

# Sustainable Energy Action Plan Covenant of Mayors «Progress report»



Signatory information:

Strovolos Municipality

Country:

Cyprus

Contact person:

Mrs. Anna Pantopiou

Adhesion to CoM:

12/01/2009

SEAP Council approval:

16/3/2010

SEAP submission to CoM office:

2/8/2011

SEAP Approval by JRC:

21/3/2013

Monitoring period:

2009-2014

Action report (2 years)

Detailed implementation report including MEI (4 years)

Date of submission:

9/3/2015

Prepared and submitted by :

Cyprus Energy Agency

Contact person: Mr. Savvas Vlachos

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## OVERVIEW

Overall budget spent so far :

**2,225,930 €**

### Key Actions Status:

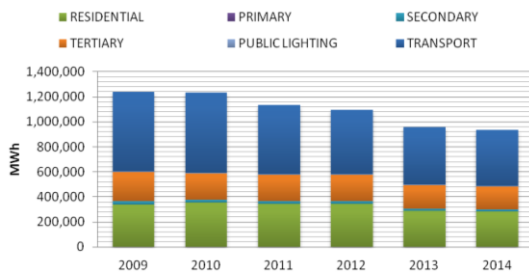
|        | Not started | In progress | Completed | Postponed | Canceled | Additional measures implemented | New measures foreseen or in progress |
|--------|-------------|-------------|-----------|-----------|----------|---------------------------------|--------------------------------------|
| Number | 4           | 9           | 4         | 7         | 4        | 10                              | 10                                   |

### CO2 emissions:

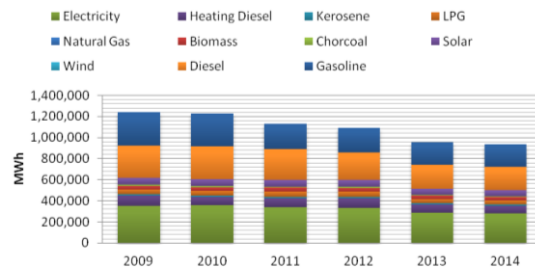
| Baseline (2009)                | Monitoring year (2014)         | CO <sub>2</sub> Reduction compared to baseline | CO <sub>2</sub> emissions objective (2020) |
|--------------------------------|--------------------------------|--|--|
| 507,409 tonnes CO <sub>2</sub> | 388,686 tonnes CO <sub>2</sub> | 23%  | 342,327 tonnes CO <sub>2</sub>             |

### SEAP measures effect so far:

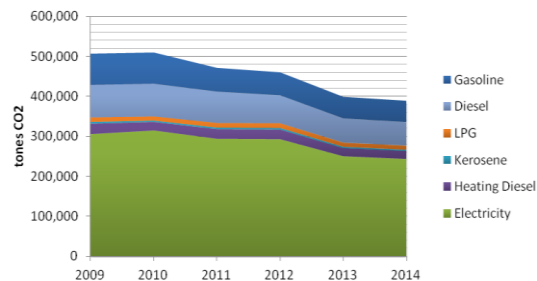
| Energy Savings  | Renewable energy sources production | CO <sub>2</sub> savings             |
|-----------------|-------------------------------------|-------------------------------------|
| 44,678 MWh/year | 8,555MWh/year                       | 34,219 tonnes CO <sub>2</sub> /year |



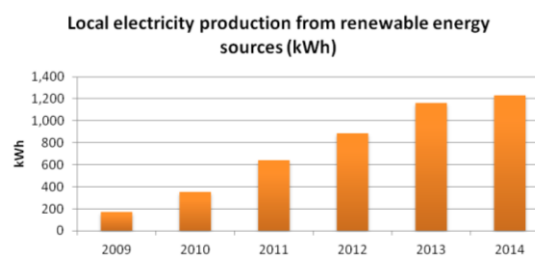
Graph 1. Final energy consumptions for the period 2009-2014 (by sector)



Graph 2. Final energy consumptions for the period 2009-2014 (by energy source)



Graph 3. CO<sub>2</sub> emissions for the period 2009-2014 (by energy source)



Graph 4. Electricity production from renewable energy sources (PV) for the period 2009-2014



## PART I – My overall strategy

### 1. Overall CO<sub>2</sub> reduction target (%) for 2020:

33%

### 2. Long term CO<sub>2</sub> reduction target (%):

-

### 3. Baseline year:

2009

### 4. CO<sub>2</sub> objectives:

Absolute reduction

Per capita reduction

### 5. Population estimates by 2020:

73,345

### 6. Vision:

#### Vision:

Strovolos, a model city to live in and work.

#### Mission:

Turning Strovolos into a model city by using technology, by creating the necessary infrastructure, by improving the level of security and health and improving the environment emphasizing on the energy policy and promoting culture, sports, entertainment and social welfare

### 7. Coordination and organizational structures created/assigned:

**Municipal Energy Team which is responsible for the implementation and monitoring of SEAP constituted with the following members:**

- Mayor and General secretary
- Energy Team leader
- Municipal Service (Municipal Engineer, Head of Department of Environmental Development, Head of Construction and maintenance sector, Head of Public health sector, Technician responsible for energy for Municipal buildings)
- Elected representing citizens (Environment and Energy Committee of the Municipal Council)

The Cyprus Energy Agency act's as covenant supporter by providing technical and other assistance.

### 8. Staff capacity allocated:

|   | Number of persons (n): | Man months per year (m): | Full time equivalent jobs:(E)=(n)*(m)/12 |
|---|------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> Local authority       | 8                      | 2                        | 1.3                                      |
| <input checked="" type="checkbox"/> Energy Agency         | 3                      | 2                        | 0.5                                      |
| <input type="checkbox"/> External Consultant              | 0                      | 0                        |  |
| <input type="checkbox"/> Covenant territorial coordinator | 0                      | 0                        |  |
| <input type="checkbox"/> Other                            |                        |                          |  |



**9. Involvement of stakeholders and citizens:**

The following stakeholders are directly involved during the SEAP implementation:

- Environment and Energy Committee- Consisted of members and non-members of the Municipal Council
- Multi-Functional Foundation – For

**10. Overall budget for your SEAP implementation:**

|   |  | Budget spent so far (€) |      | Overall budget foreseen for SEAP implementation 2020 (€) |      |
|---|--|-------------------------|------|--|------|
| <input checked="" type="checkbox"/> Local authority | <input checked="" type="checkbox"/> Investment     | 724,180                 |      | 2,940,500  |      |
|   | <input checked="" type="checkbox"/> Non investment | 1,457,540               |      | 468,800  |      |
| <input checked="" type="checkbox"/> Other actors    | <input type="checkbox"/> Investment                |                         |      |  |      |
|   | <input checked="" type="checkbox"/> Non investment | 48,000                  |      |  |      |
|   | Time period:                                       | 2010                    | 2014 | 2010   | 2014 |

**11. Financing sources used so far for SEAP implementation:**

|   | Percentage (%) |
|---|----------------|
| <input checked="" type="checkbox"/> Local Authority's own resources | 99             |
| <input type="checkbox"/> National funds and programmes              |                |
| <input checked="" type="checkbox"/> EU Funds and programmes         | 1              |
| <input type="checkbox"/> Private                                    |                |

**12. Monitoring process:**

The Energy Team constituted along with the support of the Cyprus Energy Agency are responsible for the implementation and the monitoring of the SEAP. The key tools for the successful monitoring are the SEAP document, the monitoring tools provided and the SEAP annual budgeting.

**13. Please rate (little/fair/strong/not applicable) the main problems encountered during SEAP implementation, either overall or by key Covenant sector.**

|  | All sectors | Municipal | Tertiary | Residential | Transport |
|--|-------------|-----------|----------|-------------|-----------|
| Limited financial sources                                | Strong      |           |          |             |           |
| Absence of/weak regulatory framework                     | Fair        |           |          |             |           |
| Lack of technical expertise                              |             | Strong    | Little   | Little      | Little    |
| Lack of support from stakeholders                        | Fair        |           |          |             |           |
| Lack of political support at other administrative levels |             | Strong    | Fair     | Fair        | Fair      |
| Changes in the local political priorities                | Fair        |           |          |             |           |
| Incompatibility with national policy orientations        |             | Strong    | Fair     | Fair        | Fair      |
| Immature or high cost technologies                       |             | Fair      | Fair     | Fair        | Strong    |

**14. Additional comments:**

Financial crisis in Cyprus, the memorandum and the reconstruction plans for the local authorities of Cyprus are the major barriers for the implementation of SEAPs



## PART II – My emission inventories

### 1. Baseline Inventory year:

2009

### 2. Monitoring Inventory year:

2014

### 3. Number of inhabitants in the inventory year:

70,718

### 4. Emission factors:

IPCC

LCA (Life Cycle Assessment)

### 5. Emission reporting unit:

tones CO<sub>2</sub>

tones CO<sub>2</sub> equivalent

### 6. Methodological notes and data sources:

The Cyprus Energy Agency, established in 2009, developed a **tool called local energy balances** for the calculation of local (Municipalities and Communities) Energy Balances in Cyprus. The use of this tool has been very useful not only for the creation of baseline emission inventories of the Municipalities, but also in monitoring the impact of the implementation of local Sustainable Energy Action Plan (SEAPs) measures.

It is moreover an important information and transparency tool as it enables local authorities to follow the total energy consumption (in toe) in their place of residence, with a breakdown by sector and by fuel type.

The tool based on accurate detailed local electricity consumptions followed by assumptions based on national statistics and studies (sales of fuels, use of other energy sources, consumptions of residential buildings etc),

This tool provides the energy data for the territory of a municipality. The energy data of the Municipal service provided by the energy team of the municipality which is responsible for keeping the records of the consumptions in the appropriate monitoring tools.

For the compilation of the progress report, meeting between the energy team and the Cyprus Energy Agency were realized.



## A. Final Energy Consumption – Baseline year 2009

| Category  | FINAL ENERGY CONSUMPTION (MWh) |           |              |               |                |                |                |          |          |          |                    |               |               |               |            | Total            |
|---|--------------------------------|-----------|--------------|---------------|----------------|----------------|----------------|----------|----------|----------|--------------------|---------------|---------------|---------------|------------|------------------|
|   | Electricity                    | Heat cold | Fossil fuels |               |                |                |                |          |          |          | Renewable energies |               |               |               |            |                  |
|   |                                |           | Natural gas  | Liquid gas    | Heating Oil    | Diesel         | Gasoline       | Lignite  | Coal     | Other    | Plant oil          | Biofuel       | Other biomass | Solar thermal | Geothermal |                  |
| <b>BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:</b>          |                                |           |              |               |                |                |                |          |          |          |                    |               |               |               |            |                  |
| Municipal buildings, equipment/facilities                       | 678                            |           |              |               |                |                |                |          |          |          |                    |               |               |               |            | 678              |
| Tertiary (non municipal) buildings, equipment/facilities        | 172,367                        |           |              | 11,594        | 25,576         |                |                |          |          |          |                    |               | -             | 20,791        |            | 230,329          |
| Residential buildings   | 147,455                        |           |              | 33,434        | 82,615         |                |                |          |          |          |                    |               | 29,557        | 44,820        |            | 337,881          |
| Municipal public lighting                                       | 6,809                          |           |              | -             | -              |                |                |          |          |          |                    |               | -             | -             |            | 6,809            |
| Industries (excluding industries involved in ETS)               | 21,849                         |           |              | 1,464         | 3,229          |                |                |          |          |          |                    |               | -             | -             |            | 26,542           |
| <b>Subtotal buildings, equipments/facilities and industries</b> | <b>349,159</b>                 | <b>-</b>  | <b>-</b>     | <b>46,492</b> | <b>111,420</b> | <b>-</b>       | <b>-</b>       | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>      | <b>29,557</b> | <b>65,611</b> | <b>-</b>   | <b>602,240</b>   |
| <b>TRANSPORT:</b>   |                                |           |              |               |                |                |                |          |          |          |                    |               |               |               |            |                  |
| Municipal fleet   |                                |           |              |               |                |                |                |          |          |          |                    |               |               |               |            | -                |
| Public transport  |                                |           |              |               |                | 15,343         | -              |          |          |          |                    | 313           |               |               |            | 15,656           |
| Private and commercial transport                                |                                |           |              |               |                | 291,513        | 315,652        |          |          |          |                    | 12,391        |               |               |            | 619,556          |
| <b>Subtotal transport</b>                                       | <b>-</b>                       | <b>-</b>  | <b>-</b>     | <b>-</b>      | <b>-</b>       | <b>306,856</b> | <b>315,652</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>12,704</b> | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>635,212</b>   |
| <b>Other:</b>   |                                |           |              |               |                |                |                |          |          |          |                    |               |               |               |            |                  |
| Agriculture, Forestry, Fisheries                                | 1,118                          |           |              | 75            | 165            |                |                |          |          |          |                    |               | -             | -             |            | 1,358            |
| <b>Total</b>  | <b>350,277</b>                 | <b>-</b>  | <b>-</b>     | <b>46,567</b> | <b>111,586</b> | <b>306,856</b> | <b>315,652</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>12,704</b> | <b>29,557</b> | <b>65,611</b> | <b>-</b>   | <b>1,238,810</b> |



## B. Energy Supply – Baseline year 2009

### B1. Municipal purchases of certified green electricity

|  |   |
|--|---|
| Municipal purchases of certified green electricity [MWh]:                          | - |
| CO <sub>2</sub> emission factor for certified green electricity purchases [t/MWh]: | - |

### B2. Local/distributed electricity production

| Local renewable electricity plants (excluding ETS plants , and all plants/units > 20 MW) | Locally generated electricity | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions | Corresponding CO <sub>2</sub> -emission factors for electricity production |
|--|-------------------------------|---|--|
| Wind power   | -                             | 0.874   | -  |
| Hydroelectric power  | -                             | 0.874   | -  |
| Photovoltaic   | 171                           | 0.874   | 149  |
| Combined Heat and Power  | -                             | 0.874   | -  |
| Biogas   | -                             | 0.874   | -  |
| <b>Total</b>   | <b>171</b>                    | <b>0.874</b>                                    | <b>149</b>   |

### B3. Local/distributed electricity production

| Local electricity production plants (excluding ETS plants , and all plants/units > 20 MW) | Locally generated heat/cold [MWh] | Energy carrier input [MWh] |            |             |          |          |          |           |               |                 |          | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions [t] | Corresponding CO <sub>2</sub> -emission factors for heat/cold production in [t/MWh] |
|---|-----------------------------------|----------------------------|------------|-------------|----------|----------|----------|-----------|---------------|-----------------|----------|---|---|
|   |                                   | Fossil fuels               |            |             |          |          | Waste    | Plant oil | Other biomass | Other renewable | other    |   |   |
|   |                                   | Natural gas                | Liquid gas | Heating oil | Lignite  | Coal     |          |           |               |                 |          |   |   |
| Combined Heat and Power   | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   |
| Other: _____  | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   |
| <b>Total</b>  | <b>-</b>                          | <b>-</b>                   | <b>-</b>   | <b>-</b>    | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>  | <b>-</b>      | <b>-</b>        | <b>-</b> | <b>-</b>  | <b>-</b>  |

### B4. Local/distributed electricity production

| Locally generated heat/cold | Locally generated heat/cold [MWh] | Energy carrier input [MWh] |            |             |          |          |          |           |               |                 |          | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions [t] | Corresponding CO <sub>2</sub> -emission factors for heat/cold production in [t/MWh] |
|-----------------------------|-----------------------------------|----------------------------|------------|-------------|----------|----------|----------|-----------|---------------|-----------------|----------|---|---|
|                             |                                   | Fossil fuels               |            |             |          |          | Waste    | Plant oil | Other biomass | Other renewable | other    |   |   |
|                             |                                   | Natural gas                | Liquid gas | Heating oil | Lignite  | Coal     |          |           |               |                 |          |   |   |
| Combined Heat and Power     | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   |
| District Heating plant(s)   | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   |
| Other: _____                | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   |
| <b>Total</b>                | <b>-</b>                          | <b>-</b>                   | <b>-</b>   | <b>-</b>    | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>  | <b>-</b>      | <b>-</b>        | <b>-</b> | <b>-</b>  | <b>-</b>  |



## C. Final Energy Consumption – Year 2014

| Category  | FINAL ENERGY CONSUMPTION (MWh) |           |              |               |               |                |                |          |          |          |                    |          |               |               |               | Total          |
|---|--------------------------------|-----------|--------------|---------------|---------------|----------------|----------------|----------|----------|----------|--------------------|----------|---------------|---------------|---------------|----------------|
|   | Electricity                    | Heat cold | Fossil fuels |               |               |                |                |          |          |          | Renewable energies |          |               |               |               |                |
|   |                                |           | Natural gas  | Liquid gas    | Heating Oil   | Diesel         | Gasoline       | Lignite  | Coal     | Other    | Plant oil          | Biofuel  | Other biomass | Solar thermal | Geothermal    |                |
| <b>BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:</b>          |                                |           |              |               |               |                |                |          |          |          |                    |          |               |               |               |                |
| Municipal buildings, equipment/facilities                       | 518                            |           |              |               |               |                |                |          |          |          |                    |          |               |               |               | 518            |
| Tertiary (non municipal) buildings, equipment/facilities        | 138,757                        |           |              | 10,759        | 14,273        |                |                |          |          |          |                    |          | -             | 16,734        |               | 180,523        |
| Residential buildings   | 119,606                        |           |              | 28,635        | 70,757        |                |                |          |          |          |                    |          | 25,315        | 38,387        |               | 282,698        |
| Municipal public lighting                                       | 5,792                          |           |              |               |               |                |                |          |          |          |                    |          |               | -             |               | 5,792          |
| Industries (excluding industries involved in ETS)               | 14,523                         |           |              | 1,122         | 1,488         |                |                |          |          |          |                    |          | -             | -             |               | 17,133         |
| <b>Subtotal buildings, equipments/facilities and industries</b> | <b>279,195</b>                 | <b>-</b>  | <b>-</b>     | <b>40,516</b> | <b>86,518</b> | <b>-</b>       | <b>-</b>       | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b> | <b>25,315</b> | <b>55,121</b> | <b>-</b>      | <b>486,665</b> |
| <b>TRANSPORT:</b>   |                                |           |              |               |               |                |                |          |          |          |                    |          |               |               |               |                |
| Municipal fleet   |                                |           |              |               |               | 2,965          | 171            |          |          |          |                    |          | 67            |               |               | 2,933          |
| Public transport  |                                |           |              |               |               | 10,995         | -              |          |          |          |                    |          | 270           |               |               | 11,265         |
| Private and commercial transport                                |                                |           |              |               |               | 206,211        | 215,138        |          |          |          |                    |          | 11,870        |               |               | 433,219        |
| <b>Subtotal transport</b>                                       | <b>-</b>                       | <b>-</b>  | <b>-</b>     | <b>-</b>      | <b>-</b>      | <b>219,901</b> | <b>215,309</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b> | <b>12,207</b> | <b>-</b>      | <b>-</b>      | <b>447,417</b> |
| <b>Other:</b>   |                                |           |              |               |               |                |                |          |          |          |                    |          |               |               |               |                |
| Agriculture, Forestry, Fisheries                                | 648                            |           |              | 50            | 66            |                |                |          |          |          |                    |          | -             | -             |               | 765            |
| <b>Total</b>  | <b>279,844</b>                 | <b>-</b>  | <b>-</b>     | <b>40,566</b> | <b>86,585</b> | <b>219,901</b> | <b>215,309</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b> | <b>12,207</b> | <b>25,315</b> | <b>55,121</b> | <b>934,847</b> |





## D. Energy Supply – Year 2014

### B1. Municipal purchases of certified green electricity

|  |   |
|--|---|
| Municipal purchases of certified green electricity [MWh]:                          | - |
| CO <sub>2</sub> emission factor for certified green electricity purchases [t/MWh]: | - |

### B2. Local/distributed electricity production

| Local renewable electricity plants (excluding ETS plants , and all plants/units > 20 MW) | Locally generated electricity | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions | Corresponding CO <sub>2</sub> -emission factors for electricity production |
|--|-------------------------------|---|--|
| Wind power   | -                             | 0.874   | -  |
| Hydroelectric power  | -                             | 0.874   | -  |
| Photovoltaic   | 1,233                         | 0.874   | 1,078  |
| Combined Heat and Power  | -                             | 0.874   | -  |
| Biogas   | -                             | 0.874   | -  |
| <b>Total</b>   | <b>1,233</b>                  | <b>0.874</b>                                    | <b>1,078</b>   |

### B3. Local/distributed electricity production

| Local electricity production plants (excluding ETS plants , and all plants/units > 20 MW) | Locally generated heat/cold [MWh] | Energy carrier input [MWh] |            |             |          |          |          |           |               |                 |          | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions [t] | Corresponding CO <sub>2</sub> -emission factors for heat/cold production in [t/MWh] |          |
|---|-----------------------------------|----------------------------|------------|-------------|----------|----------|----------|-----------|---------------|-----------------|----------|---|---|----------|
|   |                                   | Fossil fuels               |            |             |          |          | Waste    | Plant oil | Other biomass | Other renewable | other    |   |   |          |
|   |                                   | Natural gas                | Liquid gas | Heating oil | Lignite  | Coal     |          |           |               |                 |          |   |   |          |
| Combined Heat and Power   | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   | -        |
| Other: _____  | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   | -        |
| <b>Total</b>  | <b>-</b>                          | <b>-</b>                   | <b>-</b>   | <b>-</b>    | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>  | <b>-</b>      | <b>-</b>        | <b>-</b> | <b>-</b>  | <b>-</b>  | <b>-</b> |

### B4. Local/distributed electricity production

| Locally generated heat/cold | Locally generated heat/cold [MWh] | Energy carrier input [MWh] |            |             |          |          |          |           |               |                 |          | CO <sub>2</sub> / CO <sub>2</sub> -eq emissions [t] | Corresponding CO <sub>2</sub> -emission factors for heat/cold production in [t/MWh] |          |
|-----------------------------|-----------------------------------|----------------------------|------------|-------------|----------|----------|----------|-----------|---------------|-----------------|----------|---|---|----------|
|                             |                                   | Fossil fuels               |            |             |          |          | Waste    | Plant oil | Other biomass | Other renewable | other    |   |   |          |
|                             |                                   | Natural gas                | Liquid gas | Heating oil | Lignite  | Coal     |          |           |               |                 |          |   |   |          |
| Combined Heat and Power     | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   | -        |
| District Heating plant(s)   | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   | -        |
| Other: _____                | -                                 | -                          | -          | -           | -        | -        | -        | -         | -             | -               | -        | -   | -   | -        |
| <b>Total</b>                | <b>-</b>                          | <b>-</b>                   | <b>-</b>   | <b>-</b>    | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>  | <b>-</b>      | <b>-</b>        | <b>-</b> | <b>-</b>  | <b>-</b>  | <b>-</b> |



## E. CO<sub>2</sub> emissions

### C1. CO<sub>2</sub> emissions factors adopted [t/MWh]

|          | Electricity |       | Heat/cold | Fossil fuels |            |             |        |          |         |      |       | Renewable energies |           |               |               |            |
|----------|-------------|-------|-----------|--------------|------------|-------------|--------|----------|---------|------|-------|--------------------|-----------|---------------|---------------|------------|
|          | National    | Local |           | Natural gas  | Liquid gas | Heating Oil | Diesel | Gasoline | Lignite | Coal | Other | Biofuel            | Plant oil | Other biomass | Solar thermal | Geothermal |
| BEI year | 0.874       | 0.874 | --        | -            | 0.24       | 0.267       | 0.267  | 0.249    | -       | -    | -     | 0                  | -         | 0             | 0             | 0          |
| MEI year | 0.874       | 0.874 | --        | -            | 0.24       | 0.267       | 0.267  | 0.249    | -       | -    | -     | 0                  | -         | 0             | 0             | 0          |

### C2. Non energy related sectors are included

|                          | CO2 eq. emissions |
|--------------------------|-------------------|
| Waste management         | -                 |
| Waste water management   | -                 |
| Other non-energy related | -                 |



C3. CO<sub>2</sub> emissions Baseline Emission Inventory – Baseline Year 2009

| Category  | CO <sub>2</sub> EMISSIONS (TONNES) |           |              |               |               |               |               |          |          |          |                    |           |               |               |            | Total          |
|---|------------------------------------|-----------|--------------|---------------|---------------|---------------|---------------|----------|----------|----------|--------------------|-----------|---------------|---------------|------------|----------------|
|   | Electricity                        | Heat cold | Fossil fuels |               |               |               |               |          |          |          | Renewable energies |           |               |               |            |                |
|   |                                    |           | Natural gas  | Liquid gas    | Heating Oil   | Diesel        | Gasoline      | Lignite  | Coal     | Other    | Biofuel            | Plant oil | Other biomass | Solar thermal | Geothermal |                |
| <b>BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:</b>          |                                    |           |              |               |               |               |               |          |          |          |                    |           |               |               |            |                |
| Municipal buildings, equipment/facilities                       | 593                                |           |              | -             | -             | -             | -             |          |          |          |                    |           |               |               |            | 593            |
| Tertiary (non municipal) buildings, equipment/facilities        | 150,649                            |           |              | 2,783         | 6,829         | -             | -             |          |          |          |                    |           |               |               |            | 160,261        |
| Residential buildings   | 128,876                            |           |              | 8,024         | 22,058        | -             | -             |          |          |          |                    |           |               |               |            | 158,958        |
| Municipal public lighting                                       | 5,951                              |           |              | -             | -             | -             | -             |          |          |          |                    |           |               |               |            | 5,951          |
| Industries (excluding industries in ETS)                        | 19,096                             |           |              | 351           | 862           | -             | -             |          |          |          |                    |           |               |               |            | 20,310         |
| <b>Subtotal buildings, equipments/facilities and industries</b> | <b>305,165</b>                     | <b>-</b>  | <b>-</b>     | <b>11,158</b> | <b>29,749</b> | <b>-</b>      | <b>-</b>      | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>346,072</b> |
| <b>TRANSPORT:</b>   |                                    |           |              |               |               |               |               |          |          |          |                    |           |               |               |            |                |
| Municipal fleet   | -                                  |           |              | -             | -             | 2,559         | -             |          |          |          |                    |           |               |               |            | 2,559          |
| Public transport  | -                                  |           |              | -             | -             | 4,097         | -             |          |          |          |                    |           |               |               |            | 4,097          |
| Private and commercial transport                                | -                                  |           |              | -             | -             | 75,275        | 78,597        |          |          |          |                    |           |               |               |            | 153,872        |
| <b>Subtotal transport</b>                                       | <b>-</b>                           | <b>-</b>  | <b>-</b>     | <b>-</b>      | <b>-</b>      | <b>81,971</b> | <b>78,597</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>160,528</b> |
| <b>OTHER:</b>   |                                    |           |              |               |               |               |               |          |          |          |                    |           |               |               |            |                |
| Agriculture, Forestry, Fisheries                                | 977                                |           |              | 18            | 44            | -             | -             |          |          |          |                    |           |               |               |            | 1,039          |
| Waste management  |                                    |           |              |               |               |               |               |          |          |          |                    |           |               |               |            |                |
| Waste water management  |                                    |           |              |               |               |               |               |          |          |          |                    |           |               |               |            |                |
| <b>Total</b>  | <b>306,142</b>                     | <b>-</b>  | <b>-</b>     | <b>11,176</b> | <b>29,793</b> | <b>84,490</b> | <b>78,597</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>507,639</b> |



C3. CO<sub>2</sub> emissions Monitoring Emission Inventory – Year 2014

| Category  | CO <sub>2</sub> EMISSIONS (TONNES) |           |              |              |               |               |               |          |          |          |                    |           |               |               |            | Total          |
|---|------------------------------------|-----------|--------------|--------------|---------------|---------------|---------------|----------|----------|----------|--------------------|-----------|---------------|---------------|------------|----------------|
|   | Electricity                        | Heat cold | Fossil fuels |              |               |               |               |          |          |          | Renewable energies |           |               |               |            |                |
|   |                                    |           | Natural gas  | Liquid gas   | Heating Oil   | Diesel        | Gasoline      | Lignite  | Coal     | Other    | Biofuel            | Plant oil | Other biomass | Solar thermal | Geothermal |                |
| <b>BUILDINGS, EQUIPMENT/FACILITIES AND INDUSTRIES:</b>          |                                    |           |              |              |               |               |               |          |          |          |                    |           |               |               |            |                |
| Municipal buildings, equipment/facilities                       | 453                                |           |              | -            | -             | -             | -             |          |          |          |                    |           |               |               |            | 453            |
| Tertiary (non municipal) buildings, equipment/facilities        | 121,273                            |           |              | 2,582        | 3,811         | -             | -             |          |          |          |                    |           |               |               |            | 127,667        |
| Residential buildings   | 104,535                            |           |              | 6,872        | 18,892        | -             | -             |          |          |          |                    |           |               |               |            | 130,300        |
| Municipal public lighting                                       | 5,063                              |           |              | -            | -             | -             | -             |          |          |          |                    |           |               |               |            | 5,063          |
| Industries (excluding industries in ETS)                        | 12,693                             |           |              | 269          | 397           | -             | -             |          |          |          |                    |           |               |               |            | 13,360         |
| <b>Subtotal buildings, equipments/facilities and industries</b> | <b>244,017</b>                     | <b>-</b>  | <b>-</b>     | <b>9,724</b> | <b>23,100</b> | <b>-</b>      | <b>-</b>      | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>276,841</b> |
| <b>TRANSPORT:</b>   |                                    |           |              |              |               |               |               |          |          |          |                    |           |               |               |            |                |
| Municipal fleet   | -                                  |           |              | -            | -             | 720           | 43            |          |          |          |                    |           |               |               |            | 762            |
| Public transport  | -                                  |           |              | -            | -             | 2,936         | -             |          |          |          |                    |           |               |               |            | 2,936          |
| Private and commercial transport                                | -                                  |           |              | -            | -             | 55058         | 53569         |          |          |          |                    |           |               |               |            | 108627         |
| <b>Subtotal transport</b>                                       | <b>-</b>                           | <b>-</b>  | <b>-</b>     | <b>-</b>     | <b>-</b>      | <b>58,714</b> | <b>53,612</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>112,326</b> |
| <b>OTHER:</b>   |                                    |           |              |              |               |               |               |          |          |          |                    |           |               |               |            |                |
| Agriculture, Forestry, Fisheries                                | 567                                |           |              | 12           | 18            | -             | -             |          |          |          |                    |           |               |               |            | 597            |
| Waste management  |                                    |           |              |              |               |               |               |          |          |          |                    |           |               |               |            |                |
| Waste water management  |                                    |           |              |              |               |               |               |          |          |          |                    |           |               |               |            |                |
| <b>Total</b>  | <b>244,584</b>                     | <b>-</b>  | <b>-</b>     | <b>9,736</b> | <b>23,118</b> | <b>58,714</b> | <b>53,612</b> | <b>-</b> | <b>-</b> | <b>-</b> | <b>-</b>           | <b>-</b>  | <b>-</b>      | <b>-</b>      | <b>-</b>   | <b>389,763</b> |



## PART III – My Sustainable Energy Action Plan

### 1. Title:

The Sustainable Energy Plan of Strovolos Municipality

### 2. Decision body approving the plan:

Municipal Council of Strovolos

### 3. SEAP webpage:

<http://www.strovolos.org.cy/default.asp?id=331>  
<http://www.cea.org.cy/LocalEnergy.html>

### 4. Business as usual projections by 2020:

|   |           |
|---|-----------|
| CO <sub>2</sub> emissions (tonnes/year) | 448,277   |
| Final energy consumption (MWh/year)     | 1,462,229 |

### 5. Key Actions of the SEAP (coding explained in ANNEX):

|  | Key actions   | Area of intervention | Policy instrument | Origin of the action | Responsible body | Implementation timeframe |      | Status     | Implementation cost spent so far<br>(€) | Estimates in 2020 |                             |                            |
|--|---|----------------------|-------------------|----------------------|------------------|--------------------------|------|------------|---|-------------------|-----------------------------|----------------------------|
|  |   |                      |                   |                      |                  | Start                    | End  |            |   | Energy savings    | Renewable energy production | CO <sub>2</sub> reductions |
|  |   |                      |                   |                      |                  |                          |      |            |   | MWh/year          | MWh/year                    | tCO <sub>2</sub> /year     |
| <b>MUNICIPAL BUILDINGS, EQUIPMENT/FACILITIES</b> |   |                      |                   |                      |                  |                          |      |            |   |                   |                             |                            |
| 1  | MB1 – Thermal insulation in Town Hall and Theatre                               | A11                  | B19               | C1                   | Strovolos        | 2012                     | 2015 | D1<br>2016 | -                                       | -                 | -                           | -                          |
| 2  | MB2 - Improving building energy performance at Acropolis Park – Roof Insulation | A11                  | B19               | C1                   | Strovolos        | 2011                     | 2011 | D3<br>2012 | 19,680                                  | 0.043             | -                           | 0.019                      |
| 3  | MB3 - Electricity Savings in the Building of Town Hall Lamp Replacements        | A14                  | B12               | C1                   | Strovolos        | 2011                     | 2011 | D1<br>2011 | 500                                     | 14                | -                           | 11                         |
| 4  | MB4 - Electricity Savings in the  | A15                  | B12               | C1                   | Strovolos        | 2011                     | 2011 | D5         |   |                   |                             |                            |



|  |  |     |     |        |                   |      |      |            |             |     |   |     |
|--|--|-----|-----|--------|-------------------|------|------|------------|-------------|-----|---|-----|
|  | Building of Town Hall<br>V6oltage Regulator – Cancelled  |     |     |        |                   |      |      |            |             |     |   |     |
| 5  | MB5- Establishment of Culture Centre with energy efficient Standards   | A16 | B19 | C1     | Strovolos         | 2010 | 2013 | D3<br>2013 | 500,000     | 150 | - | 118 |
| 6  | MB6*- Improving building energy performance at Municipality warehouses – Roof Insulation   | A11 | B19 | C1     | Strovolos         | 2011 | 2011 | D3<br>2011 | 15,000      | 40  | - | 35  |
| 7  | MB7* - Training Municipal staff on energy saving in offices  | A18 | B11 | C1, C2 | Strovolos,<br>CEA | 2012 | 2013 | D3<br>2013 | -           | 14  |   | 12  |
| 8  | MB8*-Creating a green roof over the fairground Caves. This project will be a model to extend the practice to other public or private buildings | A11 | B11 | C1     | Strovolos         | 2013 | 2013 | D3<br>2013 | 30,000      | 20  | - | 18  |
| 9  | MB9* - 30 Movement sensors for lighting in corridors and toilets of public buildings   | A14 | B12 | C1     | Strovolos         | 2013 | 2013 | D3<br>2013 | 1,000       | 3   | - | 3   |
| 10   | MB10* – Energy Performance Certification of the Town Hall  | A19 | B19 | C1     | Strovolos         | 2014 | 2014 | D3<br>2014 | 1,500       | -   | - | -   |
| 11   | MB11* – Energy Renovation of Town Hall (applied for funding from ETS fund)   | A11 | B19 | C1     | Strovolos         | 2017 | 2018 | D1         | (200,000)   | -   | - | -   |
| 12   | MB12* – Energy Renovation of Acropolis Public Park (applied for funding from ETS fund)   | A11 | B19 | C1     | Strovolos         | 2017 | 2018 | D1         | (200,000)   | -   | - | -   |
| 13   | MB13* – Energy Renovation of Older People Centre of Strovolos and new building with zero energy standards (applied for funding from ETS fund)  | A11 | B19 | C1     | Strovolos         | 2018 | 2019 | D1         | (1,000,000) | -   | - | -   |
| 14   | MB14* – Certification of Strovolos with the European Energy Award  | A75 | B74 | C1, C2 | Strovolos,<br>CEA | 2012 | 2013 | D3<br>2013 | 1,000       | -   | - | -   |
| <b>TERTIARY BUILDINGS , EQUIPMENT/FACILITIES</b> |  |     |     |        |                   |      |      |            |             |     |   |     |
| 15   | TB1*- Participation in European Projects<br>(a) Europaid   | A75 | B74 | C1, C2 | Strovolos,<br>CEA | 2010 | 2014 | D3<br>2014 | 86,300      | -   | - | -   |



|                              |  |     |     |            |                                   |      |      |            |         |       |       |       |
|------------------------------|--|-----|-----|------------|-----------------------------------|------|------|------------|---------|-------|-------|-------|
|                              | (b) MEDEEA<br>(c) Serpente<br>(d) Pact of Islands  |     |     |            |                                   |      |      |            |         |       |       |       |
| 16                           | TB2*- Organization of 2 seminars for energy saving in tertiary sector  | A16 | B11 | C1         | Strovolos                         | 2016 | 2018 | D1         | (3,000) | 840   | -     | 734   |
| 17                           | TB3 – Organization of Annual Day without lighting (Earth day)  | A14 | B11 | C1         | Strovolos                         | 2011 | 2020 | D2         | 800     | 1,800 | -     | 1,160 |
| <b>RESIDENTIAL BUILDINGS</b> |  |     |     |            |                                   |      |      |            |         |       |       |       |
| 18                           | RB1- Organization of annual seminar on RES   | A16 | B11 | C1, C2     | Strovolos, CEA                    | 2011 | 2013 | D4<br>2015 | -       | -     | -     | -     |
| 19                           | RB2- Organization of annual seminar on Energy Saving   | A16 | B11 | C1, C2     | Strovolos, CEA                    | 2011 | 2013 | D4<br>2015 | -       | -     | -     | -     |
| 20                           | RB3- Organization of energy days   | A16 | B11 | C1, C2     | Strovolos, CEA                    | 2010 | 2020 | D2         | 2,500   | 1,536 | 1,536 | 2,367 |
| 21                           | RB4- Organization educational presentations to students<br>4-6 presentations per year  | A16 | B11 | C1, C2     | Strovolos, CEA                    | 2010 | 2020 | D2         | 900     | 500   | 500   | 500   |
| 22                           | RB5 - Information about energy in the Municipality website and newspaper(Articles in 3 editions – Municipality's newspaper)                  | A16 | B11 | C1         | Strovolos                         | 2010 | 2020 | D2         | 0       | 1,025 | 1,025 | 1000  |
| 23                           | RB6 - Free consulting services from the Municipality to its citizen-<br>Cancelled  | A16 | B11 | C1         | Strovolos                         | 2012 | 2014 | D5         | -       | -     | -     | -     |
| 24                           | RB7 – Information and public awareness through flyers and information messages<br>(a)2 leaflets<br>(b)MEDEEA TV spot<br>(c)ELIMED Radio Spot | A16 | B11 | C1, C2     | Stovolos, CEA                     | 2010 | 2020 | D2         | 14,000  | 5,400 | 5,416 | 2,410 |
| 25                           | RB8 - Organization of annual lecture to the residents<br>2012 - 4 Lectures to refuges shelters<br>2012- Events with photographic group       | A16 | B11 | C1, C2, CE | Stovolos, CEA, Photographic group | 2011 | 2020 | D2         | 500     | 5     | 5     | 5.2   |
| 26                           | RB9*- Energy renovation in 3 Low Income Households in Strovolos  | A16 | B17 | C1, C2     | Strovolos, CEA                    | 2013 | 2014 | D3<br>2014 | 30,000  | 6     | -     | 4     |



| PUBLIC LIGHTING |   |            |            |            |   |      |      |              |                       |       |    |       |
|-----------------|---|------------|------------|------------|---|------|------|--------------|-----------------------|-------|----|-------|
| 27              | PL1 – Energy Saving in Street lighting  | A21        | B24, B23   | C1, C2, C3 | Strovolos, CEA, group of Local Auth.        | 2013 | 2015 | D2 2014-2016 | 2,000                 | -     | -  | -     |
| 28              | PL2 – 64 Autonomous public lights with PV in Parks and public spaces  | A23        | B21        | C1         | Strovolos                                   | 2012 | 2013 | D3           | 150,000               | -     | 19 | 17    |
| 29              | PL3 – Operating hours of parks have been set and as a result the night lighting of parks has been reduced.  | A25        | B21        | C1         | Strovolos                                   | 2012 | 2013 | D3           | 0                     | 21    | -  | 19    |
| 30              | PL4 – 150 Autonomous public lights with PV in Parks and public spaces (applied for funding from ETS fund)   | A23        | B21        | C1         | Strovolos                                   | 2015 | 2018 | D1           | (1,000,000)           | -     | 49 | 43    |
| INDUSTRY        |   |            |            |            |   |      |      |              |                       |       |    |       |
| 31              | IN1- Organization of annual seminar for energy saving in industry   | A31        | B31        | C1         | Strovolos                                   | 2013 | 2015 | D4 2016      | -                     | -     | -  | -     |
| TRANSPORT       |   |            |            |            |   |      |      |              |                       |       |    |       |
| 32              | TR1– Organization days of bicycle motion<br>(α) Cycling round trip of Strovolos (Annually on May)<br><br>(β) Cycling round trip of Nicosia wider area (Annually on May) – Hosting starting ceremony | A44        | B41        | C1         | Strovolos                                   | 2010 | 2020 | D2           | 1,250                 | 497   | -  | 129   |
| 33              | TR2– Organization days of eco-cars days   | A41        | B41        | C1         | Strovolos                                   | 2011 | 2020 | D5           | -                     | -     | -  | -     |
| 34              | TR-3 Organization of eco driving seminar<br>Training Municipal staff (35 hours)<br>Training Municipal staff (Cyprus Energy Agency 2 seminars)   | A410       | B41        | C1, C2     | Strovolos, CEA                              | 2013 | 2015 | D3           | 5,000                 | 1,512 | -  | 1,184 |
| 35              | TR4- Energy Saving in Transports by promoting eco- cars (hybrid and electric)<br>(a)Free parking – 98 free licenses   | A43<br>A42 | B41<br>B42 | C1, C2, C3 | Strovolos, Electricity Authority of Cyprus, | 2010 | 2015 | D2           | (a)90,000<br>(b)3,000 | 3,750 | -  | 825   |





|                                     |   |     |      |        |                                     |      |      |            |             |       |   |     |
|-------------------------------------|---|-----|------|--------|-------------------------------------|------|------|------------|-------------|-------|---|-----|
|                                     | (b)Charging points of electric vehicles   |     |      |        | Cyprus Energy Agency                |      |      |            |             |       |   |     |
| 36                                  | TR5- Energy Saving Municipality's fleet   | A41 | B410 | C1     | Strovolos                           | 2013 | 2020 | D1<br>2017 | -           | -     | - | -   |
| 37                                  | TR6- Energy Saving in transport by promoting bicycle use ( bicycle rental system) DELP- Intermunicipal Bicycle Company of Nicosia <ul style="list-style-type: none"> <li>• (<a href="http://nicosia.easybike.com.cy">http://nicosia.easybike.com.cy</a>)</li> <li>• 27 stations, 315 bicycles all over Nicosia district</li> <li>• 8 stations, 80 bicycles all over Nicosia district</li> <li>• The Head of Finance Department of Strovolos Municipality is the President of the Board of Directors of the Intermunicipal Bicycle Company of Nicosia</li> </ul> | A44 | B410 | C1, C3 | Strovolos, DELP                     | 2010 | 2020 | D2         | 272,000     | 2,190 | - | 553 |
| 38                                  | TR7- Optimization of vehicle routes of the municipality   | A46 | B410 | C1     | Strovolos                           | 2011 | 2020 | D4<br>2018 | -           | -     | - | -   |
| 39                                  | TR8-Expansion of existing linear Park for pedestrians and cyclists  | A44 | B46  | C1     | Strovolos                           | 2010 | 2020 | D3         | 84,000      | 3,176 | - | 849 |
| 40                                  | TR9*-Maintenance and repairs of existing paths for pedestrians and cyclists   | A44 | B46  | C1     | Strovolos                           | 2010 | 2020 | D2         | 60,000      | 1,588 | - | 425 |
| 41                                  | TR10* – Improvement of Tseriou Avenue by introducing pavements and bicycle lane (application for funding)   | A47 | B46  | C1     | Strovolos, Town Planning Department | 2016 | 2018 | D1         | (7,500,000) | -     | - | -   |
| <b>LOCAL ELECTRICITY PRODUCTION</b> |   |     |      |        |                                     |      |      |            |             |       |   |     |
| 41                                  | LP1- Municipality Investments in Renewable Electricity- Cancelled   | A53 | B58  | C1     | Strovolos                           | 2014 | 2016 | D5         | -           | -     | - | -   |
| 42                                  | LP2 - Renewable Electricity from Photovoltaic at Acropolis park- 20 KW – Cancelled  | A53 | B58  | C1     | Strovolos                           | 2012 | 2012 | D4<br>2017 | -           | -     | - | -   |



|              |   |     |     |    |           |      |      |         |         |        |   |        |
|--------------|---|-----|-----|----|-----------|------|------|---------|---------|--------|---|--------|
| 43           | LP3 - Renewable Electricity from Photovoltaic at Municipality warehouses- 20 KW – Cancelled   | A53 | B53 | C1 | Strovolos | 2012 | 2012 | D4 2017 | -       | -      | - | -      |
| 44           | LP4* - Renewable Electricity from Photovoltaic at Acropolis park- 3KW   | A52 | B58 | C1 | Stovolos  | 2015 | 2016 | D1      | (5,000) | -      | - | -      |
| 45           | LP5*-Renewable Electricity from Photovoltaic at Municipality warehouses - 3 KW  | A52 | B58 | C1 | Strovolos | 2014 | 2014 | D3 2014 | 6,000   | -      | 5 | 4      |
| 46           | LP6*-Renewable Electricity from Photovoltaic at a Municipal park- 3 KW  | A53 | B58 | C1 | Strovolos | 2017 | 2017 | D1      | (5,000) | -      | - | -      |
| <b>OTHER</b> |   |     |     |    |           |      |      |         |         |        |   |        |
| 47           | OT1- Development of Green Spaces (a)Obligatory green spaces allocation during plots split (b)Tree care of existing and new green areas  | A73 | B72 | C1 | Strovolos | 2012 | 2020 | D2      | 150,000 | -      | - | 45     |
| 48           | OT2*-Strovolos Municipality joined the national recycling program run by Green Dot (Cyprus) Ltd for Municipal solid waste. The three recycle currents are (PMD, PAPER, GLASS) 2010-2014<br>PMD-plastic 3,200,000 Kg<br>Paper – 3,200,000 Kg<br>Glass -1,050,000 Kg <sup>1</sup> | A72 | B74 | C1 | Strovolos | 2010 | 2020 | D2      | 700,000 | 22,760 | - | 19,890 |

- The staff cost for the above actions was not included
- For all the lectures, events, etc the following expenses incurred by the Municipality (a) 70- 100 € for microphones (b) 30-50 € for hosting expenses (c) 100-300 € for owned room's rental
- Following the decision of the Municipal Council of Strovolos, all the invitations for events or other informative material will be send to the public by email.
- Numbers with orange color considered as investments. With red color are those expenditures initiated by third parties.

<sup>1</sup> EPA (2012). WASTE Reduction Model (WARM). U.S. Environmental Protection Agency (2.67 metric tons CO2 equivalent /ton of waste recycled instead of landfilled)



## ANNEX I – CATEGORIES OF ACTIONS

| AREA OF INTERVENTION |  |
|----------------------|--|
| <b>A1</b>            | <b>Municipal-Residential-Tertiary Buildings</b>  |
| A11                  | Building envelope                                |
| A12                  | Renewable energy for space heating and hot water |
| A13                  | Energy efficiency in space heating and hot water |
| A14                  | Energy efficient lighting systems                |
| A15                  | Energy efficient electrical appliances           |
| A16                  | Integrated action (all above)                    |
| A17                  | Information and Communication Technologies       |
| A18                  | Behavioural changes                              |
| A19                  | Other  |
|                      |  |
|                      |  |
| <b>A2</b>            | <b>Public Lighting</b>                           |
| A21                  | Energy efficiency                                |
| A22                  | Integrated renewable power                       |
| A23                  | Information and Communication Technologies       |
| A24                  | Other  |
|                      |  |
|                      |  |
| <b>A3</b>            | <b>Industry</b>                                  |
| A31                  | Energy efficiency in industrial processes        |
| A32                  | Energy efficiency in buildings                   |
| A33                  | Renewable energy                                 |
| A34                  | Information and Communication Technologies       |
| A35                  | Other  |
|                      |  |
|                      |  |
|                      |  |

| POLICY INSTRUMENT |                                  |
|-------------------|----------------------------------|
| <b>B1</b>         | <b>Buildings</b>                 |
| B11               | Awareness raising / training     |
| B12               | Energy management                |
| B13               | Energy certification / labelling |
| B14               | Energy suppliers obligations     |
| B15               | Energy / carbon taxes            |
| B16               | Grants and subsidies             |
| B17               | Third party financing. PPP       |
| B18               | Public procurement               |
| B19               | Building standards               |
| B110              | Land use planning regulation     |
| B111              | Not applicable                   |
| B112              | Other                            |
|                   |                                  |
| <b>B2</b>         | <b>Public Lighting</b>           |
| B21               | Energy management                |
| B22               | Energy suppliers obligations     |
| B23               | Third party financing. PPP       |
| B24               | Public procurement               |
| B25               | Not applicable                   |
| B26               | other                            |
|                   |                                  |
| <b>B3</b>         | <b>Industry</b>                  |
| B31               | Awareness raising / training     |
| B32               | Energy management                |
| B33               | Energy certification / labelling |
| B34               | Energy performance standards     |
| B35               | Energy / carbon taxes            |
| B36               | Grants and subsidies             |
| B37               | Third party financing. PPP       |
| B38               | Not applicable                   |
| B39               | Other                            |



**AREA OF INTERVENTION**

| <b>A4</b> | <b>Municipal - Public - Private Transport</b>        |
|-----------|--|
| A41       | Cleaner/efficient vehicles                           |
| A42       | Electric vehicles (incl. infrastructure)             |
| A43       | Modal shift to public transport                      |
| A44       | Modal shift to walking & cycling                     |
| A45       | Car sharing/pooling                                  |
| A46       | Improvement of logistics and urban freight transport |
| A47       | Road network optimisation                            |
| A48       | Mixed use development and sprawl containment         |
| A49       | Information and Communication Technologies           |
| A410      | Eco-driving  |
| A411      | Other  |

| <b>A5</b> | <b>Local Electricity Production</b> |
|-----------|-------------------------------------|
| A51       | Hydroelectric power                 |
| A52       | Wind power                          |
| A53       | Photovoltaics                       |
| A54       | Biomass power plant                 |
| A55       | Combined Heat and Power             |
| A56       | Smart grids                         |
| A57       | Other                               |

| <b>A7</b> | <b>Other</b>                     |
|-----------|----------------------------------|
| A71       | Urban regeneration               |
| A72       | Waste & wastewater management    |
| A73       | Tree planting in urban areas     |
| A74       | Agriculture and forestry related |
| A75       | <b>Other</b>                     |

**POLICY INSTRUMENT**

| <b>B4</b> | <b>Transport</b>                         |
|-----------|--|
| B41       | Awareness raising/training               |
| B42       | Integrated ticketing and charging        |
| B43       | Grants and subsidies                     |
| B44       | Road pricing                             |
| B45       | Land use planning regulation             |
| B46       | Transport / mobility planning regulation |
| B47       | Public procurement                       |
| B48       | Voluntary agreements with stakeholders   |
| B49       | Not applicable                           |
| B410      | Other                                    |

| <b>B5</b> | <b>Local Electricity Production</b> |
|-----------|-------------------------------------|
| B51       | Awareness raising / training        |
| B52       | Energy suppliers obligations        |
| B53       | Grants and subsidies                |
| B54       | Third party financing. PPP          |
| B55       | Building standards                  |
| B56       | Land use planning                   |
| B57       | Not applicable                      |
| B58       | <b>Other</b>                        |

| <b>B7</b> | <b>Other</b>                 |
|-----------|------------------------------|
| B71       | Awareness raising / training |
| B72       | Land use planning            |
| B73       | Not applicable               |
| B74       | Other                        |



| Origin of the actions |                                   |
|-----------------------|-----------------------------------|
| C1                    | Local Authority                   |
| C2                    | Covenant Territorial Coordinators |
| C3                    | Other (national, regional,...)    |
| C4                    | Not possible to say               |

| Progress |             |
|----------|-------------|
| D1       | Not started |
| D2       | In progress |
| D3       | Completed   |
| D4       | Postponed   |
| D5       | Canceled    |



## ANNEX II – BUSINESS AS USUAL AND SEAP SCENARIOS

## 1. BUSINESS AS USUAL SCENARIO

|   | Urban developed |
|---|-----------------|
| <b>BAU Scenario:</b>  |                 |
| RESIDENTIAL SECTOR  |                 |
| Residential   | 2.0%            |
| Residential storage heaters   | 2.0%            |
| PRIMARY SECTOR  |                 |
| Agriculture, Forestry and Fishing [A]                                       | 0.5%            |
| Mining and Quarrying [B]  | 0.5%            |
| SECONDARY SECTOR  |                 |
| Manufacturing [C]   | 1.5%            |
| Electricity, Gas, Steam and Air Conditioning Supply [D]                     | 0.0%            |
| Water Supply; Sewerage, Waste Management and Remediation Activities [E]     | 1.0%            |
| Construction [F]  | 2.0%            |
| TERTIARY SECTOR   |                 |
| Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles [G]    | 2.0%            |
| Transportation and Storage [H]  | 2.0%            |
| Accommodation and Food Service Activities [I]                               | 2.0%            |
| Information and Communication [J]   | 2.0%            |
| Financial and Insurance Activities [K]                                      | 2.0%            |
| Real Estate Activities [L]  | 2.0%            |
| Professional, Scientific and Technical Activities [M]                       | 2.0%            |
| Administrative and Support Service Activities [N]                           | 2.0%            |
| Public Administration and Defence; Compulsory Social Security [O]           | 2.0%            |
| Education [P]   | 2.0%            |
| Human Health and Social Work Activities [Q]                                 | 2.0%            |
| Arts, Entertainment and Recreation [R]                                      | 2.0%            |
| Other Service Activities [S]  | 2.0%            |
| Activities of Households As Employers [T]                                   | 2.0%            |
| Activities of Extraterritorial Organisations and Bodies [U]                 | 2.0%            |
| PUBLIC LIGHTING   |                 |
| Public Lighting - Urban areas   | 2.5%            |
| Public Lighting - Rural areas   | 2.5%            |
| Public Lighting - Traffic Lights  | 2.5%            |
| Public Lighting - Other Lighting  | 2.5%            |
| TRANSPORTS  |                 |
| Urban and suburban passenger road land transport                            | 3.0%            |
| Other passenger road transport services (taxi, tourism, school buses, etc.) | 3.0%            |
| Local Electricity Production from Renewable Energy Sources                  | 4.0%            |



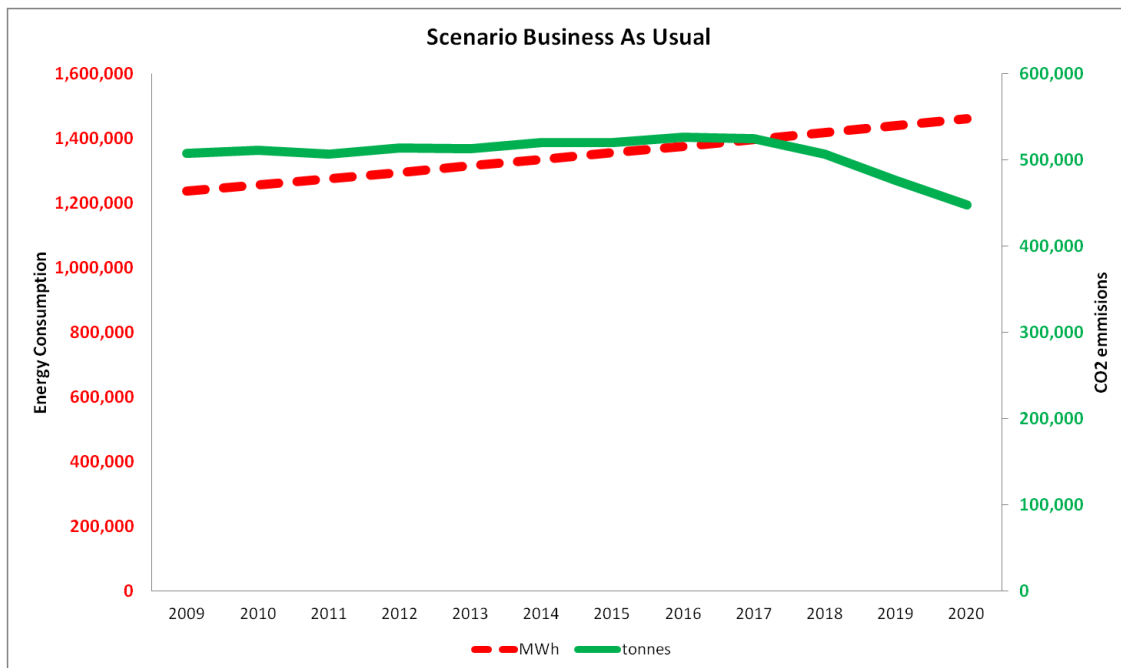
Annual rate of change

Increase of Energy efficiency (National Energy Efficiency Action Plan)

1%

|      | tonnes<br>Total CO2<br>emissions | MWh<br>Total Energy<br>Consumption |
|------|----------------------------------|------------------------------------|
| 2009 | 507,490                          | 1,238,810                          |
| 2010 | 511,217                          | 1,257,775                          |
| 2011 | 507,332                          | 1,276,712                          |
| 2012 | 513,988                          | 1,295,968                          |
| 2013 | 513,422                          | 1,315,549                          |
| 2014 | 520,210                          | 1,335,461                          |
| 2015 | 519,959                          | 1,355,710                          |
| 2016 | 526,884                          | 1,376,303                          |
| 2017 | 524,978                          | 1,397,244                          |
| 2018 | 507,359                          | 1,418,541                          |
| 2019 | 476,283                          | 1,440,201                          |
| 2020 | 448,277                          | 1,462,229                          |

|             |        |       |
|-------------|--------|-------|
| % of change | -11.7% | 18.0% |
|-------------|--------|-------|



## 2. SUSTAINABLE ENERGY ACTION PLAN SCENARIO

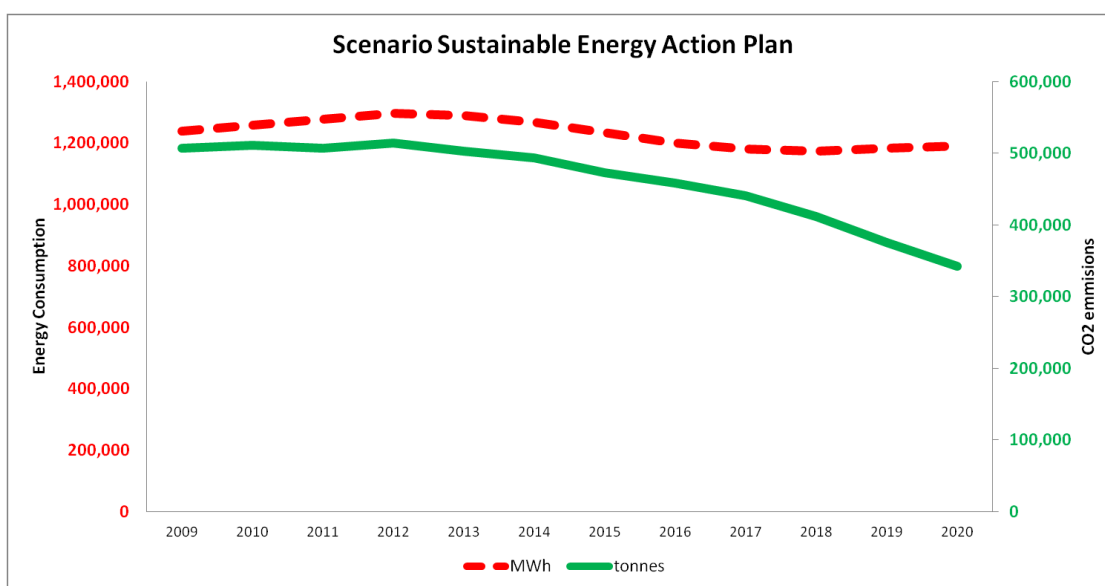
Select SEAP Scenario:

Mid term

|   |         |        |
|---|---------|--------|
| Enter the Energy savings from the SEAP estimated for year 2020- Local Actions | 271,275 | MWh    |
| Enter the CO2 savings from the SEAP estimated for year 2020 - Local Actions   | 105,950 | tonnes |

|      | MWh                      | tonnes               |
|------|--------------------------|----------------------|
|      | Total Energy Consumption | Total CO2 emmissions |
| 2009 | 1,238,810                | 507,490              |
| 2010 | 1,257,775                | 511,217              |
| 2011 | 1,276,712                | 507,332              |
| 2012 | 1,295,968                | 513,988              |
| 2013 | 1,288,422                | 502,827              |
| 2014 | 1,267,643                | 493,723              |
| 2015 | 1,233,637                | 472,281              |
| 2016 | 1,199,974                | 458,017              |
| 2017 | 1,180,224                | 440,218              |
| 2018 | 1,174,394                | 412,004              |
| 2019 | 1,182,489                | 375,630              |
| 2020 | 1,190,954                | 342,327              |

|             |       |               |
|-------------|-------|---------------|
| % of change | -3.9% | <b>-32.5%</b> |
|-------------|-------|---------------|





### ANNEX III – MONITORING OF SEAP

#### B. ACTUAL ENERGY RESULTS

|      | MWh   | tonnes   |
|------|---|--|
|      | <b>ACTUAL DATA<br/>Total Energy Consumption</b> | <b>ACTUAL DATA<br/>Total CO<sub>2</sub> emmissions</b> |
| 2009 | 1,238,810                                       | 507,490  |
| 2010 | 1,231,054                                       | 510,447  |
| 2011 | 1,133,124                                       | 471,717  |
| 2012 | 1,093,206                                       | 460,531  |
| 2013 | 956,277   | 398,621  |
| 2014 | 934,847   | 388,686  |

