



# District heating Municipal Company of Ptolemaida (DHCP)

1994 - 2011

Project Title

**"PTOLEMAIDA DISTRICT HEATING – CONNECTION TO KARDIA  
POWER STATION AND EXPANSION OF DISTRIBUTION  
NETWORK"**

Project Approval No\_176201/ 25.02.2010



# DHCP INSTALLATIONS



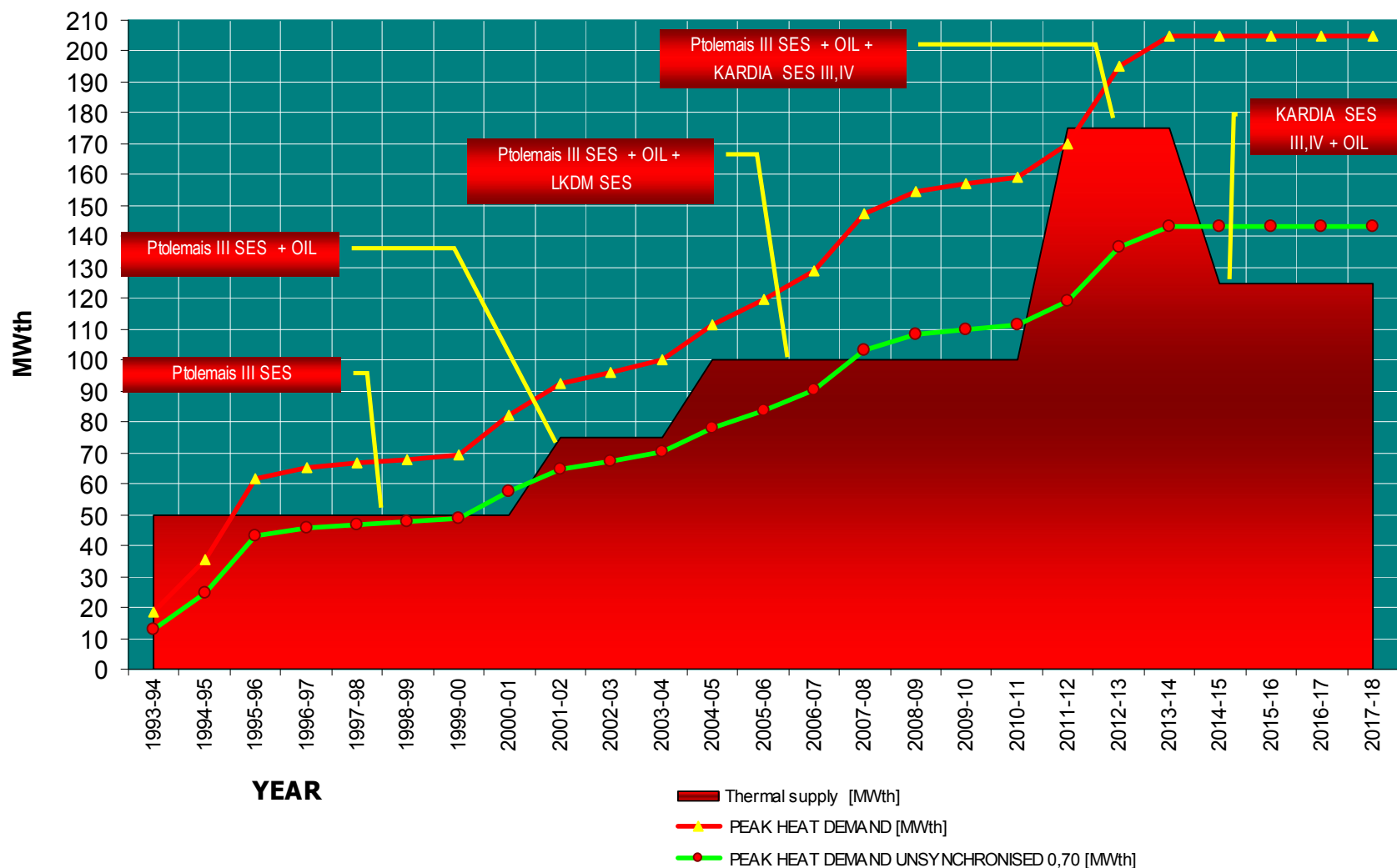


# PROJECT SITE



# PROJECT NECESSITY : ENVIRONMENTAL HEAT

## HEAT DEMAND AND SUPPLY



# PROJECT STRUCTURE

The project is separated in **6 distinctive sub-projects** including the following infrastructure and actions:

SUB - PROJECT	SUB-PROJECT TITLE
<b>1</b>	<b>"CONNECTION TO KARDIA POWER STATION "- (Transmission network from Kardia power station to the city and Pump-houses)</b> [UNDER COMMISSIONING]
<b>2</b>	<b>" EXPANSION OF THE DISTRIBUTION NETWORK"</b> [UNDER CONSTRUCTION]
<b>3</b>	<b>"SUPPLY OF CONSUMER SUBSTATIONS"</b> [UNDER TENDER APPROVAL]
<b>4</b>	<b>"Design, supply, construction and putting into operation, of all necessary equipment and systems for the supply of thermal power 100 MWth from Units III and IV of Kardia S.E.S. to the Ptolemais district heating system"</b> [UNDER CONTRACT SIGN BY PPC AND CONTRACTOR]
<b>5</b>	<b>"Archaeological sites safety works"</b> [CONTRACTED -FINISHED]
<b>6</b>	<b>"Passage Expropriations- agriculture compensations"</b> [FINISHED]





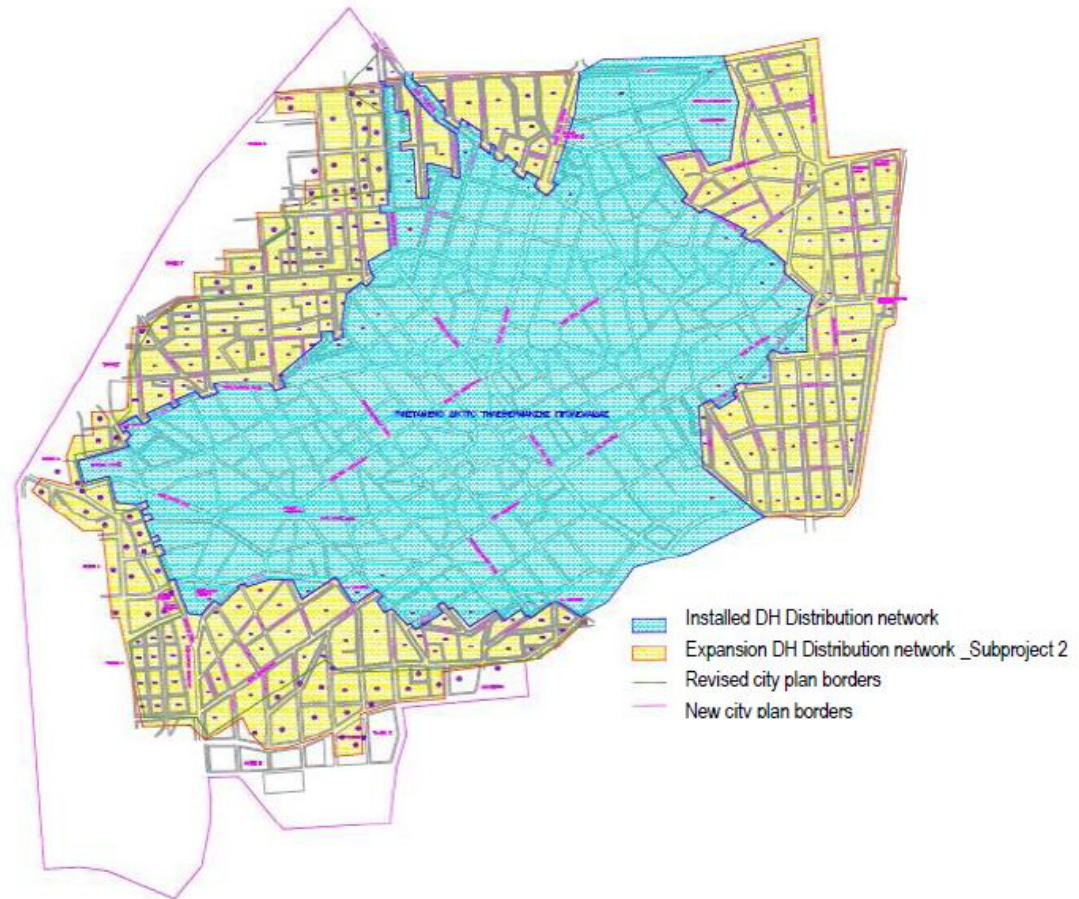
## Sub\_Project 1 : " Transmission Network and Pumphouses"

- Twin, preinsulated pipes
- European Norm EN 253
- Total length 2X16.580 m
- Diameter DN500mm
- 2 Pumphouses (AK1, AK2)



## Sub\_Project 2 : " EXPANSION OF DISTRIBUTION NETWORK"

- Pipes  
Twin, preinsulated
- European Norm  
EN 253
- Total length  
2X47.500 m
- Diameters  
DN 25 - DN 200 mm



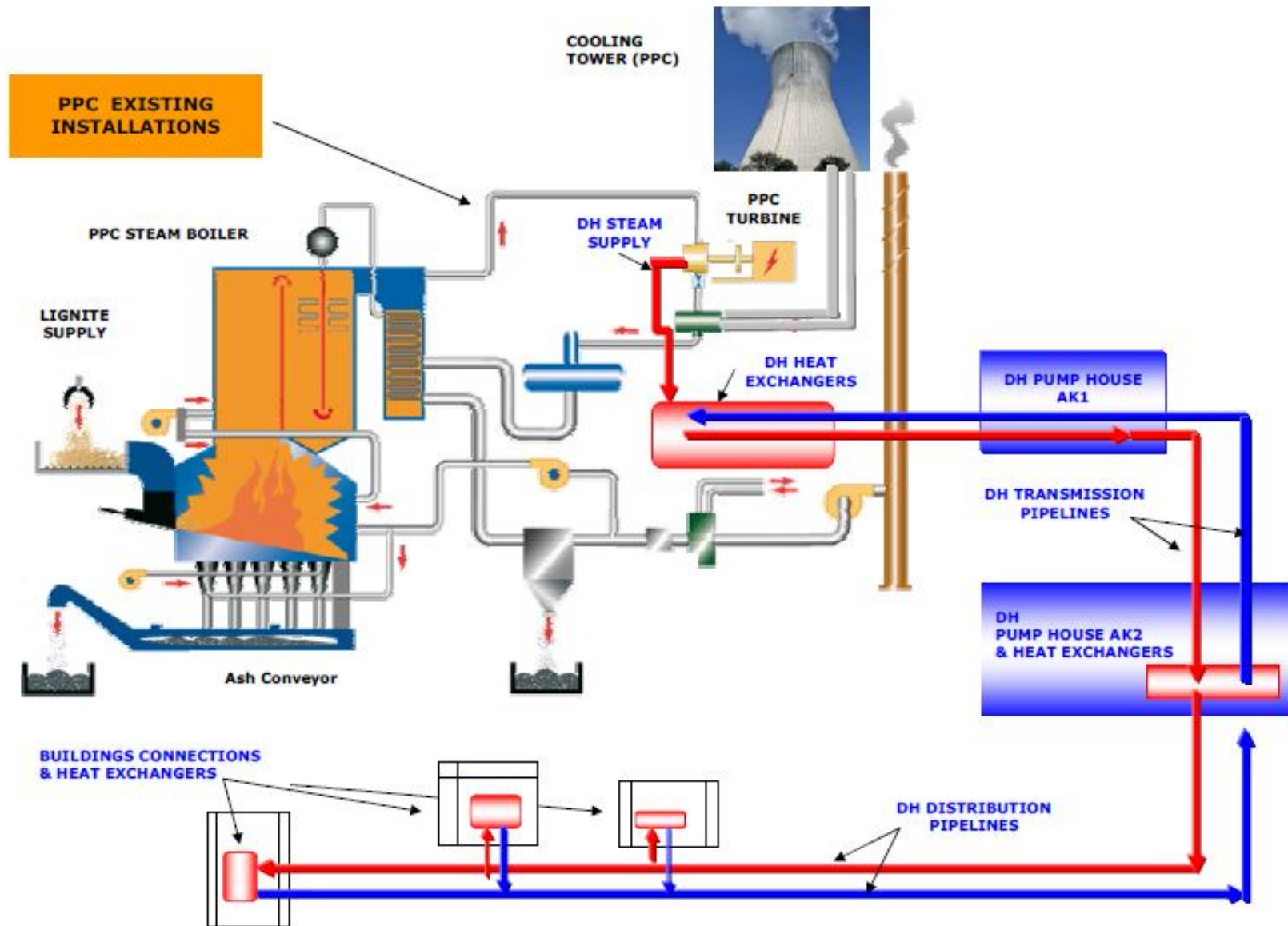
## Sub\_Project 3 : " Supply of Consumers Substations"

- **Consumers Substations**  
**1330 pcs**
- **Plate Heat exchanger**
  - primary circuit  
temperature  
**110°C/65°C**
  - secondary circuit  
**60°C/80°C**
- **Measuring device**
- **Monitoring and regulating devices**





# Sub\_Project 4 : " HEAT SUPPLY"





# PROJECT BUDJET APPROVED & CONTRACTED

NSRF 2007–2013

Operational Programme "ENVIRONMENT & SUSTAINABLE DEVELOPMENT 2007 – 2013", approved by Commission under No. E (2007)  
5442/5.11.2007 decision.

Project approval for Public Financing No: 176201/ 25.02.2010

## Project Total Budget

SUB - PROJECT	SUB-PROJECT TITLE	APPROVED	CONTRACTUAL	TENDER
		SUB-PROJECTS' BUDGET	SUB-PROJECTS' COSTS	Average reduction
		€	€	%
1	"CONNECTION TO KARDIA POWER STATION" - (Transmission network from Kardia power station to the city and Pump-houses) <sup>[1]</sup>	12.701.972,30	13.309.500,40	35,45%
2	" EXPANSION OF THE DISTRIBUTION NETWORK"	8.570.760,30	4.826.068,64	43,79%
3	"SUPPLY OF CONSUMER SUBSTATIONS"	4.176.480,00	4.176.480,00	
4	"Design, supply, construction and putting into operation, of all necessary equipment and systems for the supply of thermal power 100 MWth from Units III and IV of Kardia S.E.S. to the Ptolemais district heating system"	7.200.000,00	4.997.000,00	30,60%
5	"Archaeological sites safety works"	100.000,00	100.000,00	
6	"Passage Expropriations- agriculture compensations"	50.000,00	65.000,00	
	CONTIGENCIES	0,00	100.000,00	
	<b>TOTAL PROJECT COSTS</b>	<b>32.799.212,60</b>	<b>27.574.049,04</b>	
	<b>VAT (non-eligible)</b>	6.203.350,39		
	<b>TOTAL</b>	<b>39.002.562,99</b>		

[1] Sub-project 1 budget before the tender procedure was **19.678.100,00 € plus VAT**. The tender was completed with average reduction 35,45%, and the Contract was signed at 22-04-2008, before the approval of Public Financing by the Ministry of Environment, Energy and Climatic change. The project budget in the proposal and approval after tender reduction was 12.701.972,30 € and after revisions and contingencies until Jan.2010 is 13.309.500,40 €.

# PROJECT FINANCE

Project Finance				
Source of total investment costs (€)				
Total investment cost	Community assistance	National public (or equivalent)	National private	Other sources (DHCP Loan)
(a)= (b)+(c)+(d)+(e)	(b)	(c)	(d)	(e)
<b>32.799.213</b>	13.936.033	6.602.113	6.035.081	6.225.986
100%	42,49%	20,13%	18,40%	18,98%
100%	62,62%		37,38%	

Project Finance AFTER TENDERS AND RELEVANT COST REDUCTION				
Source of total investment costs (€)				
Total investment cost	Community assistance	National public (or equivalent)	National private	Other sources (DHCP Loan)
(a)= (b)+(c)+(d)+(e)	(b)	(c)	(d)	(e)
<b>27.574.049</b>	11.716.213	5.550.656	4.081.194	6.225.986
100%	42,49%	20,13%	14,80%	22,58%
100%	62,62%		37,38%	





## PROJECT OBJECTIVES & MAIN RESULTS

### O.P. Key output indicators identified and quantified :

- Code 1. **Installed RES energy or SAVED energy**  
GOAL : **100 Mwth CHP Heat Production**
- Code 2. **Greenhouse gases reduction**  
GOAL : **19.3 %**
- **5.204 tn/year fuel oil substitution** of the for peak-reserve needs and because of the addition of new consumers
- **New connections** to DH system of **1330 buildings, with 3817 dwellings and 11.451 inhabitants**
- **Income improvement** of the residents, because the conventional price of thermal energy is at least **30%** cheaper than the relevant oil price, and the relative surplus of consumer is calculated at least 270€/dwelling annually.
- **Independency from imported fuels (oil), Currency savings and local redistribution** of more than **12.000.000 €/year** oil equal costs because of DH

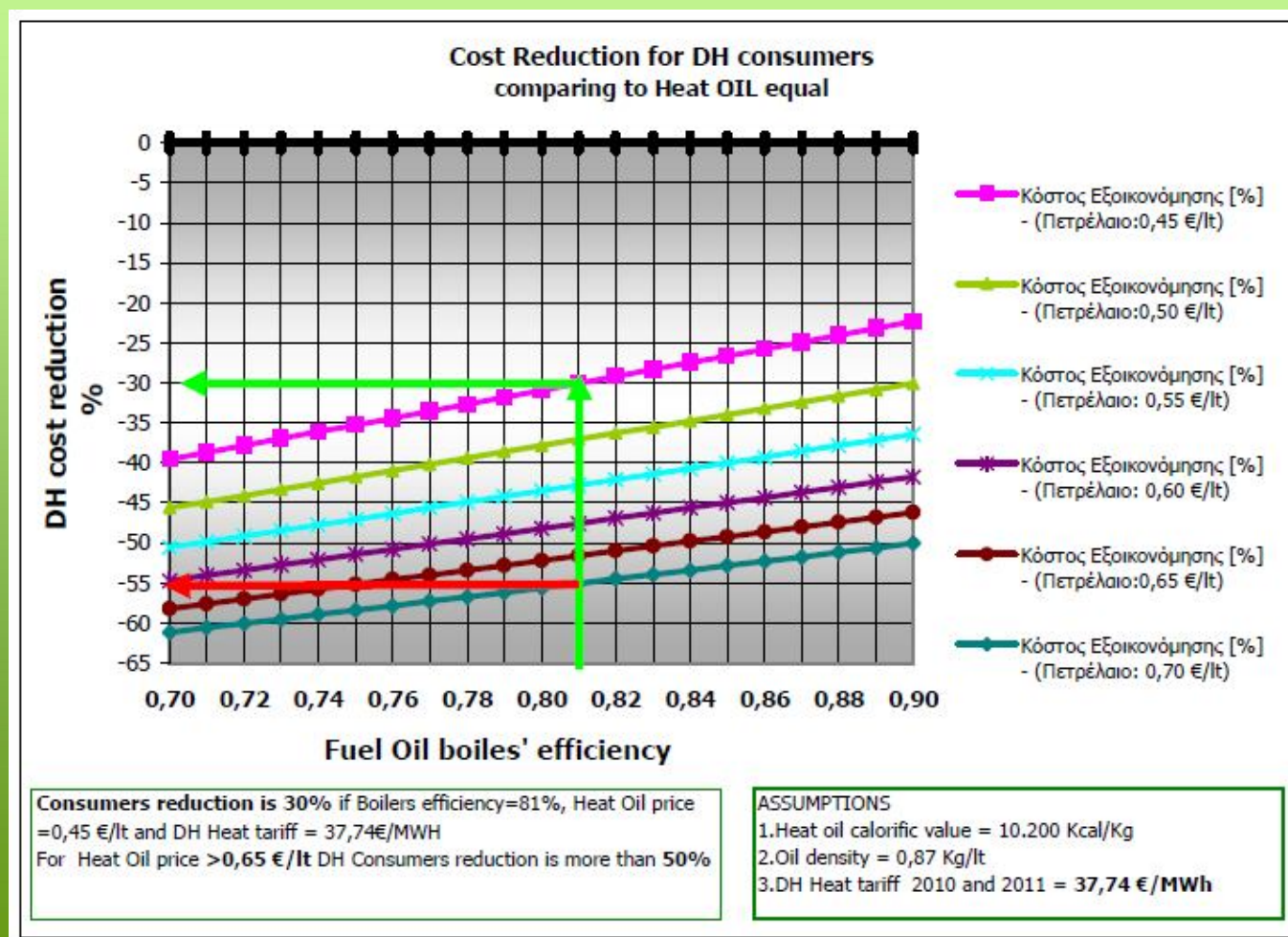
## CO<sub>2</sub> REDUCTION

TOTAL REDUCTION OF CO <sub>2</sub> NATIONAL EMISSIONS			
	2005	2006	2007
CO <sub>2</sub> EMISSIONS <u>BEFORE</u> DH OPERATION [tn]	96.469	113.350	111.811
Total KARDIA SES CO <sub>2</sub> emissions for DH (tCO <sub>2</sub> /year)	61.378	61.378	61.378
CO <sub>2</sub> emmissions <u>REDUCTION AFTER</u> CONNECTION TO KARDIA SES [tn /year]	-35.091	-51.972	-50.433
CO <sub>2</sub> emmissions <u>REDUCTION AFTER</u> CONNECTION TO KARDIA SES [%]	-36%	-46%	-45%

\* In comparison with thermal consumption of the years 1990-before DH- and 2005, 2006, 2007, despite the heat load increase of 28,5%

## District Heat tariffs and Heat Oil Costs

The social motivation and profile of DH company results in Cheaper Space Heating more than **30 %** than Oil equal costs which is contractual commitment of DHCP to DH consumers. The actual cost reduction is much higher.





The project "**PTOLEMAIDA DISTRICT HEATING – CONNECTION TO KARDIA POWER STATION AND EXPANSION OF DISTRIBUTION NETWORK**", fulfils the national and EU objectives as well as the local objectives for clean and efficient district heating, because its effectiveness to the factors pursued, offering to the residents a better quality of life and some support from the financial crisis burdens.

