ASSESSMENT OF THE NATIONAL POTENTIAL FOR COMBINED HEAT AND POWER

IN CYPRUS

EXECUTIVE SUMMARY

1. Introduction

The objective of this report is to define heat markets suited for CHP applications in Cyprus and to determine their technical and economic CHP potential. For this purpose, heat markets are divided into different categories and criteria are created for choosing those markets which are realistically suited to CHP technologies in Cyprus. These criteria are based on geographic location, are related to fuel supply, or are based on type of business activity. The technical potential of CHP is then assessed where it is considered that the demand for heat and electrical loads can be met by suitable CHP technologies and with examination of their economic feasibility. Also, the potential for energy conservation (primary energy savings), in relation to the separate generation of electricity – heat and lastly, the primary energy savings ratio are calculated.

The data which are used in this study are derived from market surveys through questionnaires.

2. Technical high efficiency CHP Potential

2.1. Technical high efficiency CHP Potential in Industry

The heating-cooling and electricity demand for industry was analyzed statistically with questionnaires by industry sectors and sub-sectors. The sampling research process was chosen to be done through a stratified sampling method, in one stage. For each industrial unit, for which we received a completed questionnaire, a preliminary feasibility study for the installation of a cogeneration system was made. The components of the CHP installation were calculated which would meet the load demand (heating, cooling, electrical) that was recorded. Then, the primary energy savings that a CHP installation would provide in relation to the separate production of electricity and heating/cooling were calculated. Next, the synthesis of the results for different categories of the sample was done according to the EUROSTAT NACE classification. Lastly, the total values for each NACE category were derived from the conversion of the results of the sample to the total of each category, based on the consumption totals from the EUROSTAT balances.

SECTOR	Heat Demand (GWh/year)	Electricity Demand (GWh/year)	Technical CHP Potential (MWe)	Technical CHP Potential (MWth)	PES (GWh/year)
agriculture	347	118	70,7	120,4	177,17
food, beverages & tobacco	350	166	49,4	101,9	122,79
non-metallic minerals	1828	221	100,9	221,9	597,39
non-ferrous metals	244	73	22,0	33,0	132,07
TOTAL INDUSTRY	2769	578	243	477,2	1029,42

Technical CHP Potential in industry by sector (based on questionnaire data analysis)

2.2. Technical high efficiency CHP Potential in the Tertiary Sector

In order to assess the technical CHP potential in the tertiary sector, the collection of questionnaires was concentrated on the following types of buildings/facilities:

- Hotels
- Hospitals
- Office buildings

Thus, the heating-cooling and electricity demand in the tertiary sector was also analyzed by sector and unit.

For each building/facility for which we received a completed questionnaire, a preliminary feasibility study for the installation of a cogeneration system was made. The components of the CHP facility which meets the load demand (heating, cooling, electricity), were calculated. Then, the primary energy savings, which the CHP facility would provide, in relation to the separate generation of electricity and heating/cooling, were calculated. Finally, conversion of the sample for each branch of the tertiary sector was done on the total sector.

SECTOR	Heat Demand (GWh/year)	Electricity Demand (GWh/year)	Technical CHP Potential (MWe)	Technical CHP Potential (MWth)	PES (GWh/year)
hotels	223	263	33,2	50,7	183,2
hospitals	50	66	5,6	10,2	30,8
office buildings	88	188	26,1	42,5	13,2
TOTAL TERTIARY	**361**	**517**	**64,9**	**103,4**	**227,2**

Technical CHP Potential in tertiary by sector (based on questionnaire data analysis)

3. Economic high efficiency CHP Potential (Investments Analysis)

In the framework of the project, preliminary feasibility studies were made for the installation of a cogeneration system in more than 50 companies in Cyprus. Thus, we can state that the results of the study, always based on data given the by companies, express the real technical and economic potential of cogeneration in our sample. The evaluation of the financial viability of an investment in cogeneration systems was done from the point of view of the investor.

The economic viability of cogeneration investments was studied based on:

- The yearly operational benefits which would be derived from the conservation of fuel from the production of thermal energy with a conventional boiler, substitution of the purchase of electricity and capacity, as well as the revenue from the sale of surplus electricity.
- The cost of construction and operation of the cogeneration system.

The choice of the system was based on:

- The type of processes and the quality of thermal energy required by the individual company.
- The need for electricity compared to heat.
- The time distribution of loads.
- The fuel supply.
- The size and cost of the system

The sizing of the proposed cogeneration system was made strictly on the basis of the thermal loads of the individual company (100% coverage) and then with the electrical loads. In many instances, the coverage of the total or part of the cooling loads was examined. All the cases examined in the industrial and tertiary sectors, concern autoproducers. The electricity generated is consumed by them and where there is a surplus of the electricity generated by the cogeneration system, it is sold to the grid at the competitive prices set by current legislation.

The most commonly used economic indicators for the study of the feasibility of a cogeneration system are the Net Present Value (NPV) and the discounted payback period (interest bearing DPBP or simple SPB). The basic data and the results of the study are shown in the following table.

Data – Results of Preliminary Feasibility Studies

<table>
<tr>
<td>Economic Data (Input)

Economic life of the investment
Desired rate of return
Depreciation
Anticipated worth
Investor's taxation factor
Subsidies
Loans –loan terms
Construction Time
Cost of equipment, operation and maintenance of the cogeneration system
Fuel costs
Data on the market and sale of electricity
Economic life, desired rate of return
</td>
<td>Results (for the private investor)

Benefits from the generation of the proposed system (coverage of thermal, cooling and electrical loads, sale of electricity)
Costs of operation and maintenance
Cost – benefit table
Capital structure table
Payment schedule for the investment
Basic economic indicators of viability, (net present value, internal rate of return, cost – benefit ration, potential payback period)
</td>
</tr>
<tr>
<td colspan="2">Technical Data (Input)

Thermal, cooling and electrical loads
Data on the operation of the existing system
Data on the operation of the cogeneration system
Data on the operation of the cooling absorption cycle
</td>
</tr>
</table>

<u>Assumptions</u>

The most important assumptions which were made in the preliminary feasibility studies for the installation of a cogeneration system in companies of the sample are the following:

1. The studies were made based on the consumption of thermal and electrical energy which were given by the companies. The investigation of the possibility of energy conservation at the companies before the installation of the cogeneration system is not an objective of the present study.
2. The studies were based on monthly thermal and electrical loads.
3. The costs of the cogeneration system are not derived from specific offers but from published data and limited research in the market of Cyprus. For certain systems, it is likely that the offer prices would be substantially lower. In each case, the parametric analysis of the viability in relation to the capital subsidy of the cogeneration system investment, which is part of the study, helps us to draw conclusions for the economic potential of cogeneration.
4. The studies were based on values for economic parameters which are shown in the following table:

<u>The results of the study</u>

The financial potential for cogeneration in the industrial sector was derived mainly from processing all results of the preliminary feasibility studies on the installation of a cogeneration system in the companies of the sample.

The extension of the potential for cogeneration in the companies of the sample to the whole of their sectors was done on the basis of thermal energy consumption (data available from energy balances). The results are given in the form of the parametric analysis of the installed capacity in industrial sectors in relation to the percentage of subsidy of the investment, fuel costs, the cost of electricity and the potential payback period of the investment.

Agricultural Activities

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	17757	26294	26294	26294	70686
15%	17757	26294	70686	70686	70686
25%	17757	26294	70686	70686	70686
35%	26294	70686	70686	70686	70686
40%	26294	70686	70686	70686	70686
50%	50197	70686	70686	70686	70686
60%	70686	70686	70686	70686	70686

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	26294	26294	50197	70686	70686
-40%	26294	26294	50197	50197	70686
-30%	26294	26294	50197	50197	70686
-20%	26294	26294	26294	50197	70686
-10%	17757	26294	26294	50197	70686
0% (Ref)	17757	26294	26294	26294	70686
10%	17757	17757	17757	26294	70686
20%	0	17757	17757	17757	70686
30%	0	17757	17757	17757	70686
40%	0	17757	17757	17757	70686
50%	0	17757	17757	17757	70686

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	0	17757	17757	17757	70686
0,08	0	17757	17757	17757	70686
0,09	17757	17757	17757	17757	70686
0,10	17757	17757	17757	26294	70686
0,11	17757	26294	26294	26294	70686
0,12	17757	26294	26294	46783	70686
0,13	26294	26294	46783	70686	70686
0,14	26294	26294	46783	70686	70686
0,15	26294	26294	46783	70686	70686
0,16	26294	46783	46783	70686	70686
0,17	26294	46783	46783	70686	70686
0,18	26294	46783	46783	70686	70686
0,19	26294	46783	46783	70686	70686
0,20	26294	46783	46783	70686	70686

Food, beverages & tobacco

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	14203	14203	27731	27731	49374
15%	14203	27731	33141	41934	49374
25%	14203	27731	41934	41934	49374
35%	27731	33141	41934	41934	49374
40%	27731	41934	41934	41934	49374
50%	29760	41934	41934	41934	49374
60%	41934	41934	49374	49374	49374

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	14203	29760	49374	49374	49374
-40%	14203	29760	49374	49374	49374
-30%	14203	29760	33141	41934	49374
-20%	14203	27731	29760	41934	49374
-10%	14203	14203	29760	33141	49374
0% (Ref)	14203	14203	27731	27731	49374
10%	9807	14203	27731	27731	49374
20%	9807	14203	27731	27731	49374
30%	9807	14203	14203	27731	49374
40%	3382	14203	14203	14203	49374
50%	3382	9807	14203	14203	49374

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	14203	14203	27731	27731	49374
0,08	14203	14203	27731	27731	49374
0,09	14203	14203	27731	27731	49374
0,10	14203	14203	27731	27731	49374
0,11	14203	14203	27731	27731	49374
0,12	14203	14203	27731	27731	49374
0,13	14203	14203	27731	31112	49374
0,14	14203	14203	27731	31112	49374
0,15	14203	14203	27731	31112	49374
0,16	14203	14203	31112	38552	49374
0,17	14203	14203	38552	38552	49374
0,18	14203	14203	38552	47345	49374
0,19	14203	14203	38552	47345	49374
0,20	14203	21643	38552	47345	49374

Non-metallic minerals

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	100882	100882	100882	100882	100882
15%	100882	100882	100882	100882	100882
25%	100882	100882	100882	100882	100882
35%	100882	100882	100882	100882	100882
40%	100882	100882	100882	100882	100882
50%	100882	100882	100882	100882	100882
60%	100882	100882	100882	100882	100882

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	100882	100882	100882	100882	100882
-40%	100882	100882	100882	100882	100882
-30%	100882	100882	100882	100882	100882
-20%	100882	100882	100882	100882	100882
-10%	100882	100882	100882	100882	100882
0% (Ref)	100882	100882	100882	100882	100882
10%	100882	100882	100882	100882	100882
20%	100882	100882	100882	100882	100882
30%	100882	100882	100882	100882	100882
40%	100882	100882	100882	100882	100882
50%	100882	100882	100882	100882	100882

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	95838	100882	100882	100882	100882
0,08	98360	100882	100882	100882	100882
0,09	100882	100882	100882	100882	100882
0,10	100882	100882	100882	100882	100882
0,11	100882	100882	100882	100882	100882
0,12	100882	100882	100882	100882	100882
0,13	100882	100882	100882	100882	100882
0,14	100882	100882	100882	100882	100882
0,15	100882	100882	100882	100882	100882
0,16	100882	100882	100882	100882	100882
0,17	100882	100882	100882	100882	100882
0,18	100882	100882	100882	100882	100882
0,19	100882	100882	100882	100882	100882
0,20	100882	100882	100882	100882	100882

Non-ferrous metals

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	22000	22000	22000	22000	22000
15%	22000	22000	22000	22000	22000
25%	22000	22000	22000	22000	22000
35%	22000	22000	22000	22000	22000
40%	22000	22000	22000	22000	22000
50%	22000	22000	22000	22000	22000
60%	22000	22000	22000	22000	22000

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	22000	22000	22000	22000	22000
-40%	22000	22000	22000	22000	22000
-30%	22000	22000	22000	22000	22000
-20%	22000	22000	22000	22000	22000
-10%	22000	22000	22000	22000	22000
0% (Ref)	22000	22000	22000	22000	22000
10%	22000	22000	22000	22000	22000
20%	22000	22000	22000	22000	22000
30%	22000	22000	22000	22000	22000
40%	22000	22000	22000	22000	22000
50%	22000	22000	22000	22000	22000

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	22000	22000	22000	22000	22000
0,08	22000	22000	22000	22000	22000
0,09	22000	22000	22000	22000	22000
0,10	22000	22000	22000	22000	22000
0,11	22000	22000	22000	22000	22000
0,12	22000	22000	22000	22000	22000
0,13	22000	22000	22000	22000	22000
0,14	22000	22000	22000	22000	22000
0,15	22000	22000	22000	22000	22000
0,16	22000	22000	22000	22000	22000
0,17	22000	22000	22000	22000	22000
0,18	22000	22000	22000	22000	22000
0,19	22000	22000	22000	22000	22000
0,20	22000	22000	22000	22000	22000

Hotels

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	7516	21797	27059	27059	33222
15%	9320	21797	27059	27059	33222
25%	20895	27059	27059	28562	33222
35%	21797	27059	28562	28562	33222
40%	21797	27059	28562	28562	33222
50%	27059	28562	28562	28562	33222
60%	28562	28562	31193	31193	33222

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	31193	31193	32245	32245	33222
-40%	31193	31193	31193	31193	33222
-30%	29689	31193	31193	31193	33222
-20%	21797	31193	31193	31193	33222
-10%	10372	27059	28562	31193	33222
0% (Ref)	7516	21797	27059	27059	33222
10%	0	7516	20895	21797	33222
20%	0	0	0	7516	33222
30%	0	0	0	0	33222
40%	0	0	0	0	33222
50%	0	0	0	0	33222

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	0	10372	20895	21797	33222
0,08	7516	10372	21797	21797	33222
0,09	7516	20895	21797	27059	33222
0,10	7516	20895	21797	27059	33222
0,11	7516	21797	27059	27059	33222
0,12	7516	21797	27059	27059	33222
0,13	7516	21797	27059	27059	33222
0,14	7516	21797	27059	27059	33222
0,15	7516	21797	27059	27059	33222
0,16	7516	21797	27059	27059	33222
0,17	7516	21797	27059	29689	33222
0,18	18941	27059	27059	29689	33222
0,19	18941	27059	29689	29689	33222
0,20	18941	27059	29689	29689	33222

Hospitals

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	3158	3158	5651	5651	5651
15%	3158	5651	5651	5651	5651
25%	3158	5651	5651	5651	5651
35%	5651	5651	5651	5651	5651
40%	5651	5651	5651	5651	5651
50%	5651	5651	5651	5651	5651
60%	5651	5651	5651	5651	5651

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	5651	5651	5651	5651	5651
-40%	5651	5651	5651	5651	5651
-30%	5651	5651	5651	5651	5651
-20%	5651	5651	5651	5651	5651
-10%	3158	5651	5651	5651	5651
0% (Ref)	3158	3158	5651	5651	5651
10%	0	3158	3158	3158	5651
20%	0	0	3158	3158	5651
30%	0	0	0	0	5651
40%	0	0	0	0	5651
50%	0	0	0	0	5651

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	3158	3158	5651	5651	5651
0,08	3158	3158	5651	5651	5651
0,09	3158	3158	5651	5651	5651
0,10	3158	3158	5651	5651	5651
0,11	3158	3158	5651	5651	5651
0,12	3158	3158	5651	5651	5651
0,13	3158	3158	5651	5651	5651
0,14	3158	3158	5651	5651	5651
0,15	3158	3158	5651	5651	5651
0,16	3158	3158	5651	5651	5651
0,17	3158	3158	5651	5651	5651
0,18	3158	3158	5651	5651	5651
0,19	3158	3158	5651	5651	5651
0,20	3158	3158	5651	5651	5651

Office buildings

kWe					
Subsidy	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0%	0	1594	5579	7372	26142
15%	0	5579	7372	7372	26142
25%	0	5579	7372	9205	26142
35%	5579	7372	10002	10002	26142
40%	5579	7372	10002	10002	26142
50%	7372	10002	10002	15263	26142
60%	9205	10002	15860	17455	26142

kWe					
Fuel Cost	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
-50%	10361	11437	13270	19846	26142
-40%	9763	10361	11437	13270	26142
-30%	5579	9763	10839	11437	26142
-20%	5579	9763	9763	10361	26142
-10%	0	5579	8966	9763	26142
0% (Ref)	0	1594	5579	7372	26142
10%	0	0	0	1594	26142
20%	0	0	0	0	26142
30%	0	0	0	0	26142
40%	0	0	0	0	26142
50%	0	0	0	0	26142

kWe					
Feed-in Tarrif (€/kWh)	DPB (0-5)	DPB (0-8)	DPB(0-12)	DPB(0-15)	DPB(>20)
0,07	0	1594	5579	7372	26142
0,08	0	1594	5579	7372	26142
0,09	0	1594	5579	7372	26142
0,10	0	1594	5579	7372	26142
0,11	0	1594	5579	7372	26142
0,12	0	1594	5579	7372	26142
0,13	0	5579	5579	7372	26142
0,14	0	5579	5579	7372	26142
0,15	0	5579	5579	12154	26142
0,16	0	5579	10361	12154	26142
0,17	0	5579	10361	12154	26142
0,18	0	5579	10361	12154	26142
0,19	0	10361	10361	12154	26142
0,20	0	10361	10361	12154	26142

	20 MWe
Solid Biomass	10 MWe
Biogas	10 MWe

District Heating/Cooling	*60 MWth*

Economic potential calculated in the investment analysis procedure

The analysis of the previous pages is giving a realistic economic potential for CHP at the level of 180-200 MWe.
This potential corresponds to a Discounted Payback Period of 8 years.

4. Penetration of high efficiency CHP into the Energy System of Cyprus for the years 2010, 2015 and 2020 using the MARKAL model

MARKAL is a model for the simulation-optimization of the energy market. It meets the demand for useful energy in the sectors of economic activity and final uses which are defined by the user, with the aim of minimizing the total cost of the energy system for the time period under consideration. The model requires as basic input data, the demand for useful energy, categorized by sector and by final use . In the present application, the analysis corresponds to the sectors which were discussed in the previous chapters.

Along with the development of the demand for useful energy/sector of activity/final use (i.e. space heating-cooling, lighting, etc.), the model uses as input data, the technical and economic data of the energy technologies(technology roadmaps) together with the future energy prices of the different fuels. Thus, the development of the installed capacity of cogeneration is calculated within the time period of the solution (minimizing the total cost), taking into consideration the market competition. The economic viability of CHP installations is examined with investment factors (defined anticipated internal interest rate or subsidy), in order to incorporate the point of view of the private investor in the model output.

For the time period of the solution, the model includes the forecast of the IEA regarding the development of international prices for petroleum, natural gas and coal. For oil, there are three alternative price development scenarios from the IEA. Of these three scenarios, the average price scenario was chosen as being representative of probable development.

Type of Activity	Installed Electrical Capacity MWe			Installed Themal Capacity MWth		
	2010	2015	2020	2010	2015	2020
Hotels	3.5	11.3	27.9	5.4	17.2	42.5
Hospitals	0.3	1.0	3.2	0.6	1.8	5.7
Office Buildings	0.7	2.1	4.0	1.1	3.4	6.5
Total Tertiary	4.5	14.4	35.0	7.0	22.4	54.7
Food/Beverages	4.4	14.2	29.8	9.0	28.7	60.1
Non-metallic minerals	2.3	50.4	100.9	5.1	111.0	222.0
Non-ferrous metals	0.1	9.9	22.0	0.2	21.8	48.4
Total Industry	6.8	74.5	152.6	14.2	161.4	330.4
Agriculture	5.5	17.8	20.2	9.6	30.6	34.8
Biogas (Organic)	4.0	12.8	14.6	6.8	21.8	24.7
Biogas (Sludge+Waste)	1.5	4.9	5.6	2.6	8.3	9.5
Total	22.4	124.4	228.0	40.2	244.6	454.2

5. Barriers for high efficiency CHP

5.1. Connection of Cogenerated Electricity to the Grid

As for the connection procedure, there is a need for set and agreed rules upon timetables, for preparation of the connection plans by TSO. Therefore TSO should submit binding connection reports, within a short deadline, mainly to owners of large CHP installations, including proposals for the distribution of costs for upgrading the grid.

CHP installations which are being developed in the tertiary sector (small CHP – up to 1 MWe) and residential sector (very small CHP – up to 50 kWe) should be able to take advantage of simplified access procedures to the grid. For very small CHP installations, it is necessary that even more simplified rules for connection and costs be enacted.

5.2. The duration of thermal and cooling loads

We assume that for the operation of a CHP system to be economically viable, a minimum of hours of operation per year are required and a sufficient thermal and/or cooling load. Therefore, if the operation of the CHP system is limited only to covering heating loads and that the system is not in operation during the summer, the investment is not viable because it operates with only small thermal loads.
It is obvious, then, that the CHP system chosen must be suitable, from a technical standpoint, for covering both thermal and cooling loads, whether this concerns either the tertiary or the residential sector.

5.3. Fuel Prices

A significant issue related to the penetration of CHP systems in Cyprus is the pricing of the primary fuel used in CHP systems. The absence of Natural Gas has as a consequence high prices of CHP fuels. During the recent oil crisis, the high prices of the oil products had as a consequence lack of economic viability of small CHP systems in Cyprus, particularly in the tertiary sector.

Proposed Support Measures for high efficiency CHP

Industry:

- Create a competitive pricing policy for cogeneration in the industrial and handicraft sectors.
- The upper limit for supporting measures should be increased from 11 MWe to 30 MWe.
- Increasing the subsidy of the operation(feed-in tariffs) of industrial CHP systems rather than subsidizing the capital at the level of 110 €/MWh
- It is proposed that CHP equipment which is subsidized be certified for the following:
  - that it is current technology
  - that it has an emissions certificate based on test bed results
  - that it has a certificate of good operation
- Establish a better procedure for connection of the cogenerators to the grid, with clear regulations on the part of the HTSO and the PPC.

Tertiary Sector:

- Create a competitive pricing policy for cogeneration in the tertiary sector.
- Establish a better procedure for connection of the cogenerators to the grid, with clear regulations on the part of the HTSO and the PPC.
- Increasing the subsidy of the operation(feed-in tariffs) of small CHP systems at the level of 110 €/MWh.

Small and Very Small CHP:

- It is proposed that tax deductions should be given to investors in CHP systems up to 1 MW as well as giving them a lower VAT classification(reduction by 10%).
- Small CHP systems should be subsidized at 20 % in the industrial sector and 30 % in the tertiary and the other sectors
- Simple rules should be laid down for the very small cogenerator on connection to the grid with clear rules on the part of the PPC. Basically, the rules set out in prEN50438, “Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks”, should be followed.