

Summary of conducted lighthouse projects

The Green ProcA Project

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Glossary

CoM:	Covenant of Mayors
GPP:	Green Public Procurement
LCC:	Life Cycle Costs
LH:	Light House Project
SEAP:	Sustainable Energy Action Plan

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1. Lighthouse package-Introduction

The main tasks of the project partners was to identify and push opportunities for the generation of lighthouse projects by the outcomes of the assessment of GPP activities among signatories with GPP targets. The scope of the lighthouse projects is to either purchase a product or service with GPP criteria or to implement GPP procedures into their institution.

Once purchasers agreed to engage in a lighthouse project they received support in drafting their procurement specifications and exemplary tender documents. During this process the ProcA partners will have help each other in specific questions concerning the procedure.

The experience gained during the implementation of the lighthouse project could be used for the integration of institutional procurement policies (if not yet existent) but will also be made publicly available translated on line in [the download section](#) to serve as best practice. Also the Lighthouse projects are eligible for the GPP Award.

2. Lighthouse projects performed

A total of 39 lighthouse projects were performed (envisaged 42). The number and quality of lighthouse projects to be supported within each participating country depended on the status with regard to the number of SEAPs implemented countrywide and the capacity of local authorities to:

- adopt green procurement action
- adopt of Green GPP against conventional procurement procedure
- understand the opportunity of conducting a lighthouse project
- understand the conditions for the eligibility as a lighthouse project
- receive comprehensive assistance in the preparation of a GPP lighthouse project
- accept assistance for the lighthouse projects in the tendering process and the evaluation of the tender, applying the life cycle costs calculation tools
- agree to publishing and dissemination of their lighthouse projects
- understand the importance of monitoring, dissemination and reporting for its citizens and employee, market and for creating green jobs

The overall number of lighthouse projects conducted by the participating partners during the project was:

	DE	HU	HU	IT	PL	SK	SK	RO	BG	BG
Sum	BEA	HAB	Energiaklub	Consip	BAPE	ECB	Tatra	REC	SEC	ARM
39	6	5		10	3	4		3	3	5

3. Summaries of lighthouse projects

The function of the lighthouse projects was threefold:

1. Recognition of very active procurers, who took extra efforts to apply GPP in an exemplary manner;
2. Example to public purchasers in other procurement offices, what impact GPP can have; and
3. Strong contribution to achieving a community's SEAP targets through bold GPP action.

Many interesting investments were implemented that may be a source of inspiration for other European local authorities engaged in climate protection and energy saving. Below are the summaries of conducted lighthouse projects and their results, keeping in mind the background and the actual on ground practices of the local authorities:

- LH1. Berlins` public buildings` use of the roof areas for the installation, control and service of the solar plant as well as the use of the generated solar electricity. The solar power plant installed on the roof of Deutsches Technikmuseum has a capacity of 46 kWp and generates CO2 savings of 21 t CO2 eq/a .
- LH2. The group of buildings Koloniestraße 44 from Berlin is to be supplied with heat for 15 years within a facility contracting. Additionally the existing heating supply is modernised and CHP generation plant (Combined Heat & Power for Gas) was installed and operated for delivering 10 % of the annual heat energy and for the designated contract period of 15 years. The required thermic power input is 2,000 kW and the expected annual heat energy of 2.825 MWh. The existing energy source changed from oil to domestic gas. The primary energy savings are 730 MWh/a and CO2-savings of 236 t CO2 eq/a.
- LH3. The city of Haldensleben in Germany was subsidized by the Federal Environment Ministry for converting 70 points of public street lighting from mercury vapor lamps to lights with modern LED-Technology. (Multi-Lens Technology, service life of 50.000 hours or 20 years, luminous flux of 1.500 Lumen and performance of 20 W). The energy savings are 20.236 kWh/a and 11.9 t CO2 eq/a CO2-savings with 16 years amortization.
- LH4. The city Norden from Germany replaced the inefficient high-pressure mercury lamps. With 606 new light heads and replacement of 75 pylons an energy saving of more than 70% was achieved with improved lighting standard. The main criteria with pre-determined score rating were: Cost; Energy consumption in kWh/year or energy consumption in kWh/(km*year); Product quality and photometric features (Luminous color, level of lighting, maintainability); Aesthetics (Determination by a local assessment committee) and minimum of 60 % power saving kwh/y (exclusion criteria). An annual power saving of 266.551 kWh/a is achieved and CO2-savings of 3.145 t CO2 eq/a throughout a service life of 20 years.
- LH5. The city administration of Plauen from Germany ran for 13 different street sections of its urban area checks for of applicability of subsidies (street light potential for CO₂ reduction, energy and

economic characteristics). For 8 streets 89 modularly built LED-lights with self-sufficient dimming and eight streetlight 10 midi LED-pylon-lights were procured.

The contractor guarantees a supply of spare parts or a replacement of an identical light (e.g. after accidental damage) for at least ten years from date of delivery. An annual power saving of 61 MWh/a and CO₂-savings of 24 t CO₂ eq/a are estimated.

- LH6. With over one million visitors a year the headquarters of the Foundation House of History of the Federal Republic of Germany belongs to the most visited museums of Germany. It procured a five years lease contracted for service performance of/for computer printers and digital copiers (81 laser printers and 10 multifunction devices). The technical minimum requirements were: at least comply with the standard of the Umweltzeichen „Blauer Engel“ (Environmental label „Blue Angel“) or meet comparable standards; payment mode for visitors; and an automated power saving mode; suitable for the use of recycling paper. Technical support service is provided over the entire contract duration. The investment resulted in power savings of 6200 kWh and CO₂savings of 4.5 t CO₂ eq/a.
- LH7. The municipality of Arenzano, Italy utilized energy performance contracting consisting of procurement of the thermal energy carrier and the implementation of energy efficiency interventions of the building-plant system with a goal of 25% reduction in consumption. The contract holds in consideration the Environmental Minimum Criteria (Criteri Ambientali Minimi - CAM) related to the taking in charge of the energy services for buildings, adopted by the Ministry of the Environment with the Ministerial Decree 7th of March 2012. The main environmental friendly actions were: Initial energetic check, Energy efficiency actions, Energy audit, Energy certification of buildings, Respect the emission limits fixed by the relevant regulation, Monitoring and control system, Management and remote monitoring system, Ordinary and extraordinary maintenance, energy efficiency actions and regulatory compliance, Correct disposal of the waste coming from the cleaning services, Removal and disposal of the residues of asbestos.
The estimated thermal consumption reduction objective was (natural gas): 331.368 MWh. This amount corresponds to an annual energy cost reduction of € 16,899.74 and CO₂-savings of 66.94 t CO₂ eq/a.
- LH8. The municipality of Catania, Italy, procured the thermal energy carrier and the implementation of energy efficiency interventions of the building-plant system with a goal of 25% reduction in consumption. The heating energy service is complemented with the supply and management of cooling and electric power. All these services are supplemented with the following by services: Creation and management of the technical registry; Creation and management of the IT system; Call Centre; Programming and operational control.
The guaranteed savings amounting to 25%, namely 1,134 MWh of diesel and 495 MWh of natural gas. The overall savings are:
 Thermal CO₂ savings objective (diesel): 304.03 t CO₂ eq/a
 Thermal CO₂ savings objective (natural gas): 100.1 t CO₂ eq/a
 Thermal consumption reduction objective (diesel): 1,134.45 MWh/a
 Thermal consumption reduction objective (natural gas): 495.33 MWh/a
 Thermal consumption reduction objective (diesel): € 121,386 /y
 Thermal consumption reduction objective (natural gas): € 37,348 /y
- LH9. The municipality of Fiorenzuola d'Arda, Italy, procured the same services as the municipality of Catania. While the yearly overall CO₂ saving objective was 272,95 t CO₂ eq/a, natural gas corresponding to 1,351.2 MWh is saved, which leads to an annual cost reduction of € 68,914.

- LH10. The municipality of Gualtieri, Italy, procured the same services as the municipality of Catania. The yearly CO2 savings will reach 174.86 t CO2 eq/a, reducing the energy consumed by 865.6 MWh/a and the energy costs are to be reduced annually by € 44,147.
- LH11. The municipality of La Spezia procured the same services as the municipality of Catania. The yearly CO2 savings will be 1,189 t CO2 eq/a while 5,887 MWh will be saved annually. This leads to annual cost savings of € 300,218.
- LH12. The municipality of Licata, Italy, procured the same services as the municipality of Catania. 57.64 t CO2 eq/a will be saved annually corresponding to 285.3 MWh energy saved. The energy costs were reduced by € 21,516 annually.
- LH13. The Municipality of Mascalucia, Italy, procured the same services as the municipality of Catania. The annual CO2 savings are 8.92 t CO2 eq/a due to the reduction of diesel and 38.87 t CO2 eq/a due to the reduction of natural gas. The amount of diesel reduction corresponds to 33.28 MWh/a and the reduction natural gas to 192.43MWh. This leads to annual energy cost savings of € 3,561 (diesel) and € 14,509 (natural gas).
- LH14. The municipality of Noceto, Italy, procured the same services as the municipality of Catania. The yearly CO2 savings are 180.18 t CO2 eq/a. The yearly energy savings are 891.97 MWh, this corresponds to energy cost savings of € 45,491 per year.
- LH15. The municipality of Reggiolo, Italy, procured the same services as the municipality of Catania. CO2 savings of 159.07 t CO2 eq/a were realized. At the same time the energy consumption could be reduced by 788MWh and the energy costs by € 40,162 per year.
- LH16. The Municipality of Padova, Italy, refurbished, from energy conservation point of view, the architectural heritage of the city of Padova, in particular the private sector as responsible for 30% of greenhouse gas emissions. The project is mainly aimed at apartment buildings of medium/large size and low energy efficiency for which major or minor interventions of refurbishment never occurred. An Energy Service Company (ESCO) has been appointed to perform the works in the subscribing buildings by managing integrated energy services and by guaranteed performances contracts, whose fees are directly connected to the achieved energy savings.
The planned results are: Energy savings of 15,200 MWh/aMWh/a; Renewable energy production: 2,300 MWh/a; GHG reduction: 4,850 CO2 tons/year and 15,872,573 € mobilized in the private market.
- LH17. Prof. Tadeusz Bilikiewicz Voivod Psychiatric Hospital in Gdańsk, Poland is operating as an independent public health care public institution. The procurement included the design and renovation of outdoor lighting and lighting in the tunnels connecting buildings of the Voivod Psychiatric Hospital in Gdańsk. The subject matter description included i.a. development of building design, acquiring administrative approvals, supervision of works, installing 10 outdoor lighting points (100,000 h of operation, minimum 110 lm/W, remote control allowing to define schedules) and replacement of 51 tunnel lighting points (36W LED, 50,000 h of operation, minimum 90 lm/W) with 5 year manufacturer warranty.
The yearly estimated savings are: 8 t CO2 eq/a, 562 €/a and electricity savings 7 MWh/a
- LH18. City of Kościerzyna, Poland refurbished four communal multi-family buildings (25 flats in 4 blocks of flats) including replacement of windows and doors, thermal insulation of walls and roofs, installation of central heating and hot tap water systems, solar installations and electrical systems. The award criteria were 95% price and 5% warranty period. The estimated yearly savings are: 150 t CO2 eq/a, 13,920 €/a and heat demand savings of 430 MWh/a.

European Project "Green ProcA".

Visit <http://www.gpp-proca.eu/> for more information.



Co-funded by the Intelligent Energy Europe Programme of the European Union

- LH19. Potęgowo municipality, Poland installed 49 LED lamps (35 W) along bicycle/walking lane and 9 LED lamps (49 W) along a national road, 51 lighting poles and almost 2.5 km of cables. The award criteria was 94% price, 6% warranty period (min. 4 years) while the detailed requirements included: power factor $\geq 88\%$; light efficiency – min. 120 lm/W; luminous flux – min. 3500 lm along bicycle lane and 5000 lm along the national road; power reduction module (between 20.00-23.00 and 5.00-6.30 down to 70% and between 23.00-5.00 down to 30%)
The yearly estimated savings are: 26 t CO₂ eq/a, annual cost savings 2,815 € and electricity savings of 22 MWh.
- LH20. The City Hall of Giurgiu, Romania launched a direct procurement procedure for "Extension of public lighting network - lighting network on N. Titulescu Boulevard". The specific objective was: Purchase and instalment of 24 street lamps with LED of 90W at a height of 11.3 m along with the lighting polls and its arms. The lighting ignition/off will be done automatically via preset GSM communication module or manual module. In setting public lighting solution the designer complied with the design guideline recommendations for public lighting installations 3-91 IRE-1p.
The achieved savings were: 6 metric tons CO₂ = 6.6 t CO₂ eq/a, annual costs savings of 543 € (based on the ANRE public tariffs 0.077 €/kWh issued on 30.03.2016) and annual electricity savings: 7.057 MWh/a. Other positive results and environmental benefits were: 127 planted trees equivalent and energy saved 38.98 %.
- LH21. The Town Hall of Zimandu Nou Commune, Romania, launched a tender estimated at 163,805 € + VAT for rehabilitation and modernization of street lighting by purchasing 716 LED sources and installation on existing poles, divided by class lighting system and implementation a tele-management system for 77 luminaires (type 3), located along the E671 road in the town of Zimandu cel Nou. Duration 120 days. Breakdown of LED types allocated: 436 pieces 30W, 111 pieces 40W, 65 pieces 50W, 104 pieces 60W. Although the award criteria was lowest price, the environmental and technical criteria were set by installing street lamps with LED of 30-60W and replacing the existing old incandescent street lamps ISO 14001 and ISO 9001 certificate availability had to be proven by the tenderers.
The achieved savings were: 132.3 t CO₂ eq/a, annual costs savings of €11,287 and resulted annual electricity savings of 141.1 MWh/a (based on the ANRE public tariffs 0.08 €/kWh issued on end of 2014-beginning of 2015). Further positive results and environmental benefits were: Energy saved: 39.22 %, 2,540 planted trees equivalent.
- LH22. The Municipality of Cluj, second largest city of Romania, launched various tenders for thermal rehabilitation of 38 blocks of flats (Group I-VII) for a cumulated investment amount of € 5,991,247. The used environmental criteria were: ToR and Technical Specifications: Compliance with all requirements requested by norms, law, decisions of local authority, standards on building work. Compliance with the specific legislation on thermal rehabilitation and guidelines applicable when the public procurement was initiated and when the procurement contracts were signed. Also the awarded companies had to ensure quality of works, environmental protection and all stages of work by being compliant with strict standards and regulations in force. All the norms, laws, standards, decisions were specifically enclosed in the ToR and the Technical Specifications.
It resulted in 1,365 flats rehabilitated; CO₂ emission savings of 15,780 CO₂ t CO₂ eq/a; energy savings of 20.37 GWh/year and energy cost savings of € 362,940 per year. In the near future the thermal rehabilitation program will continue in Cluj with extra 50 blocks of flats rehabilitated through the new EU structural funds 2014-2020.

- LH23. The Municipality of Nova Bana, Slovakia applied for a public subsidy for the project „Thermal insulation of the Municipal Office building and the Building of the Business Centre “. The project dealt with the thermal insulation of the roof, facade and outdoor walls, the replacement of windows, replacement of entrance doors (6-chamber system, $U_f 0,92 \text{ W/m}^2\text{K}$), and a complete renovation of outdoor walls.
- LH24. The Municipality of Nova Bana from Slovakia ran a project for installing of 705 LED lamps (replacing 471 old lamps) and another 234 LED lamps on existing supporting points. The estimated savings are 65.69 t CO₂ eq/a and 80% energy savings, i.e. 260.74 MWh.
- LH25. Municipality of Trnava from Slovakia ran a project for replacement of windows at the special pavilion belonging to the elementary school at Gorkeho street. The CO₂ emissions after refurbishment were 7.4 t CO₂ eq/a, the amount of annual cost savings is € 13,536 while the annual heating energy demand saved is 142.7 MWh/a. The energy savings were achieved due the better heat transmission coefficient of replaced windows ($U_w \text{ max } 1.2 \text{ W/m}^2\text{K}$).
- LH26. The Municipality of Trnava, Slovakia ran a project for complete reconstruction of the thermal insulation of the building roof and the exterior walls of the Elementary school at Spartakovska. The achieved savings were 0.11 t CO₂ eq/a, the amount of annual cost savings is € 2,995 and electric energy savings of 26,68 MWh/a.
- LH27. Municipality of District XVIII of Budapest, Hungary, based on the Sustainable Energy Action Plan of the Municipality introduced in 2015, managed an energy efficiency improvement and refurbishment of 1 public institution, the Kastélydombi Primary School with the support of the Environment and Energy Operative Programme. A national procurement procedure was applied with direct calls for tender based on the lowest price. In designing the construction the Municipality also needed to ensure a 30-year payback time of the investment. As a result of the project the energy class has changed from the previous “E” to “A”. (57% savings compared to the initial state) The annual amount of CO₂ saved is 64.14 t CO₂ eq/a, the amount of annual cost savings is € 15,000 while the annual heating energy savings are 316.1 MWh/a.
- LH28. In the same manner as Kastélydombi Primary School, the Municipality of District XVIII of Budapest, Hungary, managed the Csibekas Nursery refurbishment. The technical specifications needed to be reconciled with the requirements of the grant agreement, but some extra tasks were accomplished that turned out to be necessary during the refurbishment, but were not financed by the grant. One example was the reconstruction of the building’s lightning protection system. In designing the construction, the Municipality also needed to ensure a 30-year payback time of the investment. As a result of the project the annual amount of CO₂ saved is 73.58 t CO₂ eq/a and the annual heating energy demand saved is 253.61 MWh/a (913 GJ/year), i.e. 52.85% savings compared to the initial state. The estimated amount of annual cost savings is € 12,000.
- LH29. The Municipality of District XX of Budapest Hungary, in order to contribute to the efforts of CO₂-emissions Budapest and Hungary., managed energy efficiency improvement and refurbishment of three public institutions - Vilmos Lázár Primary School, Alfréd Hajós Primary School and Ady Endre Nursery with the support of the Environment and Energy Operative Programme. The negotiated public procedures, led to an annual amount of CO₂ saved of 87.21 t CO₂ eq/a, with estimated amount of annual cost savings of € 16,200 and annual heating energy demand saved of 341 MWh/a (1227.1 GJ/year)
- LH30. The Municipality of District XX of Budapest achieved savings of 77.29 t CO₂ eq/a, € 15,500 annual cost savings and heating energy savings of 326,17 MWh/a.

- LH 31. The Municipality of District III achieved savings of 69 t CO₂ eq/a, € 12,600 annual cost savings and heating energy savings of 290 MWh/a.
 - LH 32. The municipality of Sapareva Bania realized a project for improvement of energy efficiency of street lighting in the city. The objective of the initiative is to improve the energy efficiency of the street lighting, as it represents 60% of the costs for energy of the municipality. While the technical and financial risk is covered by the ESCO. The chosen solution lead to annual reduction of electricity consumption of 447.47 MWh/a, CO₂ savings 305.62 t CO₂ eq/a and costs savings 40,055 €/a
 - LH 33. The Diagnostic and Consulting Centre XII in Sofia implemented a project for improvement of energy characteristics of the building including insulation of external building envelope, change of windows and change of lighting. The foreseen measures will improve the energy efficiency of the building from energy class D to energy class B. The achieved savings are: 46.4 MWh/a annual electricity, heat energy consumption 445.2 MWh/a, CO₂ savings 173.03 t CO₂ eq/a and costs savings 23,147 €/a.
- LH34. Technical University of Sofia realize a project for Improvement of energy characteristics of 3 students' hostels. The objective of the initiative is to improve the energy efficiency of the buildings through insulation of the building envelope and installation of solar thermal collectors for domestic hot water. The foreseen measures will improve the energy efficiency of the building from energy class E to energy class B. The achieved savings are: reduction of heat energy consumption 854.93 MWh/a, CO₂ savings 466.43 t CO₂ eq/a and costs savings 44,840 €/a.
- LH35. The municipality of Bratsigovo realised a project for the installation of PV panels on the roof of the hospital. The objective of the initiative is to realize an installation for independent supply of green energy for the needs of the hospital. The installed PV panels produce 33.60 MWh electricity per year, the CO₂ savings amount to 27.52 t CO₂ eq/a and the price of the electricity produced in one year 3,008 €/a.
 - LH36. The municipality of Bratsigovo realised a project for improvement of energy characteristics of the kindergarten 'Bozhura Furnadzhieva'. The objective of the initiative is to improve the energy characteristics of the building through insulation of the building envelope and change of heating system with such on biomass. The foreseen measures improved the energy characteristics of the building from energy class E to energy class B, all heat energy is supplied by wooden pellets. The achieved savings are: reduction of heat energy consumption 6.8 MWh/a, CO₂ savings 65.61 t CO₂ eq/a and costs savings 8,500 €/a.
 - LH37. The municipality of Zlatograd realized a project for improvement of energy efficiency of street lighting in the city. The objective of the initiative is to improve the energy efficiency of the street lighting. The chosen solution with LED lamps lead to 80% energy savings. The annual reduction of electricity consumption is 260.78 MWh/a, CO₂ savings 178.16 t CO₂ eq/a and costs savings 23,275 €/a.
 - LH38. The municipality of Zlatograd realized a project for improvement of energy efficiency of 3 buildings (two schools and one administrative building). The objective of the initiative is to improve the energy characteristics of the buildings through change of their heating systems with such on biomass and in one school installation of solar thermal collectors for domestic hot water. The foreseen measures improved the energy characteristics of the building from energy class C to energy

class B, all heat energy is supplied by wooden pellets. The achieved savings are: reduction of heat energy consumption 588.85 MWh/a, CO2 savings 452 t CO2 eq/a.

- LH 39. The municipality of Madan realized a project for improvement of energy efficiency of the hospital. The objective of the initiative is to improve the energy characteristics of the building through change of heating system with such on biomass and new lighting with LED and energy efficient lamps. The foreseen measures improved the energy characteristics of the building from energy class C to energy class B, all heat energy is supplied by wooden pellets. The achieved savings are: reduction of heat energy consumption 224.12 MWh/a, CO2 savings 94.60 t CO2 eq/a and costs savings 9,690 €/a.

4. Cumulated achievements

In a nutshell the overall estimated cumulated results of the 30 Green ProcA lighthouse projects are

- **Resulted annual tCO2 savings: 26,014 tCO2 eq/a**
- **Resulted annual electricity demand savings: 3,704 MWhel/a**
- **Resulted annual heat demand savings: 52,802 MWhth/a**
- **Resulted annual savings in € as a result of the procurements: 1,346,566€/a**

The GPP developed through the LHP were dominated by the building sector (73.17% of the total-39 LHP compared to Expected pilot projects until 2016-prefomance indicator of 19 buildings), followed by 10 LHP on public lighting (24.39% of the total- 10 LHP compared to Expected pilot projects until 2016-prefomance indicator of 15) while for ITC only on LHP was developed (2.44%1 LHP compared to Expected pilot projects until 2016-prefomance indicator of 8).

To put results into perspective according to Greenhouse Gas Equivalencies Calculator of US Environmental Protection Agency, the resulted annual heat and electricity demand savings convert into these savings:

- 8,388 Passenger vehicles driven for one year
- 95,173,736 Miles driven by an average passenger vehicle (153,167,280 Km)
- 12,603 Tons of waste recycled instead of landfilled
- 42,375,478 Pounds of coal burned (19,221,193 Kg)
- 5,864 homes' electricity use for one year
- 10 Wind turbines installed
- 91,940 barrels of oil consumed (14,617,292 liters)
- 1,407,694 incandescent lamps switched to LEDs
- 1,029,158 tree seedlings grown for 10 years

About 25% of the resulted annual costs savings (€) were not calculated due to lack of data, therefore it could be estimated through an extrapolation that the resulted annual costs savings of the LHP is € 2,230,466. Also to a lesser extent there, is missing data in relation to annual electricity heat demand savings and annual electricity demand savings, however the totals are exceeding the Performance Indicators of Green ProcA project for reduction of greenhouse gas emissions 22,793 tCO₂ eq/a until 2016 (target within the project duration of 30 months) vs. achieved by Green ProcA 25956tCO₂ eq/a. Also the roughly achieved **annual** cumulated heat and electricity savings of 3,704 energy savings MWhe/a (UCTE-Mix 2006 Primary Electricity savings of ~ 6,889.4MWh/a) and of 52,802energy savings MWth/a (District heating with CHP Primary Heat savings of ~ 36,961.4MWh/a) almost reaching the Performance Indicators of Green ProcA project for Primary Energy savings **by 2016** of 49,915 MWh/a.

The resulted annual fuel savings indicator could not be centralised as less than 50% of the lighthouse projects provided them or dealt with them.



5. Lessons learned

Buildings

- It is necessary to know in advance the minimum building size for ensuring the economic viability and interest for the energy service companies (ESCO).
- In the services provided to the public authorities there should be an explicit prohibition to use materials and substances that have been classified as harmful by the European Union in order to introduce even more stringent requirements with respect to the relevant regulation. This proposal is based on the principle that the public authorities play a leading role in the market orientation towards the production of goods and services that have absolutely no impacts on the human health.
- The accessibility to the data that are collected in the monitoring phase. This data represent a precious starting point for the elaboration of analysis aimed at assessing the actual efficiency of the implemented actions and at formulating proposals for the advancement of the following editions of the Convention
- In consideration of the broad adhesion of the Italian cities and towns to the Covenant of Mayors, the Convention might evolve and become more ambitious providing more significant technological improvements. Furthermore, the Convention might promote more radically the use of advanced energy certifications and protocols.
- There is a need for virtual laboratory for GPP with tools adapted for each countries legislation and fields of procurement
- The school/kindergarten refurbishment provided users, children and parents, with a renewed, more beautiful building, only positive feedback was received. Since the takeover of the work no objections have been received with regards to the quality of the work completed.
- The grant agreement made the procurement process difficult by requiring that the refurbishment works be finished within an extremely short time, while the kindergarten building was operating continuously all throughout the works. Thus all the institutions had have a very positive approach that supported cooperation and the provision of working areas.

Public lighting

- Expansion of LED street lighting pays off and is achievable once funding or subsidies become available for the local authorities
- Determination of detailed technical parameters of lamps and light parameters helps to select appropriate light sources by the tenderer

- The requirement to submit photometric tests of the light sources offered is one of the elements that guarantee the achievement of the desired effects and the quality of lighting for the purchaser.

