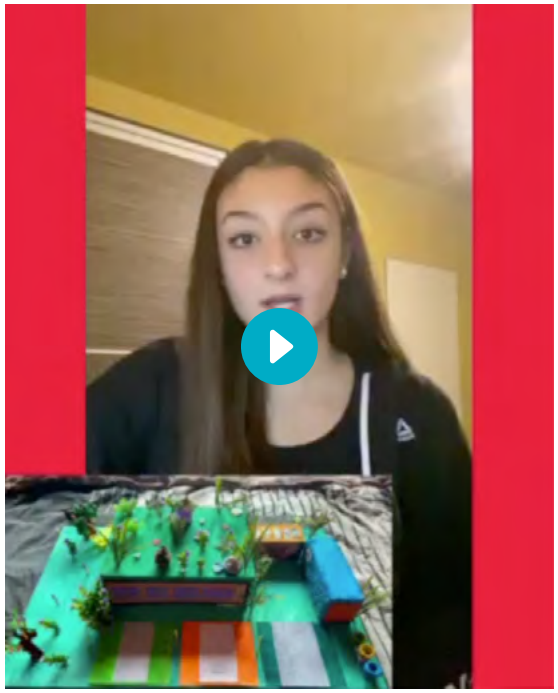
Grade/levels: 1–12 | **No. of students:** 960

As a result of BEACON, students in our school have been leading by example. They have been showing their peers, teachers, and parents what needs to be done to save energy. Energy Managers for each class monitor the use of electricity and ensure that the heating is not wasted. Each class developed its own ethical rules, which include elements for maintaining a healthy indoor climate and safe learning conditions. An eco-club now develops and promotes visual materials that encourage students and teachers to kick their environmentally unfriendly habits. Our students have shown that they can take the lead in creating a green school.



"To reduce energy consumption and thus limit the damage caused by its extraction on the environment, I can suggest that as one small step in solving the problem, we choose the path towards energy efficiency and green energy. By making this choice, I know that I have contributed to the solution. Well, I've chosen my future, now it's your turn!"

Mia Keremedchieva, grade 8



Eighth grade student Mia Keremedchieva created a model for a Green School including energy-saving lighting, PV systems, green architecture, 100% recycling, and cycle paths. In the video, the student details the elements of her model for a Green School, which was promoted through the school's Facebook page and reached over 2,500 people. The project was awarded in the Ambassador category of the Young Innovator competition (a national competition of PostScriptum Ventures), and it won the first prize in the GLOBAL WALK competition (EU project).

23 KINDERGARTEN ZDRAVE (HEALTH)

SOFIA | BULGARIA

Grade/levels: Pre-K–1 | **No. of students:** 200

Thanks to the BEACON project, we learned about the benefits of saving energy and how to educate our students about it. Our kindergarten is now committed to environmentally friendly practices and contributing to a cleaner future. Educating children from an early age on this topic has become a priority for us and the responsibility of the entire team at the kindergarten. By guiding preschool children towards a greener and more environmentally friendly lifestyle, they will continue to care for nature and the climate for years to come and into adulthood.

„When the sun is out, we can't leave the lights on because we use too much energy." Teia, age 6

During the BEACON project, the school signed an agreement with Ecopack Ltd., securing separate waste collection. Each group received a large cardboard box that was used to teach the children to dispose only of paper, cardboard, or plastic. In addition, three colourful waste bins were installed in several playgrounds. The children now strictly monitor and observe the proper disposal of waste in an effort to keep the planet clean. They learned that collected waste is recycled separately and then given a new life.

Our kindergarten introduced incentives for energy saving. In the bathrooms, stickers with a red water drop were placed above the sinks, reminding users to save water. In the playrooms, stickers with a light bulb or sun symbol were placed above the light switches, reminding users to take advantage of natural light and save electricity. These signs were effective in saving energy and water. The children were also introduced to the lux meter for measuring light levels. During the BEACON project, three classrooms in the kindergarten had their old light fixtures replaced with new, energy efficient ones.

We will continue to work on BEACON-inspired activities, striving to involve more and more children and helping them develop energy-saving behaviours and understand the detrimental consequences humans have on the environment and climate. The kindergarten aims for wider visibility on these issues, active exchange with parents, and collaboration with other institutions and partners such as Ecopack.

"Now that I know the garden can be watered with rainwater, I will tell my grandmother in the village not to water it with the hose anymore." Zarko, age 3

29 KINDERGARTEN SLANTSE (SUN)

SOFIA | BULGARIA

Grade/levels: Pre-K–1 | **No. of students:** 225

Thanks to the work of the BEACON project in the school, the formation of eco-friendly culture and behaviours that reflect the rational use of natural resources, energy conservation, and preservation of plant and animal life was achieved. The children were introduced to activities that changed their views of the future. Now our institution is much more interested in protecting the planet.

During the project, we installed bird feeders in the schoolyard. Beforehand, the children were introduced to the wintering birds in Bulgaria and the difficulties they have surviving in urban environments. Putting up the feeders was a motivating and interesting activity thanks to the fun look of the feeders (made of coconuts) and the playful nature of the activity. Also with the help of teachers, the children set out dried fruits for the birds to feed on. This way the kids felt important and could take a close look at the natural environment and the life of birds. Thanks to our efforts, various species of birds are now seen in the kindergarten.

During the course of the project, we conducted several internal qualifications. The aim was to inform the teaching staff about the topics covered in the project, and create a work plan outlining how to match the current curriculum with the additional project activities. The main idea of the qualification was to influence teachers' thinking about saving energy to later influence the children's behaviour. These were the first steps on our journey to becoming a more climate-conscious school.

We will continue to conduct environmental activities with the children and expand their knowledge in this area. We will continue the recycling initiatives – the collection of plastic caps, newspaper and packing bags, and the separate collection of paper, etc.. In the spring, we plan to plant plants and observe their development. Introducing children to the diversity of species on the planet via creative activities will be a priority of the kindergarten teachers.

PRIMARY SCHOOL NEOFIT RILSKI

KILIFAREVO/VELIKO TARNOVO | BULGARIA

Grade/levels: 1–7 | **No. of students:** 70

The work of the two energy teams in the school successfully encourged the students to think about the importance of nature. Students became more responsible, more observant, and more knowledgeable.

One of our favourite activities was called little energy savers. The children made coloured dots that they stuck on all light switches in the school. The aim was to motivate all building users to save electricity and remind them to use lighting wisely. The children kept an eye out for any lights being unnecessarily switched on, not only in classrooms but throughout the school. They were also paying attention to this in the teacher's room and the head office. They recognised their control over their own actions in terms of the footprint they leave in their surroundings. In this way, knowledge and skills were linked to actual behaviour. The children became aware that everyone can contribute to climate protection and have fun in the process.

"Clean nature – healthy children." *Tsveti, grade 3*

The objectives of the school's energy team are to encourage sustainable behaviours, to increase awareness of impacts on the environment, and to develop a modern, energy-conscious attitude at school and in the home. Through the work of the energy teams, children were introduced to saving energy at home. They conveyed a message to parents: "Protect the earth. It is our common home!" They made posters and brochures for parents with ideas and tips for saving electricity at home. The students reported back to their classmates on whether these recommendations were followed by their parents at home and how they continually reminded their families of the new rules. They also made a book about nature conservation for the other classes in the school. In it they linked themes like family with the theme of an ecological home. They made drawings and posters about what their town should look like and what it needs to be beautiful and climate-friendly. They presented their ideas for new smart homes using legos. Because their ideal future town included lots of parks and gardens, the children took the first steps to achieve this by planting chestnut trees in the school yard, which will be replanted in a local park at a later stage.

The school will continue to form interest groups with a focus on nature and climate protection as these topics are exciting and interesting for children. We have linked this project with the activities of other projects. This year the school won the "I love nature and I participate" annual competition of the Ministry of the Environment and Water again. We are working hard on one of the objectives in the school's strategy, namely to create a model of ecological thinking in the children value nature and natural resources and are aware that it is in the service of people but is not their property.

VASIL DRUMEV HIGH SCHOOL OF MATHEMATICS AND SCIENCE

VELIKO TARNOVO | BULGARIA

Grade/levels: 8–12 | **No. of students:** 700

Climate change, increased energy consumption, and the depletion of natural resources are critical issues. One of the ways to address these problems is to introduce energy-saving practices in schools. Our work on the BEACON project has helped us realise that we have a responsibility to protect the planet and can institute behavioural changes that help reduce our energy consumption and carbon footprint.

To be different, impactful, and inspiring we decided to present the idea of the project in a different way by having students educate their peers through a performance that was filmed. For the film, Save the Earth, we developed a script, gathered information on the topics to be presented, made our own props by hand, assigned roles, and prepared chemistry experiments to illustrate the concepts. We made sure the information was age-appropriate and accessible. We showed where the energy we consume comes from, what the consequences of overconsumption are, and how we can use it wisely. We also gave practical advice on how to use materials wisely and how to separate waste. We presented the performance to some of the classes, and once distance learning began due to the COVID-19 pandemic, we were able to put the film on YouTube and disseminate it to even more students.

While in distance learning, students also created a set of didactic materials that could be used in the virtual environment. Using templates from the wordwall.net website, they created online quizzes and crosswords. They researched and described environmental scenarios that can be used in future trainings for students both in our high school and in other schools in the area.

"Each one of us must realise our own responsibility for the future of the planet. Let the change start now and from each one of us!" *Anonymous*

Since it is today's students who will make tomorrow's decisions, we will continue implementing education for sustainable development and promoting an environmentally sustainable lifestyle, with the goal of saving (energy) resources and raising environmental awareness.

ELEMENTARY SCHOOL ST. PATRIARCH EVTIMII

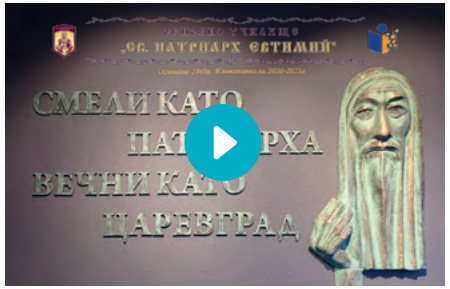
VELIKO TARNOVO | BULGARIA

Grade/levels: 1–7 plus two preparatory groups | **No. of students:** 903

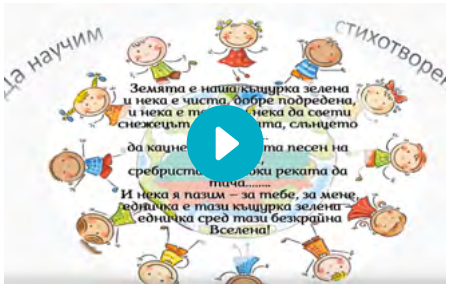
In three school years (2018–2021) we have achieved results in several respects: students developed values oriented towards a healthy lifestyle; students' knowledge of climate change was enriched and they were empowered to take action; and teachers created conditions conducive to the formation of new climate-conscious thinking in children while improving their professional competences.

The main objectives of the project, to reduce energy consumption and the energy costs of the school, are now a reality in our climate-friendly school. We have achieved sustainability of the project aims and social commitment from all people visiting and working in the school. Parents were also engaged as a reliable partner in the work of the energy teams.

The energy teams in the school followed all nine elements of the BEACON energy saving programme – from the energy tour, through assessing the temperature profile of the school building, spreading energy-saving tips, celebrating Earth Day, etc.. Led by their teachers, the children were creative outreach to their classmates, the teachers, and their parents. They decided to develop their dream model of the School of the Future. They worked hard on the drawings and later creating the model out of different materials. Once the model was ready, the children presented their ideas for the School of the Future to the students of grades 4 and 6 and the school management.



The energy teams developed a "flash-book" to present the project activities.
It contains an introduction of the school and an overview of all BEACON activities.



Together for the protection of the environment presented by Albena Shtarakova, teacher

The minions in school – a game for the preparatory school group, presented by Albena Shtarakova, teacher

Earth Day at the preparatory group

We hope that the foundations laid in the Preparatory Group and the Primary and Secondary levels become an integral part of our educational structure. We think that the environmentally sound education provided at the school will continue into the future as our children grow into climate-friendly adults who respect the environment and seek to protect it for future generations.

PRIMARY SCHOOL PETKO RACHOV SLAVEYKOV

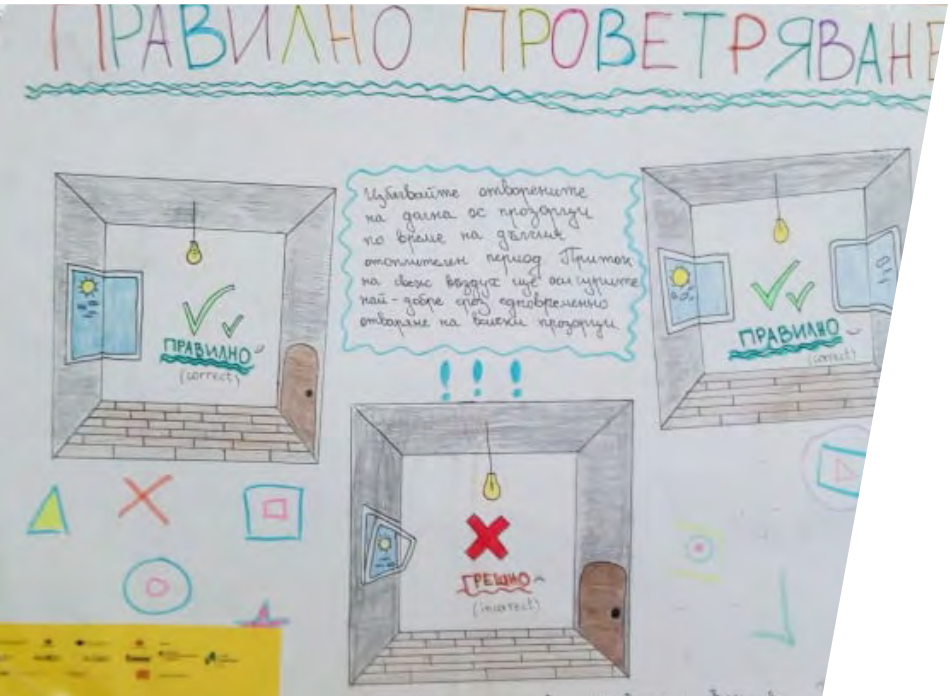
VELIKO TARNOVO | BULGARIA

Grade/levels: 1–7 | **No. of students:** 339

As a result of the project, the school has established energy teams of students who track and monitor the identified indicators. A natural continuity has taken hold as older pupils inspire and teach younger pupils. The school has implemented various climate protection activities and, for example, now saves energy, separates waste, ventilates classrooms properly, and monitors temperatures in the building.

At the beginning of the BEACON project, about 28 students with a strong interest in science joined the energy team. As a result of the energy tours they carried out in the school building, they managed to garner the interest of other students and expand their activities to a variety of classes and groups throughout the school. Ultimately more than 150 children, over half of the student body, were involved in activities of the energy team.

The energy efficiency and environmental protection activities helped the students realise that every person plays an important role in solving societal problems like climate and that the future of the planet depends on them.



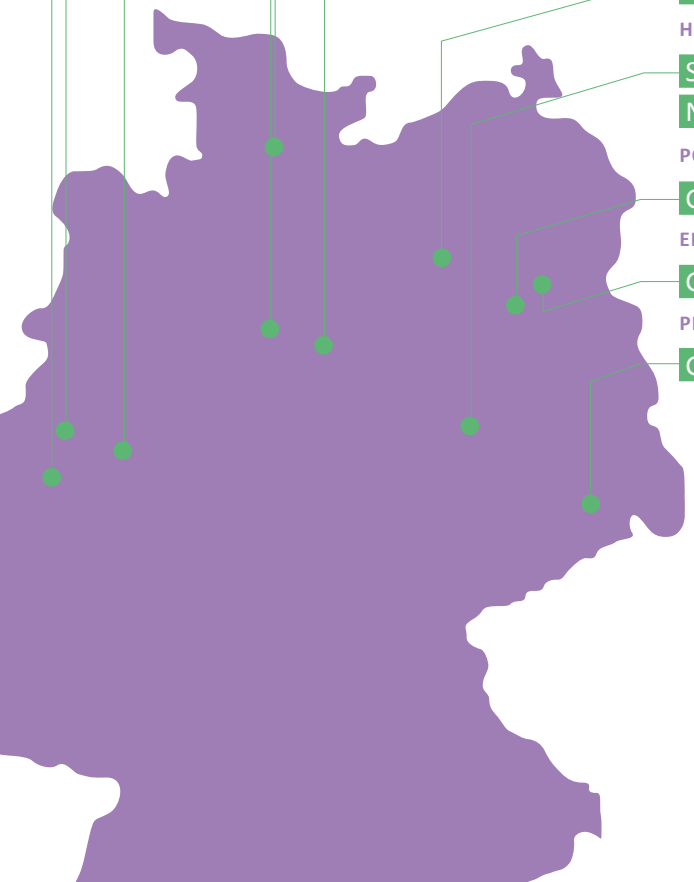
"Nature is the greatest resource we humans have, and ecological thinking and action is the only right way to take care of it."

Mariana Pencheva, psychologist and pedagogical advisor

Thanks to the devices provided by the project for measuring CO_2, light, heat, and electricity consumption, the students could conduct multiple energy tours in the school. Based on the results reported and analysed, the students drew conclusions and made recommendations for improving the energy efficiency of the building such as installing energy-saving light bulbs, proper ventilation, sealing windows and doors, and proper lighting. In the school building there are now signs with rules on how to save energy at school and at home. Every last Friday of the month, there is a no plastic day at school. Students have reduced the use of single-use plastic items and replaced them with alternatives like glass water bottles, paper lunch bags, cloth bags for sportswear, etc.

As a result of the project, the school will continue to implement the identified energy efficiency measures and incorporate learnings into lessons with the provided support materials for teachers and students.

97
SCHOOLS



DÜSSELDORF
Martin-Luther-Grundschule

BOTTROP
Josef-Albers-Gymnasium

ARNSBERG
Städtisches Gymnasium Laurentianum

HANNOVER
Grundschule Beuthener Straße

NORDERSTEDT
Lise-Meitner-Gymnasium

BRAUNSCHWEIG
Realschule Nibelungen

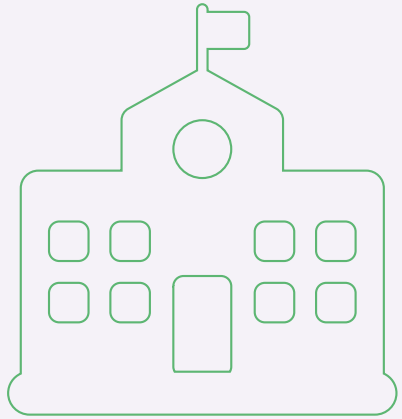
HOHENNAUEN
Kleine Grundschule Hohennauen

HALLE
St. Franziskus Grundschule
Neues Städtische Gymnasium

POTSDAM
Grundschule am Humboldt-Ring

EBERSWALDE
Grundschule Finow

PIRNA
Grundschule Graupa



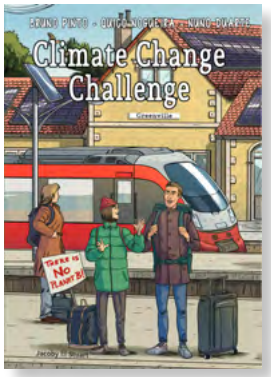
SCHOOLS

Germany

PUBLICATIONS

Connecting and Collaborating for Climate: The BEACON Project

National climate policy studies



Climate Change Challenge – A Comic Book

Vision Workshop Toolbox

Toolkit for Local Climate Change Mitigation

Indicators Manual: Environmental Profile in The Community

Climate and Energy Efficiency: We Study the Climate, We Save Energy, We Think of the Future – Volume 1 & 2

Financing Climate Action in Municipalities

Sustainable Mobility on the Way to School

Climate Action Despite Tight Budgets – A Guidebook for Municipalities

LENA Handbook on Energy Savings in Schools

Campaigning for Local Climate Change Mitigation

Environmental and living quality in urban environments

Better Schools – Better Climate: Refurbishment Guide for Romanian Schools

Guide to Virtual Collaboration

CONNECTING AND COLLABORATING FOR CLIMATE: THE BEACON PROJECT

This brochure introduces the BEACON project explains the project goals and introduces the involved actors. It also describes the studies on successful national climate policy instruments and showcases the participating municipalities and schools.

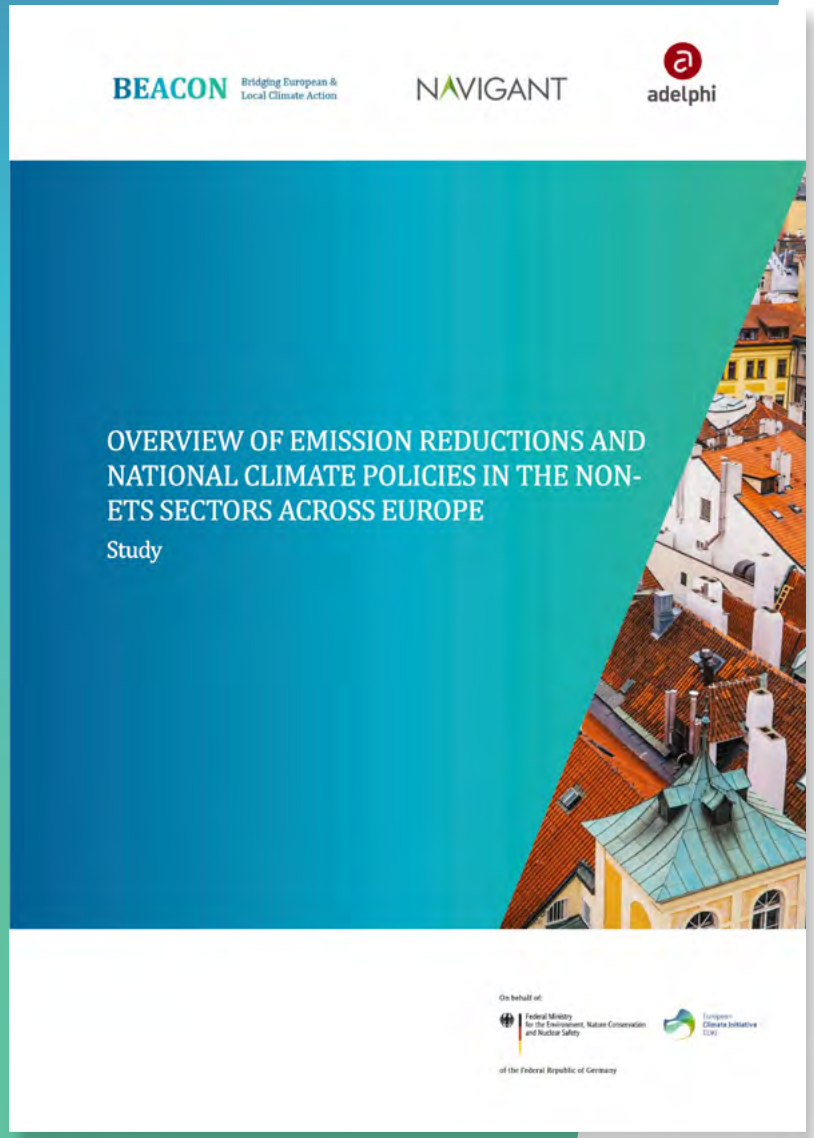
English

34 MUNICIPALITIES

The following pages present each of the participating municipalities and include information about their climate action priorities, the related topics they can share experience in, and the topics that they would like to learn about.
The icons below and in each of the municipality portraits correspond to these elements.

- Priorities
- We can share experience in...
- We would like to learn about...

NATIONAL CLIMATE POLICY STUDIES



As a result of an initial analysis of greenhouse gas emission reductions and ESD target achievements in EU Member States, 18 individual climate-related policies and instruments as well as three climate change laws were selected for further exploration. These 21 short studies authored by BEACON partners Guidehouse and adelphi analysed these instruments and considered their transferability to the German context. The focus of the reports are measures outside the European Emissions Trading System (ETS), and therefore in fields such as transport, buildings and agriculture.

Climate change laws

- Energy Transition Act (France)
- Climate Act (Sweden)
- Climate Change Act (UK)

Transport

- Bonus-Malus Vehicle Incentive System (France)
- Incentives for Electric Vehicles (Norway)
- Modal Shift Policy (Switzerland)
- Company Car Taxation (Sweden)

Buildings

- Energy Performance Certificate Database (Denmark)
- Energy Transition Tax Credit CITE (France)
- Technology Procurement Groups Innovation Cluster (Sweden)
- SlovSEFF Energy Financing Facility (Slovakia)
- Energy Efficiency Facility (Latvia)
- Green Savings Programme (Czech Republic)

Industry

- Tax Deduction Scheme (Belgium)
- Energy Efficiency Obligation Scheme (Denmark)
- Carbon Tax (Sweden)
- Climate Change Agreements (UK)

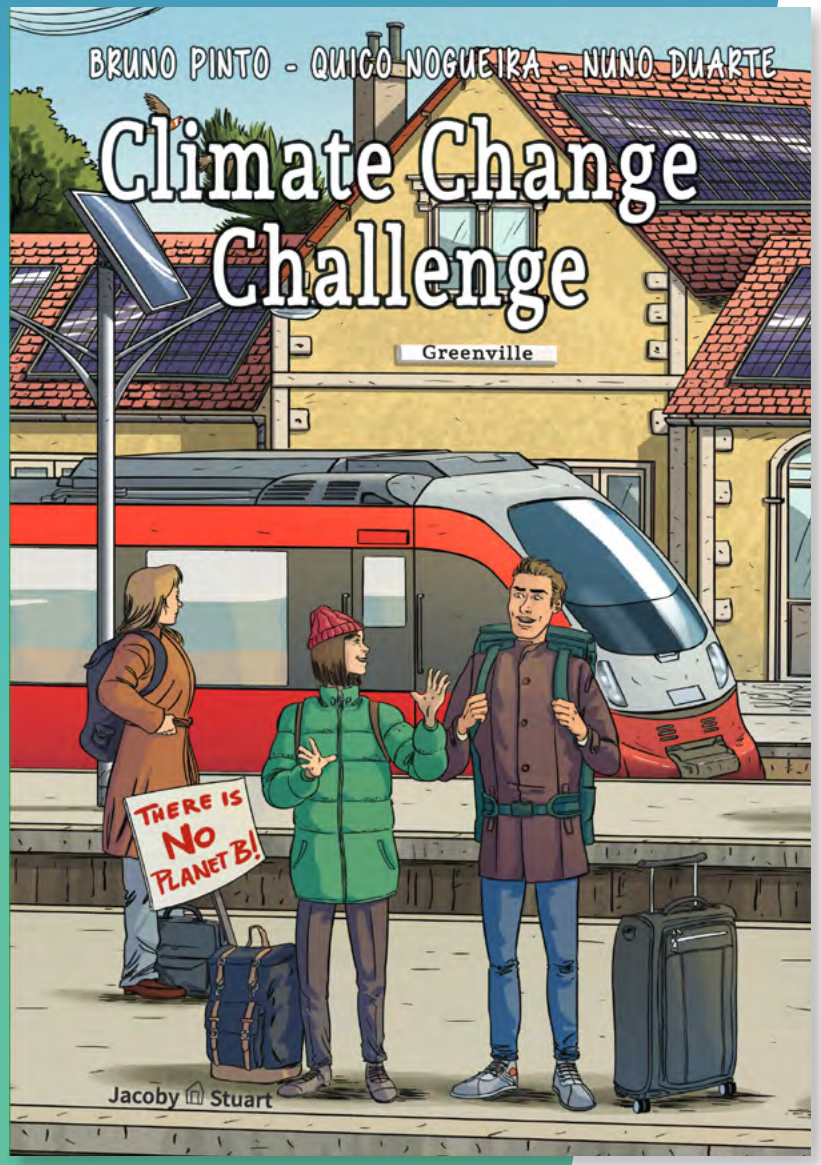
Agriculture

- Action Plans for the Aquatic Environment and Green Growth Agreement (Denmark)
- Bio-Methane Support Policy (France)
- The Agrocovenant (Netherlands)
- Greenhouse Gas Action Plan for Agriculture (UK)

More information

Overview Analysis of Emission Reductions and National Climate Policies in the Non-ETS Sectors Across Europe

CLIMATE CHANGE CHALLENGE COMIC BOOK



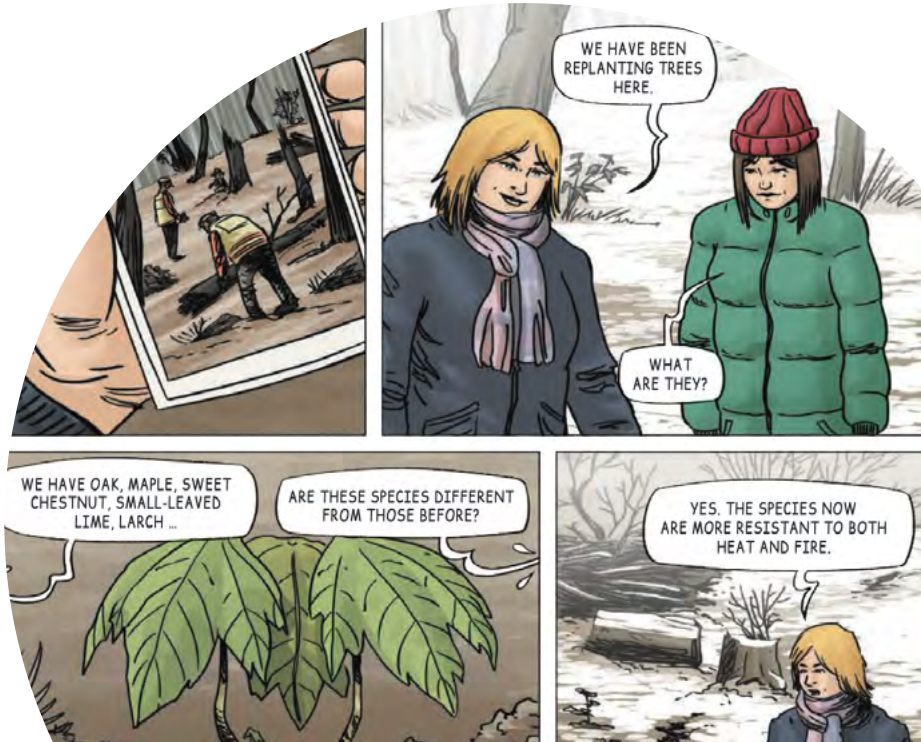
The Climate Change Challenge comic book follows characters Sofia and her younger brother Gabriel from their home in Portugal on a train journey across Europe.
Throughout their journey they learn about the impacts of climate change and how communities across Europe are coming together to combat it. From flooding and forest fires to renewable energy and resilience, the characters learn about climate action in Europe first hand and return home ready to do their part.

Inspired by actions on the ground in BEACON municipalities and schools, this book seeks to convey the spirit of European collaboration and exchange on climate change to a wider audience of school children and adults alike. The story of Sofia and Gabriel was created and brought to life by author Bruno Pinto, Illustrator Quico Nogueira and colorist Nuno Duarte. The book was made possible by Guidehouse as part of the BEACON project.

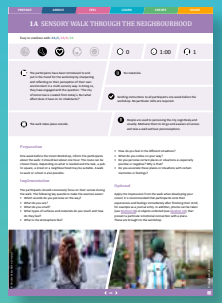
More information

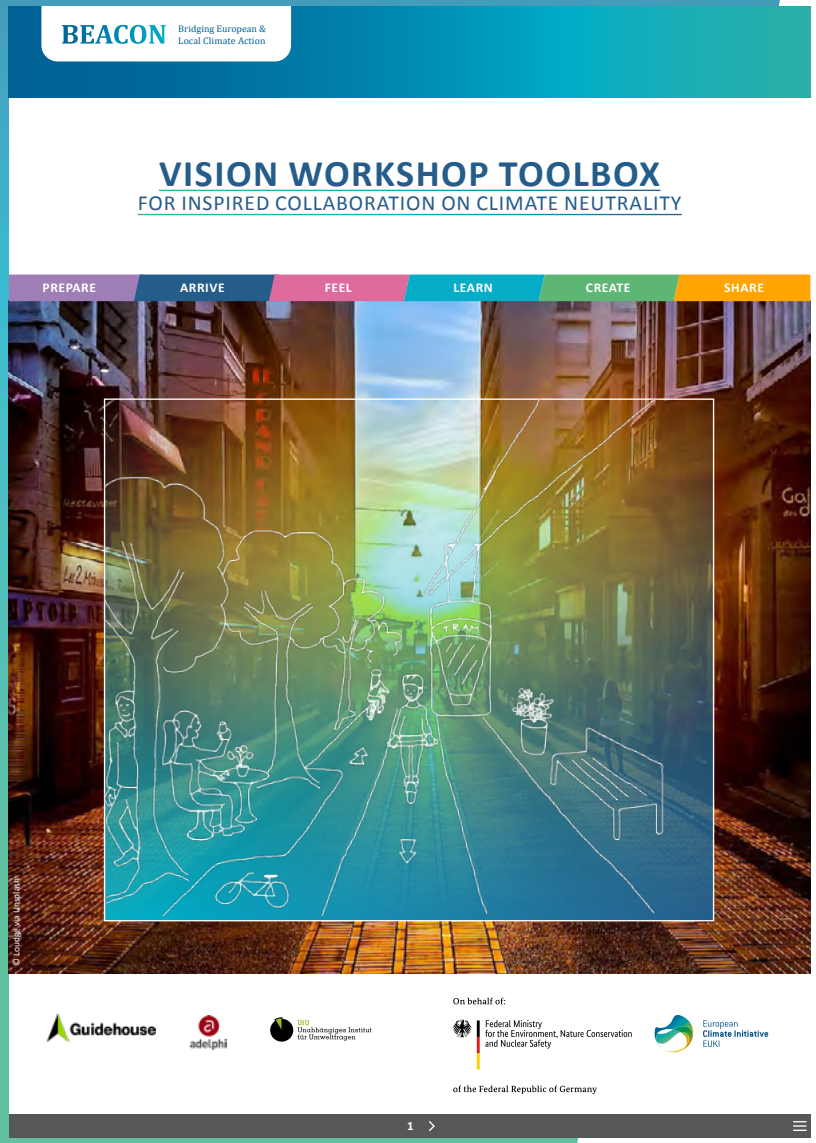
#Klimawandel Challenge (German)

Climate Change Challenge (English)



VISION WORKSHOP TOOLBOX





The ambition of the European Union to be climate neutral by 2050 is an important element of the EU's climate policy and contribution to achieving the Paris Agreement. Yet across Europe there are varying levels of awareness and understanding of climate neutrality.

With BEACON's Vision Workshop Toolbox for Inspired Collaboration on Climate Neutrality, we seek to make the topic more tangible for stakeholders like pupils and local citizens across Europe. The Toolbox provides methodological guidance for anyone who seeks to implement a vision workshop by outlining the structure and methods facilitators should employ. It includes six chronological modules as well as 27 methods with detailed instructions that can be selected to create a tailored workshop experience. Ultimately the vision workshop format and Toolbox facilitate the development of innovative, locally rooted visions for climate neutrality based on a varied, bespoke mix of methods and materials to match the target audience.

More information

English

Bulgarian

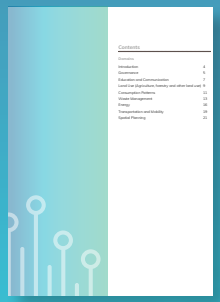
German

Greek

Polish

Romanian

LOCAL CLIMATE CHANGE MITIGATION



The Climate Change Mitigation Kit (CCM Kit) aims to provide municipal actors and local authorities the guidance to set priorities, ideas for mitigation actions, and the metrics to measure them. The CCM Kit is comprised of three parts, a Roadmap for local Climate Change Mitigation, an Indicators Menu for Local Climate Change Mitigation, and an accompanying document called The Guidelines.

Roadmap for local Climate Change Mitigation

This science-based compilation of policy briefs provides a comprehensive “roadmap” for climate action at the municipal level and is designed for European and other OECD countries. It is a guide to help local governments on their climate action pathways, which can be adapted to their local contexts.

Indicators Menu for Local Climate Change Mitigation

Indicators are essential for measuring the implementation of climate change mitigation actions. Quantifying measures enables the user to have an objective measuring stick for progress that can be used to further raise ambition, fulfill political targets, qualify for funding schemes, and more effectively communicate CCM achievements. To this end, the Indicators Menu for Local Climate Change Mitigation was developed to help municipalities better quantify their CCM goals.

The Guidelines

The final part of the CCM Kit is the “Guidelines”. This part does not provide new content on its own but serves as an accompanying piece for the implementation of the Kit. The first section of the Guidelines also introduces the contents, purpose, and possible applications of the Kit and is therefore a good starting point when wanting to know more about its background and usefulness.

More information

Bulgarian	English	Greek	Portuguese
Czech	German	Polish	Romanian

INDICATORS MANUAL: ENVIRONMENTAL PROFILE IN THE COMMUNITY

The set of indicators builds on existing environmental education measures that convey content and skills, particularly in the areas of climate protection, climate impact adaptation and energy system transformation, but also in other areas of Education for Sustainable Development. The “Young Citizen Science” approach is particularly new and of considerable interest in the present handbook: A large number of indicators are collected and evaluated by the young people themselves. Such participation contributes to sustainability and democracy education and supports the development of participation. Translations into Czech, Romanian, and Bulgarian were made possible by the BEACON project.

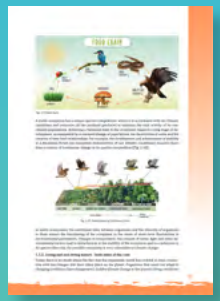
Czech

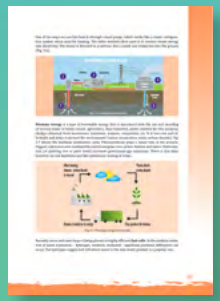
Romanian

Bulgarian

CLIMATE AND ENERGY EFFICIENCY: WE STUDY THE CLIMATE, WE SAVE ENERGY, WE THINK OF THE FUTURE – VOLUME 1:

CLIMATE CHANGE AND ENERGY EFFICIENCY ACTIVITIES IN SCHOOL

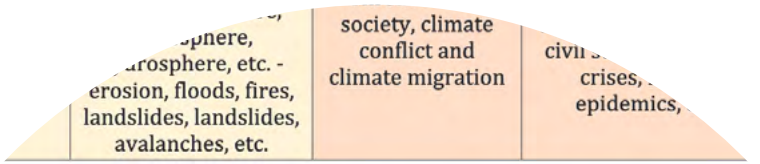




Originally published as part of the EUKI project Towards the introduction of Climate Action in the Educational Curriculum of Bulgarian Schools (TICA) and now translated by BEACON, this publication consists of training materials for teachers of the fifth through seventh grades in Bulgarian schools on the topic of climate change and saving energy. For other countries, the grades of the targeted students might differ depending on the respective education system. The publication is considered as an interdisciplinary (STEM education-based) teachers' manual for theoretical and practical work in schools on the topics of climate change and energy production and consumption, geography, astronomy, chemistry, biology, physics, and economics. The publication is structured in two volumes.

This is the first volume, which contains information on all science-related aspects of climate change. Its purpose is to provide teachers with contextual and content information on the topic in a logical and comprehensive manner.

English

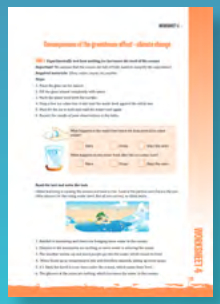


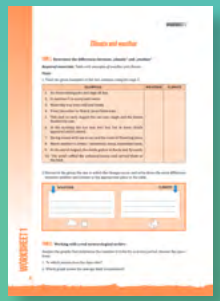
equences of climate change for the organism world

an predict whether and to what extent global warming will be „safe" for wildlife. What ow for sure is that climate change is already damaging ecosystems, leading to imbal- in the biosphere. There is evidence that the existing risks of species extinction and bio- rsity loss are increasing.

Fig. 2.4. Arctic animals are losing their habitats

CLIMATE AND ENERGY EFFICIENCY: WE STUDY THE CLIMATE, WE SAVE ENERGY, WE THINK OF THE FUTURE – VOLUME 2: METHODICAL MATERIALS





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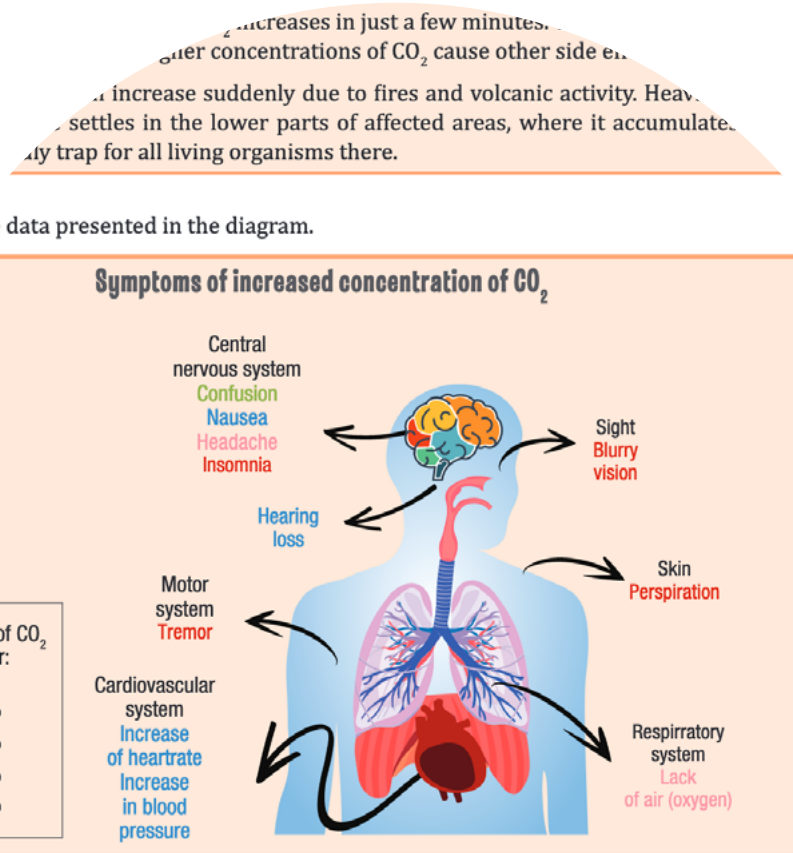
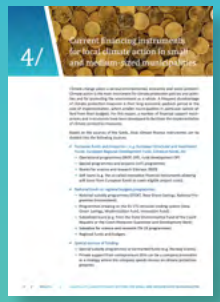
This is the second volume, which is the methodological toolbox or teachers' manual containing the descriptions, worksheets, and templates for all practical exercises with the students. All exercises have been tested in Bulgarian schools.

English



FINANCING CLIMATE ACTION IN MUNICIPALITIES



Municipalities repeatedly cite the lack of funding or difficulty to access appropriate funding as one of the main obstacles to implementing climate change mitigation measures. The BEACON project analysed the financial landscape for municipalities in Poland, Romania, Greece, and Czechia. It looked at the needs and challenges in small and medium sized municipalities. The project also reviewed the opportunities for financing that exist on EU and national levels and via innovative financing instruments. Each report provides a detailed overview of funding opportunities in the respective country and recommendations to administrative staff in municipalities.

Finance Study Poland

English Version
Polish Version

Finance Study Czechia

English Version
Czech Version

Finance Study Romania

English Version
Romanian Version

Finance Study Greece

English Version
Greek Version

SUSTAINABLE MOBILITY ON THE WAY TO SCHOOL: SAMPLE PROJECTS FROM GERMANY AND THE CZECH REPUBLIC

The advancing climate change requires a far-reaching change in our mobility. The choice of transport is a concrete possibility to mitigate climate change. On their daily way to school and to their leisure activities, children often go by car with their parents. This creates even more traffic in front of schools, causing insecurity, noise and emissions that are harmful to health and the climate.

This guide by adelphi shows ways in which children and teenagers can make their way to school independently and safely. In doing so, they strengthen their sense of self and responsibility for the environment and contribute to the avoidance of emissions. The guide is available in German and Czech and serves as an aid for city administrations, schools, teachers, parents and pupils and includes a collection of concrete examples from Pirna (Germany) and Písek (Czech Republic).

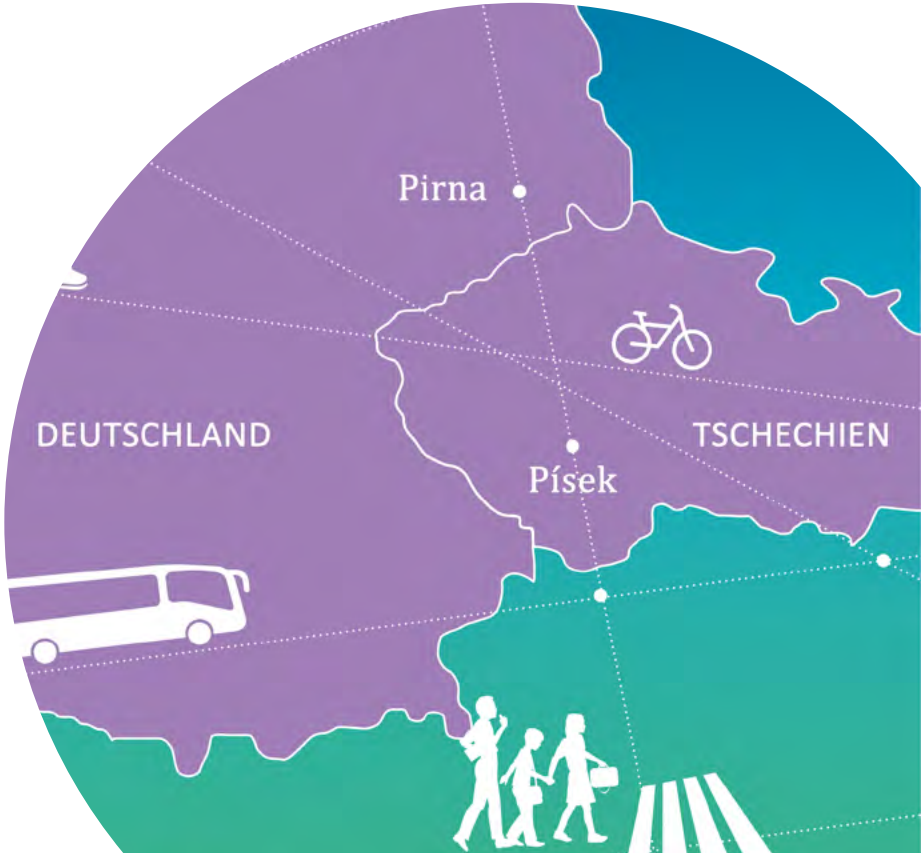
More information

German

Czech

Polish

Greek



CLIMATE ACTION DESPITE TIGHT BUDGETS – A GUIDEBOOK FOR MUNICIPALITIES

The publication provides municipalities with an introduction to the economic feasibility of climate change mitigation measures and practical tips on different ways to fund local climate action. Building on the original German version, this version contains advice that is substantiated with successful good practice examples from both German and Polish municipalities.

Polish

Nowy kocioł na zrębki drzewne, sfinansowany w ramach intractingu
Źródło: LHS Stuttgart

Rekomendacje wynik… z przykładu Stuttgartu

- ✓ Sprawne wprowadzenie intractingu udaje się, jeś… od samego początku współpracują ze sobą wszystkie ważne podmioty takie jak rada gminy, wydział finansowy i poszczególne, specjalistyczne jednostki/ wydziały.
- ✓ System zarządzania energią ułatwia realizację projektów i pomaga identyfikować kolejne możliwości oszczędzania.
- ✓ Pracownicy administracji, zarządcy budynków czy też dozorcy powinni mieć bezpośredni kontakt z osobą, która może realizować ich propozycje dotyczące działań z zakresu oszczędzania energii.
- ✓ Zlecanie prac firmom z okolic i regionu tworzy nowe miejsca pracy i wspiera lokalną gospodarkę.

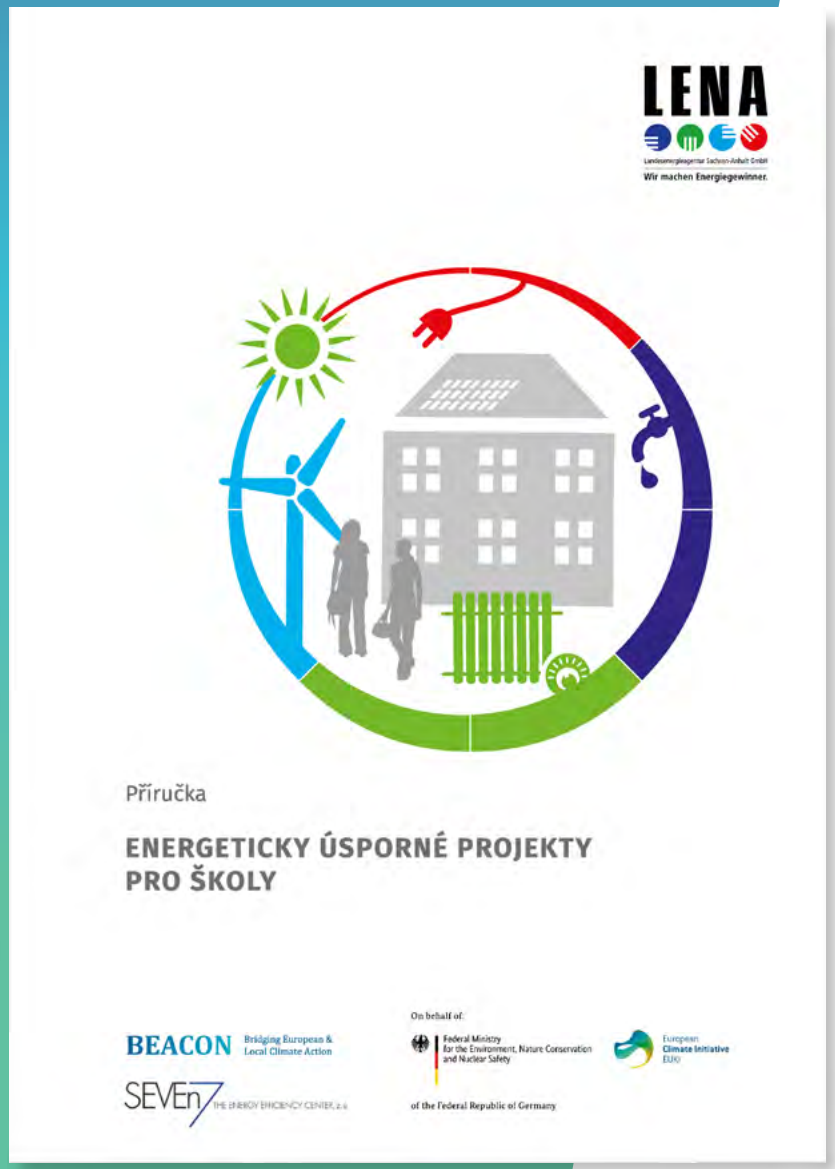
…też panele fotowoltaiczne i słoneczne służące do pod-
…grzewania wody. Stuttgart regularnie analizuje też moż-
…wość finansowania działań pozwalających oszczędzać
…rgię we współpracy z zewnętrznymi partnerami. Oka-
…ię jednak, że działanie na własną rękę jest jedno-
…e bardziej opłacalnym rozwiązaniem.

…łącznie na cele intractingu przeznaczono
…euro. Uzyskane dzięki temu oszczędno-
…euro. Miasto osiągnęło więc dzięki
…k netto w wysokości 7,1 mln
…i ważny wkład w ochronę
…anym projektom
…tys. t, co

Kluczowe dane

Rodzaj finansowania: Intracting
Okres: od 1995 r.
Koszty: dla gminy 8,8 mln € (do 2011 r.)
Redukcja kosztów: 14,2 mln € (do 2011 r.)
Łączna redukcja emisji CO_2: ok. 9 400 t rocznie (87 000 t do 2011 r.)
Ocieplenie 30 000 m² stropów na najwyższy…
Redukcja zużycia energii: 2,5 mln kW…
Redukcja emisji CO_2: 514 …

LENA HANDBOOK ON ENERGY SAVINGS IN SCHOOLS

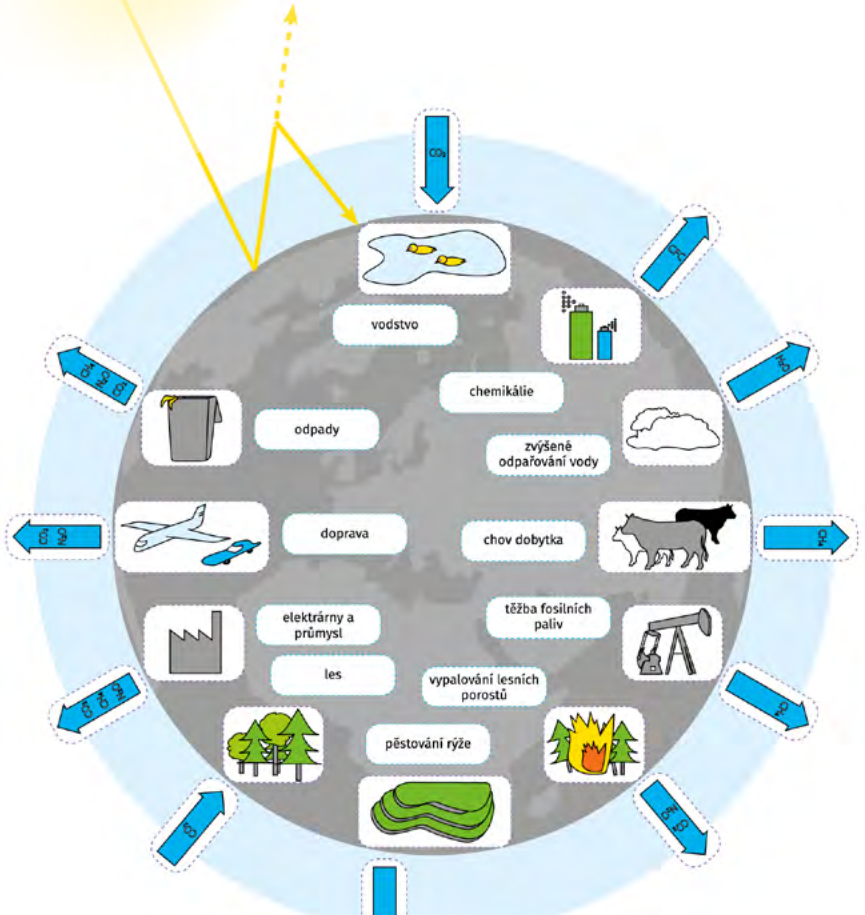


This Handbook, which was translated into Czech, Romanian and Bulgarian with the support of BEACON, provides schools and school administrators with suggestions for the implementation of energy saving projects in schools. It supports the implementation of user behaviour training, education and simple technical measures. The handbook is designed for all groups of people who learn and work at school: Primary and secondary school teachers, school administrators, caretakers and janitors as well as school administrators in the districts and municipalities.

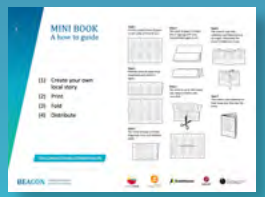
Czech

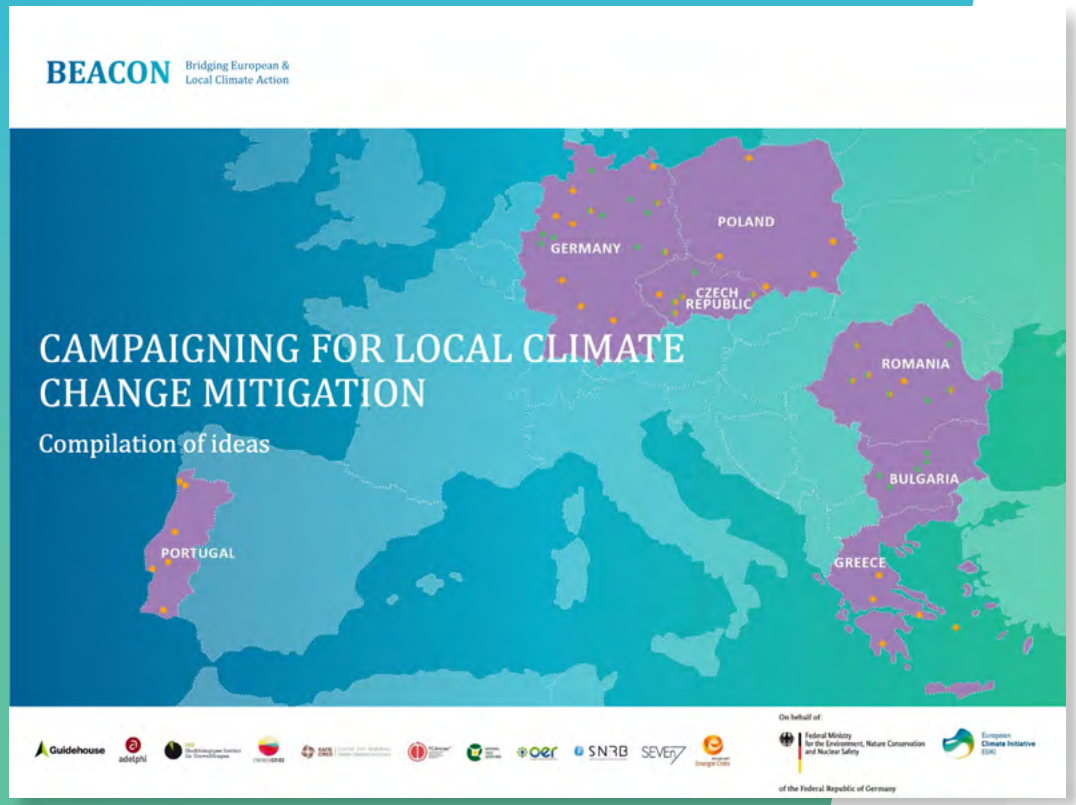
Romanian

Bulgarian



CAMPAIGNING FOR LOCAL CLIMATE CHANGE MITIGATION





PNEC, Energy Cities, and adelphi have compiled a catalogue of ideas for local climate campaigns, activities, and initiatives that can be adapted to each municipal context. The catalogue covers four main categories, spanning from distribution of different types of printed formats, to tips on engaging citizens via social media, climate friendly gadgets, climate-focussed games and more. The catalogue draws from initiatives and best practices implemented around Europe and links the reader to the tools necessary for your next climate-inspired activity!

More information

English

German

'ww.scientists4future.org

'd experts and/or a green
'nisation here:

'w.eumayors.eu/about/covenant-community/supporters.h

ENVIRONMENTAL AND LIVING QUALITY IN URBAN ENVIRONMENTS

The BEACON project translated and adapted the German Environment Agency's guidance brochure on municipal planning for Romania. With a view to foster sustainable urban environments with a high quality of life, the document synthesises the findings of a research report built on eight case studies covering both existing buildings and new constructions. The brochure shows how a high building density and a great variety of different uses can be reconciled with a high quality of environment and living. The focus is on topics such as securing and reclaiming spaces for urban greenery, reducing traffic-related noise and pollutant pollution, and climate-friendly area development.

Romanian

ıajare spaţiu stradal în Leipzig Lindenau, Germania.

Crearea de spaţii verzi stradale în anii 1980 din Esslingen, Germa
contribuie astăzi în mod semnificativ la îmbunătăţirea microclir
din centrul oraşului.

isiile fonice şi noxele cauzate de
ficul motorizat şi de alte surse

Marea parte e emisiilor fonice şi a noxelor din cartie-
ele existente este cauzată de traficul motorizat.
achetul de strategii şi instrumente poate minimiza
nflictele, însă şansele de reuşită cresc dacă se urmă-
c cu consecvenţă protecţia mediului şi stabilirea
cadru cât mai restrictiv pentru trafic.

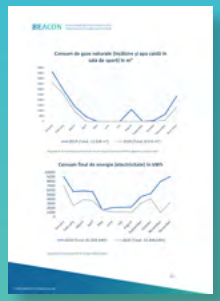
torizat nu este doar cauza concurenţei în utiliza-
public, ci şi cauza emisiilor fonice şi a noxelor
xistente. O parte a acestor probleme este
de tranzit de pe arterele principale care

Dezvoltarea ecologică a cartierelor

Adaptarea la schimbările climatice este un subiect di
cutat în multe cartiere. Abordarea acestora are însă
vedere doar prevenirea supraîncălzirii, în timp c
măsurile pentru a contracara precipitaţiile extrem
sunt încă puţin răspândite.

Unele dintre cartierele analizate sunt supuse, în princi
din cauza amplasării şi din cauza densităţii mari a const
ţiilor, efectului de insulă termică urbană. În plus, cartie
existente, sunt afectate cu precădere de riscurile unor
cipitaţii extreme

BETTER SCHOOLS – BETTER CLIMATE: REFURBISHMENT GUIDE FOR ROMANIAN SCHOOLS



Energy performance in Romanian school buildings is still far from adequate. The lack of basic technical system components such as thermostats or flow controls shows that energy efficiency measures in Romanian schools must start at a fundamental level. BEACON supported energy saving measures in Romanian school buildings between 2018 and 2021. For this purpose, BEACON has created a refurbishment guide for Romanian schools that shall assist technical and administrative staff of local authorities to take the right measures for energy efficiency improvement in schools and where to apply for funding.

More information

Romanian

Figure 4: Heating system for the gym

GUIDE TO VIRTUAL COLLABORATION

This guide, compiled by Guidehouse, provides an overview of advice about virtual collaboration. The trend towards more virtual events due to the pandemic is already underway. Recent developments in communication technology have increased the number of benefits of digital tools, such as saving CO_2 by abstaining from travelling to events.

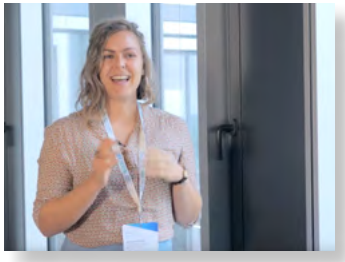
The publication presents organisational and logistical considerations as well as insights on effective facilitation and tools to enhance the virtual experience. It informs how to foster the potential of virtual meetings to create richer collaboration processes. These guidelines can be used as a resource to design, implement, or supplement a range of virtual events including trainings, on-the-job mentoring, coaching, meetings, workshops, seminars, conferences, and more.

More information

English

VIDEOS

Bridging European and Local Climate Action (BEACON)



Interview: Linking climate action at different levels (with Alexandra Bussler)

Interview: Better together – Being part of a network (with Ilias Savvakis)

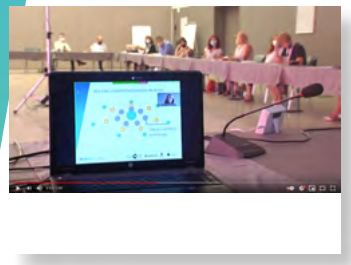
Interview: Joining forces to address climate action (with João Murato)

Interview: Rethinking climate change communication (with Liviu Stanciu)

Interview: Collaborative learning (with Marie Peřinková)

Interview: The time for change is now (with Tomasz Bońdos)

The Bulgarian climate action bike cinema explained



BEACON Vertical Workshop: Anchoring Climate Action and Energy Efficiency in Bulgarian Schools

LENA Handbook (BEACON)

Save the Earth (BEACON)

Vernetzt-Aktiv-Nachhaltig - The Coordination of Nature, Environment and Sustainability Education

Wind-Wagnis-(Mit)Wirkung – A portrait of the energy self-sufficient town of Feldheim

BEACON Bridging European & Local Climate Action

Visit the BEACON page on the EUKI website:
www.euki.de/euki-projects/beacon

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BEACON_HelpDesk@guidehouse.com

On behalf of:

Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

European
Climate Initiative
EUKI