

Beyond Energy Action Strategies



D.3.1.c – Business Plan of the Cyprus Energy Agency

SUMMARY

Title of the project: Energy Efficiency measures and penetration of RES to the Municipal Town Hall of Aradippou Municipality
Location: Cyprus



Submission date: 25 August 2015



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

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1 Summary of the Project/Project at a Glance

The Utilization of renewable energy sources and the improve of energy efficiency of the Municipal town hall of Aradippou Municipality is one of the energy actions for public buildings listed in their sustainable energy action plan approved and submitted in 2013. The Cyprus Energy Agency supports the implementation of the action and an energy audit and a business plan were developed to examine the possibility for an Energy Performance Contracting with ESCO.

2 Details of the Proposed Project

The energy demands for Aradippou's Town Hall according to the results of the energy audit are:

Electricity (kWh _{el} /year)	Heating oil (kWh _{oil} /year)	Total primary energy (kWh _{prim} /year)	Energy expenses (€/year)
69,157	9,242	196,890	18,230

In total, 9 energy efficiency measures were examined for the building. However, according to the results of the feasibility analysis, only 7 out of 9 were finally proposed for implementation.

The 7 measures are listed below:

- A. Installation of stand-by killers to all electronic devices in the building
- B. Replacement of inefficient lamps with new LED lamps
- C. Replacement of Server room's cooling unit
- D. Installation of lighting automations
- E. Optimization of lighting zoning
- F. Installation of 5 kW photovoltaic system
- G. Desks and working places rearrangement

3 Internal aspects and external environment

<p>STRENGTHS</p> <ul style="list-style-type: none"> • Local authority owned the building • Experienced staff in the public procurement procedures. • Good administrative structures. 	<p>WEAKNESSES</p> <ul style="list-style-type: none"> • Lack of technical expertise. • Lack of in-depth knowledge of EPC contracts. • Lack of funds to implement the project through purchase contract. • Small scale project. • Low energy savings potential
<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> • Shining example for citizens and other local authorities • Implementation of project through EPC contract • CO2 emission reductions, achievement of the SEAP targets • Net metering Scheme for photovoltaic systems • Planned future refurbishment of the building. 	<p>THREATS</p> <ul style="list-style-type: none"> • In Cyprus the ESCO market is very new. No EPC contracts were signed yet. • Change in the pricing policy.

4 Market Potential

The ESCO market in Cyprus is at the very early stages of development. The operation of the ESCOs companies is regulated by the Regulatory Administrative Act KDP 2010/2014. The same Act regulates also the operation of foreign ESCO companies in Cyprus. Until today (10 July 2015) 10 local ESCOs companies have been registered in Cyprus.

5 Risk analysis

Three aspects are expected to may influence the project:

- The local administration reform aiming to reduce the operational costs of municipalities
- Introduction of natural gas in the electricity production system might affect the electricity prices
- Limited energy savings potential for an EPC

6 Financial Analysis

The technical and financial analysis of the project are given in the Table below:

Description	Final energy savings	Primary energy savings	Savings	Capital cost	NPV Business As Usual	NPV Energy efficiency Scenario	NPV Savings	Simple payback
	(kWh/year)	(KWh _{pr} /year)	(€/1 st year)	(€)	(€)	(€)	(€)	(years)
A.Installation of stand-by killers to all electronic devices in the building	3,463	9,350	780	1,660	-17,290	-10,989	6,301	2.5
B.Replacement of inefficient lamps with new LED lamps	4,722	12,749	1,055	3,325	-18,552	-9,047	9,505	2
C.Replacement of Server room's cooling unit	1,010	2,727	245	1,000	-4,271	-1,769	1,502	5
D.Installation of lighting automations	340	918	77	300	-2,621	-2,135	486	4.5
E.Optimization of lighting zoning	1,031	2,784	231	300	-8,510	-6,441	2,070	2
F.Installation of 5 kW photovoltaic system	8,475	22,883	1,902	7,500	-158,972	-146,990	11,982	5
Desks and working places rearrangement	-	-	-	-	-	-	-	-
TOTAL	15,578	42,061	3,510	12,425			25,545	

7 Implementation roadmap

Description	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13
A.Installation of stand-by killers to all electronic devices in the building													
B.Replacement of inefficient lamps with new LED lamps													
C.Replacement of Server room's cooling unit													
D.Installation of lighting automations													
E.Optimization of lighting zoning													
F.Installation of 5 kW photovoltaic system													
Desks and working places rearrangement													

8 Conclusion

The implementation of all proposed measures will result energy savings of about 15,560 kWh equal to energy expenses reduction of 3,510 €/year. Those savings represent the 23% of the current energy consumption. The capital cost for the implementation of all proposed measures 12,425 €.

The size of the investment as well the limited energy savings potential make this project not suitable for Energy Performance Contracting. The main reasons for the limited saving potential are the everyday hours that the building is in use (8 hours) and the very rare usage of the heating and cooling system. Therefore it is proposed this project to be implemented with own funds of the Municipality.