

EXEMPLARY ENERGY EFFICIENCY PROJECTS AND GOOD IMPLEMENTING PRACTICES

KOSOVO*

June 2016

No.	EE PROJECT/ PROGRAMME TITLE	IMPLEMENTING BODY /BENEFICIARY/ TARGET GROUP(S)	IMPLEMENTATION PERIOD	SOURCE OF FINANCING / AMOUNT	BRIEF DESCRIPTION OF PROJECT / PROGRAMME AND GOOD IMPLEMENTING PRACTICES	EARLY RESULTS / IMPACT EVALUATION (IF EXIST)
1.	IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES (EEM) IN SCHOOLS and HOSPITALS IN KOSOVO	The European Union Office in Kosovo is the Contracting Authority of this Service Contract. The Beneficiaries are Ministry of Economic Development (MED), Ministry of Local Government Administration (MLGA), Ministry of Health (MoH). School "Emin Duraku", Municipality of Shtime	September 2012 - September 2016	EUROPEAN UNION €257,796 EE measures €78,039 non EE measures €335,835 total investment	In order to encourage more effective use of energy across Kosovo, the EU Office in Kosovo has provided further support to Kosovo municipalities in implementing energy efficiency measures in public buildings, particularly in 63 schools across different municipalities and 2 hospitals in the Municipality of Prishtina. The proposed measures to promote a more rational use of energy were focused on: <ul style="list-style-type: none"> o Building envelope improvements (such as external thermal insulation of buildings, replacement of external windows and doors, waterproof roof insulation); o Heating systems, electrical and lighting systems, air conditioning and ventilation control systems; o Introduction of renewable energy resources, such as solar panels for hot water production, solar-assisted space heating systems. The main objectives are: <ul style="list-style-type: none"> - Implementation of energy saving measures as listed above, - Increase in end-user satisfaction about energy efficiency and indoor comfort, - Awareness rising of the end users about energy efficiency and rational use of energy. 	Significant energy consumption savings have been achieved for 1 refurbished building with annual savings of an average of 68% which amounts to 609,364 kWh/year Difference in average annual specific CO ₂ emissions reduction follows the same pattern as energy consumption, which is 68% in total or 254 t/a . The Equity Payback Period (EPP) for EE Measures is 9 years . Average specific investment for school building is 118 €/m² .

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2.	IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES (EEM) IN SCHOOLS and HOSPITALS IN KOSOVO	The European Union Office in Kosovo The Beneficiaries are Ministry of Economic Development (MED), Ministry of Local Government Administration (MLGA), Ministry of Health (MoH). School "7 Marsi" Municipality of Drenas	2012-2016	EUROPEAN UNION €150,629 EE measures €28,700 non EE measures €179,329 total investment	In order to encourage more effective use of energy across Kosovo, the EU Office in Kosovo has provided further support to Kosovo municipalities in implementing energy efficiency measures in public buildings, particularly in 63 schools across different municipalities and 2 hospitals in the Municipality of Prishtina. The proposed measures to promote a more rational use of energy were focused on: <ul style="list-style-type: none"> o Building envelope improvements (such as external thermal insulation of buildings, replacement of external windows and doors, waterproof roof insulation, thermal insulation of ground floor); o Heating systems, electrical and lighting systems, air conditioning and ventilation control systems; o Introduction of renewable energy resources, such as solar panels for hot water production, solar-assisted space heating systems. The main objectives are: <ul style="list-style-type: none"> – Implementation of energy saving measures as listed above, – Increase in end-user satisfaction about energy efficiency and indoor comfort, – Awareness rising of the end users about energy efficiency and rational use of energy. 	Significant energy consumption savings have been achieved for 1 refurbished building with annual savings of an average of 69% which amounts to 323,625 kWh/year Difference in average annual specific CO ₂ emissions reduction follows the same pattern as energy consumption, which is 69% in total or 131 t/a . The Equity Payback Period (EPP) for EE Measures is 10.1 years , while the EPP for total investments is 8.46 years . Average specific investment for school building is 153 €/m² .

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3.	IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES (EEM) IN SCHOOLS and HOSPITALS IN KOSOVO	The European Union Office in Kosovo The Beneficiaries are Ministry of Economic Development (MED), Ministry of Local Government Administration (MLGA), Ministry of Health (MoH). School "Vellezerit Fraseri" Municipality of Decan	2012-2016	EUROPEAN UNION €384,668 EE measures €70,884 non EE measures €455,512 total investment	In order to encourage more effective use of energy across Kosovo, the EU Office in Kosovo has provided further support to Kosovo municipalities in implementing energy efficiency measures in public buildings, particularly in 63 schools across different municipalities and 2 hospitals in the Municipality of Prishtina. The proposed measures to promote a more rational use of energy were focused on: <ul style="list-style-type: none"> o Building envelope improvements (such as external thermal insulation of buildings, replacement of external windows and doors, waterproof roof insulation, thermal insulation of ground floor); o Heating systems, electrical and lighting systems, air conditioning and ventilation control systems; o Introduction of renewable energy resources, such as solar panels for hot water production, solar-assisted space heating systems. The main objectives are: <ul style="list-style-type: none"> – Implementation of energy saving measures as listed above, – Increase in end-user satisfaction about energy efficiency and indoor comfort, – Awareness rising of the end users about energy efficiency and rational use of energy. 	Significant energy consumption savings have been achieved for 1 refurbished building with annual savings of an average of 42% which amounts to 367,762 kWh/year Difference in average annual specific CO ₂ emissions reduction follows the same pattern as energy consumption, which is 42% in total or 112 t/a . The Equity Payback Period (EPP) for EE Measures is 3.77 years (PBP short because of the high price of fuel oil which was changed to biomass after EE Measures) Average specific investment for school building is 90 €/m² .

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4.	IMPLEMENTATION OF ENERGY EFFICIENCY MEASURES (EEM) IN SCHOOLS and HOSPITALS IN KOSOVO	The European Union Office in Kosovo The Beneficiaries are Ministry of Economic Development (MED), Ministry of Local Government Administration (MLGA), Ministry of Health (MoH). School "Pandeli Sotiri" Municipality of Obiliq	2012-2016	EUROPEAN UNION €273,748 EE measures €68,661 non EE measures €341,409 total investment	In order to encourage more effective use of energy across Kosovo, the EU Office in Kosovo has provided further support to Kosovo municipalities in implementing energy efficiency measures in public buildings, particularly in 63 schools across different municipalities and 2 hospitals in the Municipality of Prishtina. The proposed measures to promote a more rational use of energy were focused on: <ul style="list-style-type: none"> o Building envelope improvements (such as external thermal insulation of buildings, replacement of external windows and doors, waterproof roof insulation, thermal insulation of ground floor); o Heating systems, electrical and lighting systems, air conditioning and ventilation control systems; o Introduction of renewable energy resources, such as solar panels for hot water production, solar-assisted space heating systems. The main objectives are: <ul style="list-style-type: none"> – Implementation of energy saving measures as listed above, – Increase in end-user satisfaction about energy efficiency and indoor comfort, – Awareness rising of the end users about energy efficiency and rational use of energy. 	Significant energy consumption savings have been achieved for 1 refurbished building with annual savings of an average of 70% which amounts to 273,748 kWh/year Difference in average annual specific CO ₂ emissions reduction follows the same pattern as energy consumption, which is 70% in total or 378 t/a . The Equity Payback Period (EPP) for EE Measures is 6.6 years (PBP short because of the high price of fuel oil which was changed to biomass after EE Measures) Average specific investment for school building is 67 €/m² .

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5.	STREET LIGHTING IN MUNICIPALITY OBILIQ		September 2015	UNDP 23,700.00 Euro	In the municipality Obiliq are changed lighting bodies 150W Hg with 50W LED lamps. Achieved savings are about 33%.	
6.	ENERGY AUDITS IN PUBLIC BULIDINGS- SUPPORT PROGRAM	MED/Municipality – Schools	2014	40,501.10€	Implementing of EE measures(one measure) Instalng of Energy Heating system in School	

- PHOTOS (Building Envelope)

PHOTO REPORT of the School no.1 “EMIN DURAKU” – SHTIME

BEFORE EE MEASURES

Architecture



Figure 1: Front Façade (side entrance)



Figure 2: Rear Facade

Mechanical Installations



Figure 3: Existing boiler room



Figure 4: Existing radiators

Electrical installation



Figure 5: old manual switch



Figure 6: old distribution board

AFTER EE MEASURES

Architecture



Figure 3: Front Façade (side entrance)



Figure 4: Rear Facade

Mechanical Installations



Figure 3: Energy efficient boilers

Figure 4: New radiators

Electrical installation



Figure 5: New surface mounted luminaries



Figure 6: New surface mounted luminaries in toilets

PHOTO REPORT of the School no.02 “7 MARSI” – KISHNAREKE, DRENAS

BEFORE EE MEASURES

Architecture



Figure 5: Front Facade



Figure 6: Entrance

Mechanical Installations



Figure 3: Existing stoves



Figure 4: Existing stoves

Electrical installation



Figure 5. surface mounted luminaries



Figure 6: old distribution board

AFTER EE MEASURES

Architecture



Figure 7: Front Facade



Figure 8: Entrance

Mechanical Installations



Figure 3: Energy efficient boilers

Figure 4: New radiators

Electrical installation



Figure 5: New surface mounted luminaries



Figure 6: New manual switches

**PHOTO REPORT of the School no. 3 “VELLEZERIT FRASHERI” DEÇAN
BEFORE EE MEASURES**

Architecture



Figure 9: Front Facade



Figure 10:Rear Facade

Mechanical Installations



Figure 3: Existing boilers



Figure 4: Existing radiators

Electrical installation



Figure 5: Surface mounted luminaries



Figure 6: Manual switch

AFTER EE MEASURES

Architecture



Figure 11: Front Facade



Figure 12: Rear Facade

Mechanical Installations



Figure 3: Energy efficient boilers

Figure 4: New radiator and refurbished installation

Electrical installation



Figure 5: New surface mounted luminaries



Figure 6: New manual switch

PHOTO REPORT of the School no.04 “PANDELI SOTIRI” OBILIQ

BEFORE EE MEASURES

Architecture



Figure 13: Front & Side Facade



Figure 14: Rear & Side Facade

Mechanical Installations



Figure 3: Existing boilers



Figure 4: Existing radiator

Electrical installation



Figure 5: Surface mounted luminaries



Figure 6: Existing manual switch

AFTER EE MEASURES

Architecture



Figure 15: Front & Side Facade

Figure 16: Rear & Side Facade

Mechanical Installations



Figure 3: Energy efficient boilers



Figure 4: New radiator

Electrical installation



Figure 5: New surface mounted luminaries



Figure 6: New electrical socket

- PHOTOS (lighting road)

Before lighting (Hg) 150W

After lighting LED 50W



- Street lighting in Municipality Obiliq (lighting road)

Before lighting road (Hg) 150W

After lighting road (LED) 50W



- Energy Audits in public bulidings- Support program

Building based on Standard Energy Audit	Primary School: BAJRAM CURRI, ISTOG
Date of Auditing	24.10.2013
Year of Construction	1964
Type of Building	Terciary Building /Education Building
Construction Type	Massive
Number of Usable Area	2 (Ground Floor and 1 Stair)
Overall view of Technics – Sanitary	Good
Menagement	

Working Days	185
Time schedule	07:30-16:40
Number of users	1669
Number of Staff	116
Responsible for maintainer	Technical worker
Latest renovation done in the last years	
Type	Windows, Thermal insulation, Floor insulation
Year	2011
Type	Installing of Energy Heating System (boilers heating)
Year	2014

Photos before the EE measures- Heating System with old system stove



