JCEE MED – ENEC

Workshop on :"Policies for Energy Efficiency in Buildings in Egypt" -28 May 2009

BUILDING SECTOR IMPACT ON ELECTRICITY LOAD AND CONSUMPTION

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Contents

1-Power System Main Indicators And Representative Load Profiles Year 2007/2008

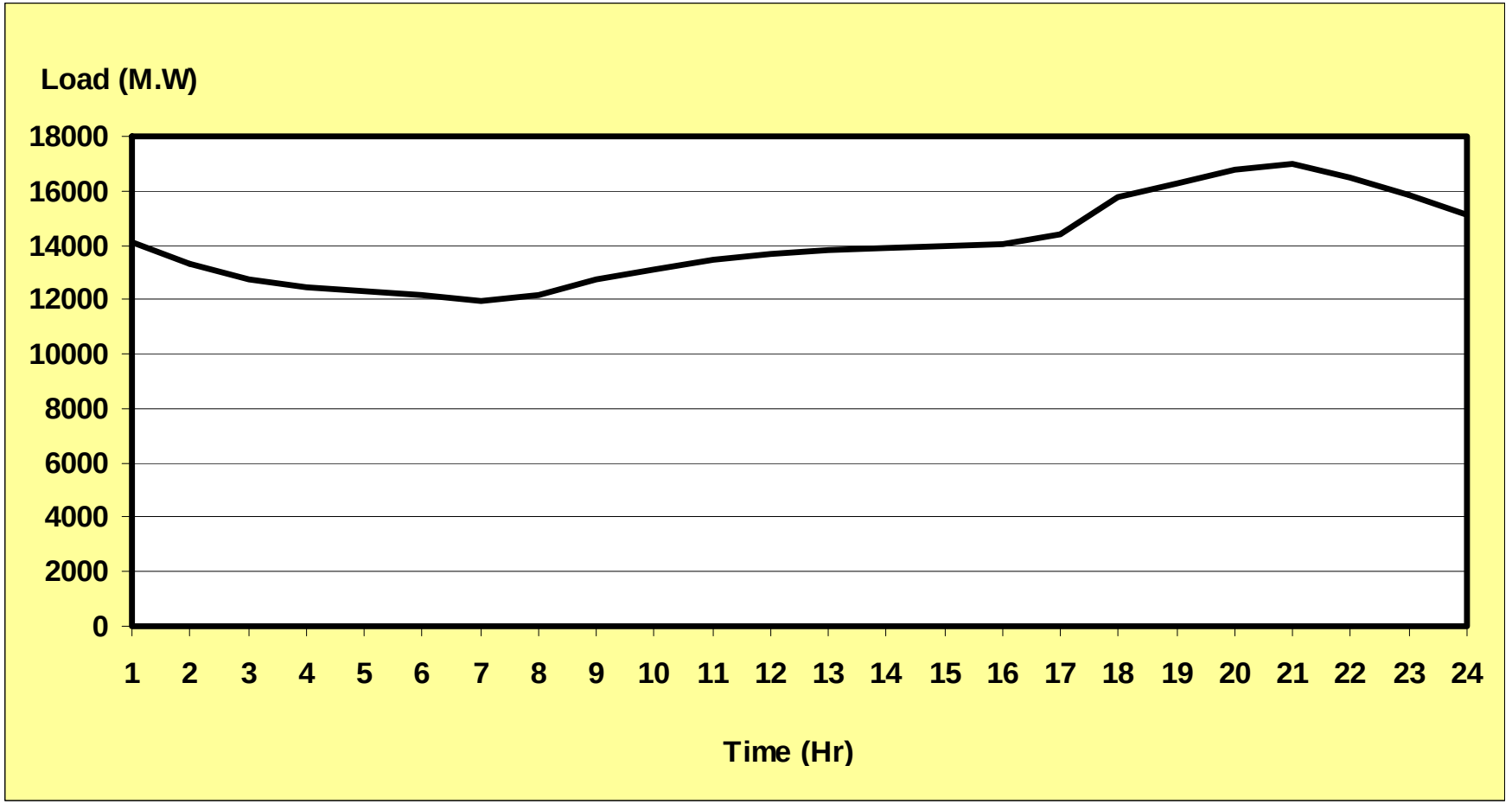
1-Max. Load : 19738 MW , Growth Rate: 7%

2-Generated Energy : 125129 GWh, Growth Rate: 8%

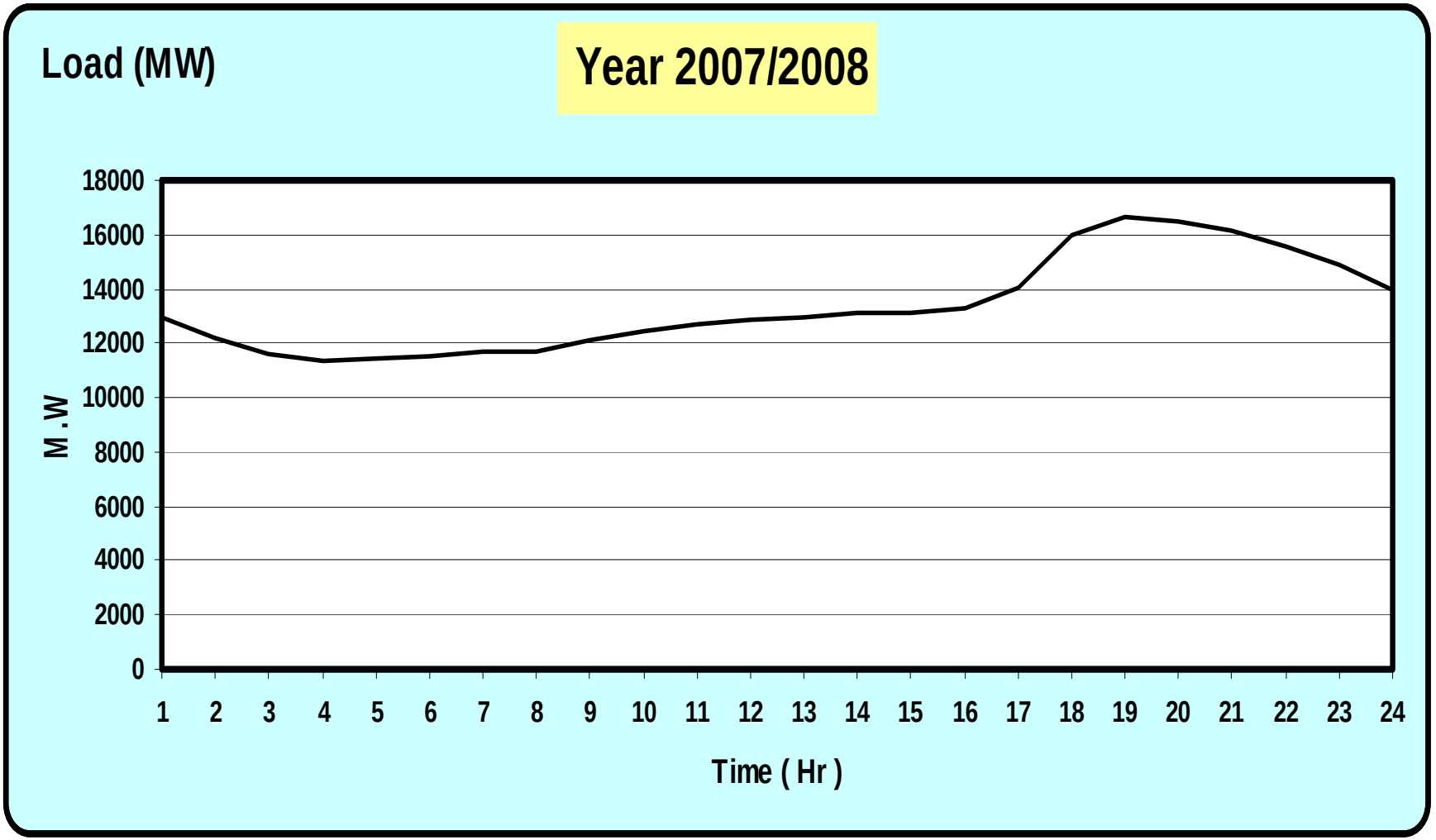
3-Energy Sales : 106595 GWh, Growth Rate: 8.3%

4-Fuel Consumption Rate : 217 gm/KWh

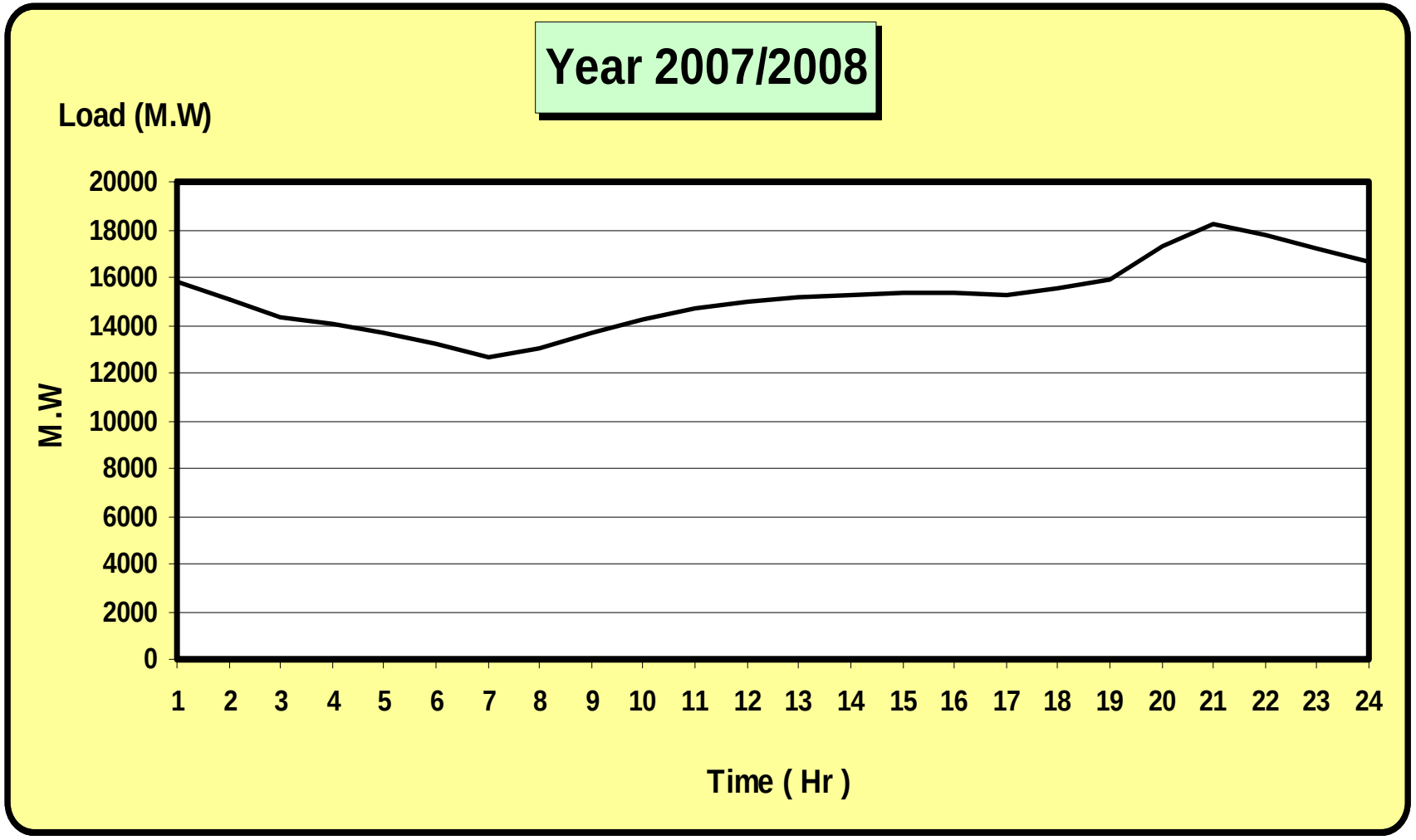
System Load Profile (Average Over Year 2007/2008)



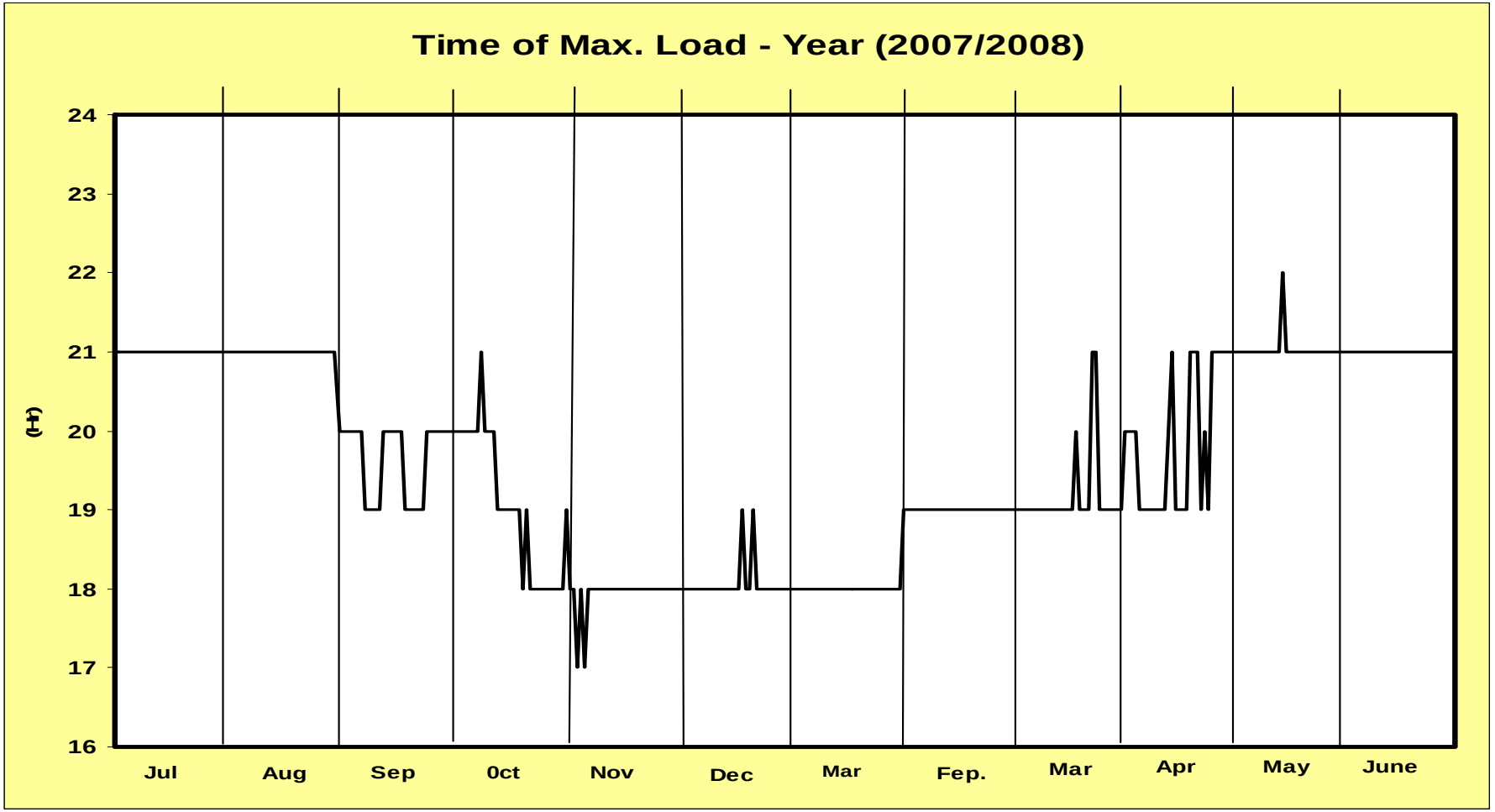
System Load Profile in Winter



System Load Profile in Summer

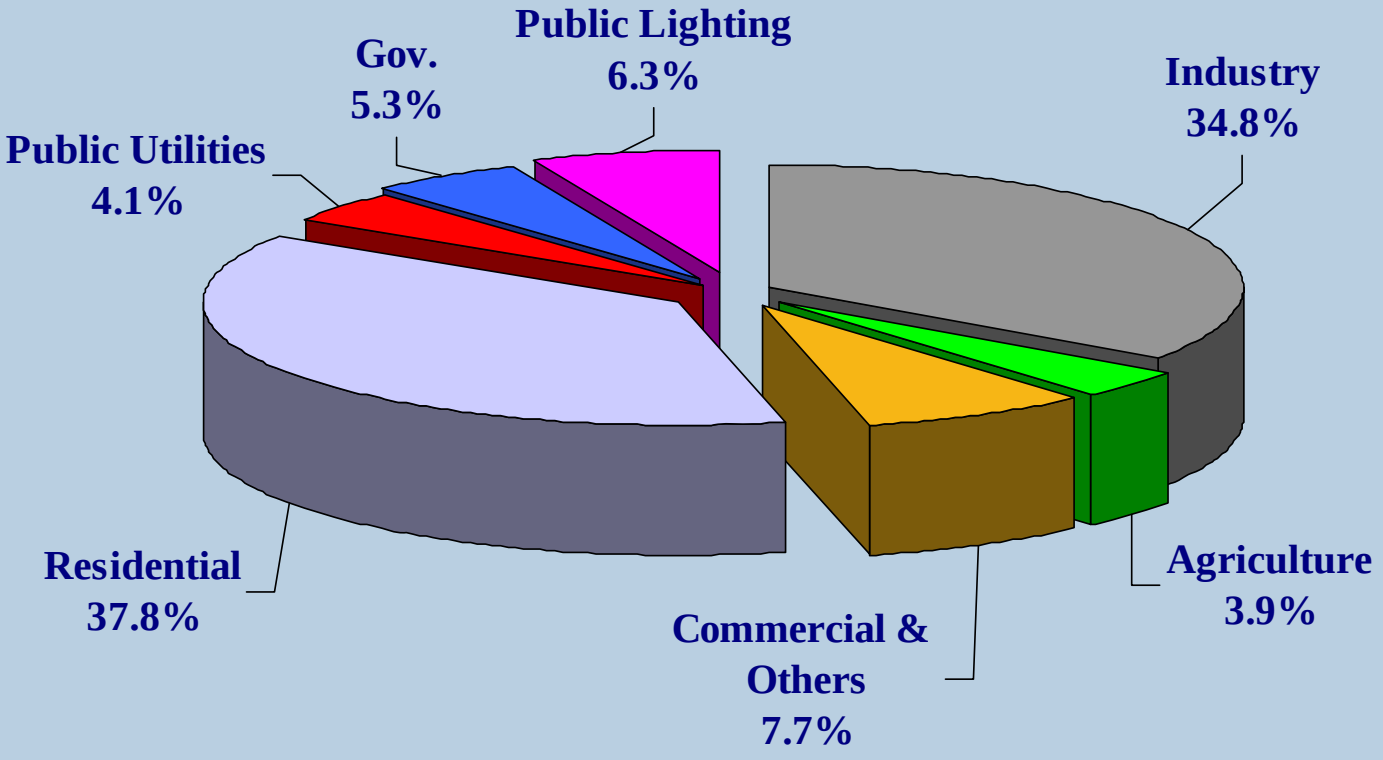


System Peak Hours (Year 2007/2008)



2-Electrical Energy Consumption by Sector

Electrical Energy Consumption - Year 2007/2008



Total energy consumption 106.6 TWh

Energy Consumption – Residential Categories (2007/2008)

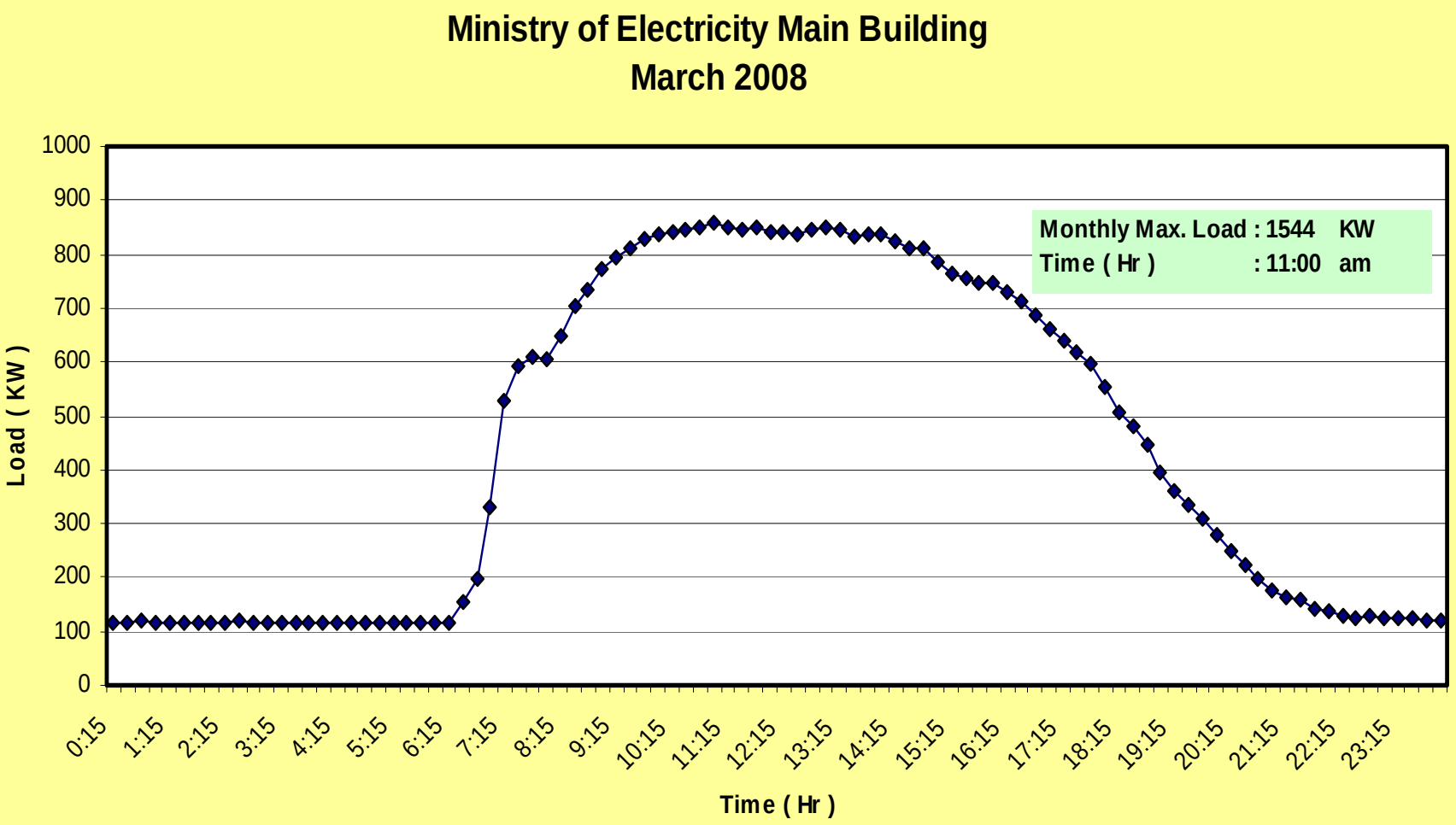
Residential Categories	Energy Consumption (GWh)
Until 50 KWh / month	11947
From 51 to 200 KWh / month	17986
From 201 to 350 KWh / month	5674
From 351 to 650 KWh / month	2687
From 651 to 1000 KWh / month	881
More than 1000 KWh / month	933
Total	40109

Energy Consumption – Commercial Categories (2007/2008)

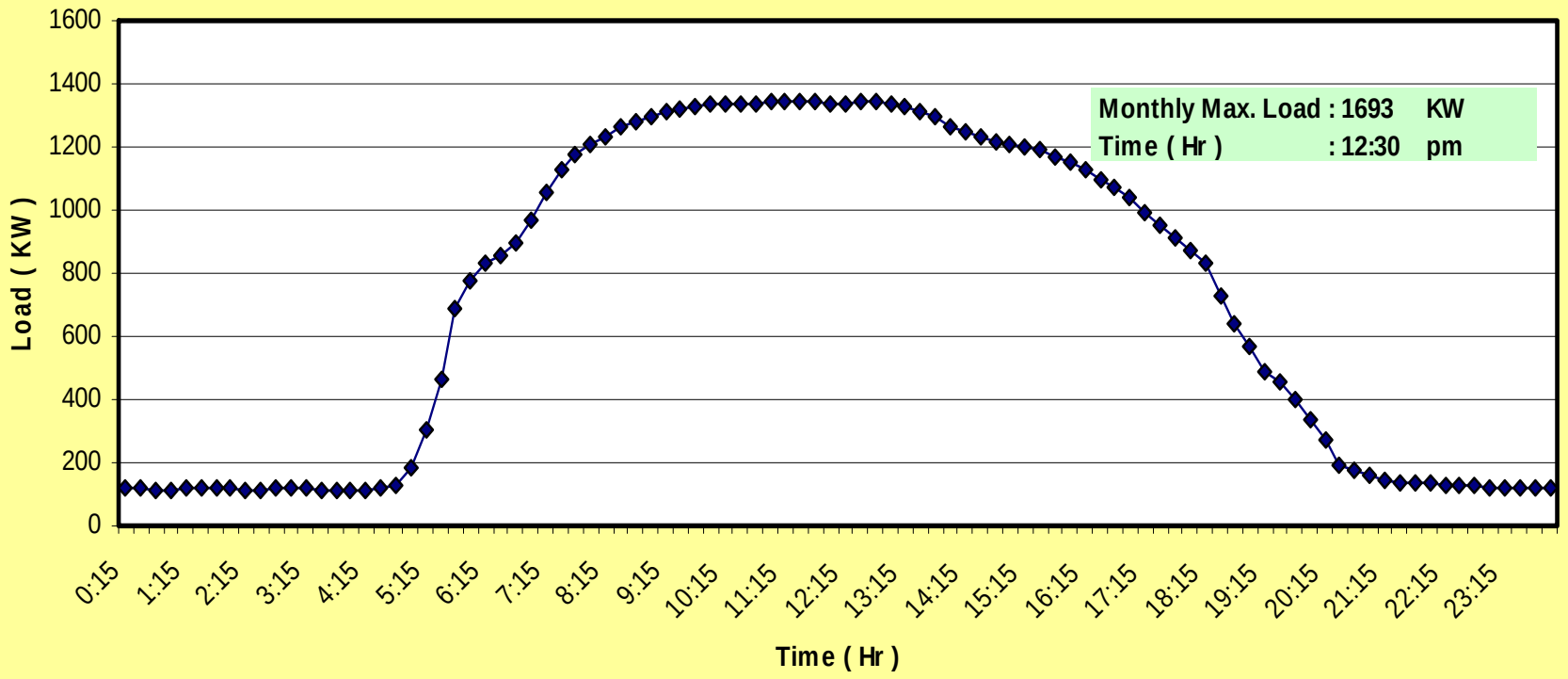
Commercial Categories	Energy Consumption (GWh)
Until 100 KWh / month	1318
From 101 to 250 KWh / month	631
From 251 to 600 KWh / month	345
From 601 to 100 KWh / month	155
More than 1000 KWh / month	411
Total	2860

3-Representative Load Profiles for Buildings

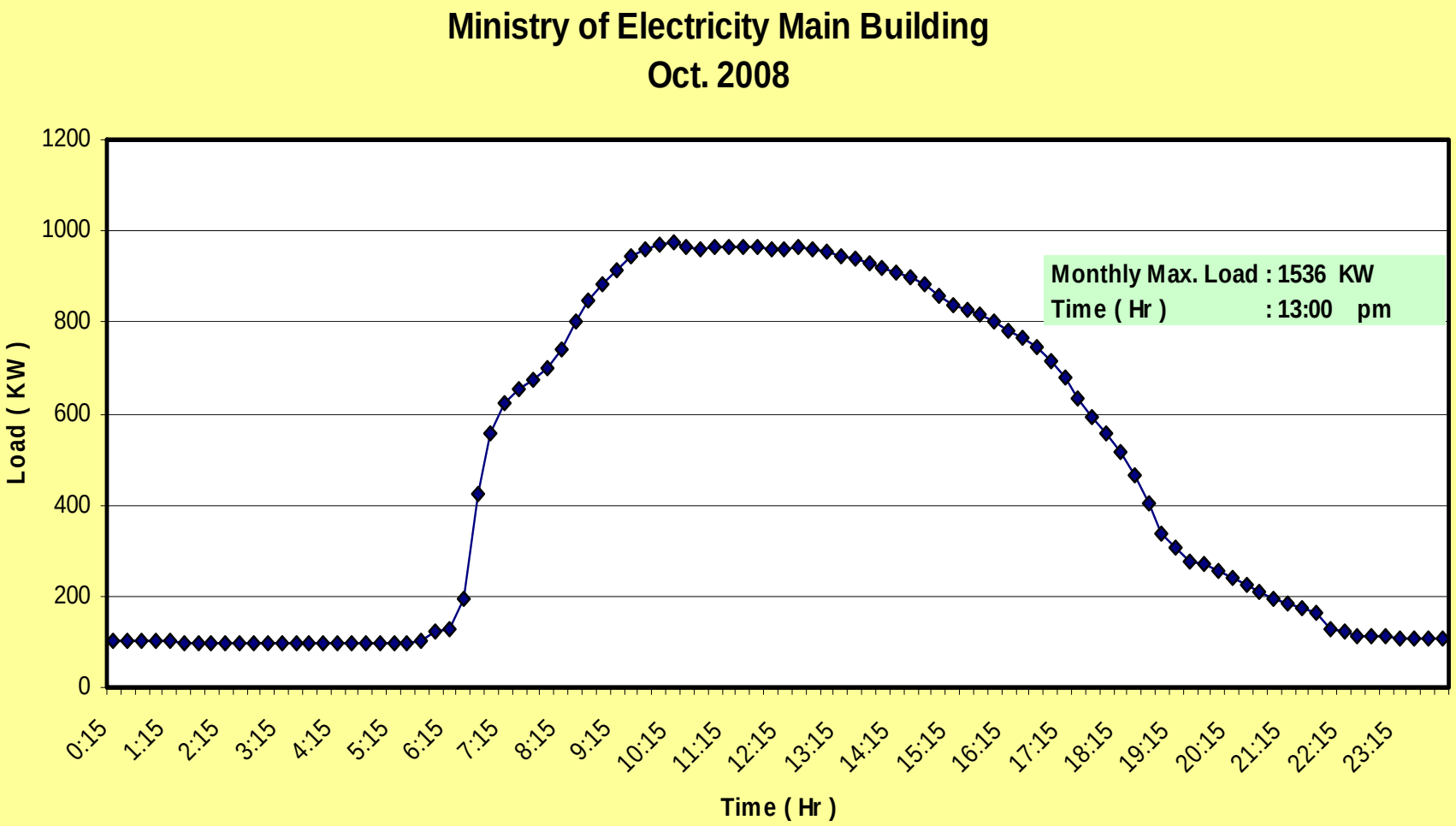
Average Day Load Profile – Gov. Buildings



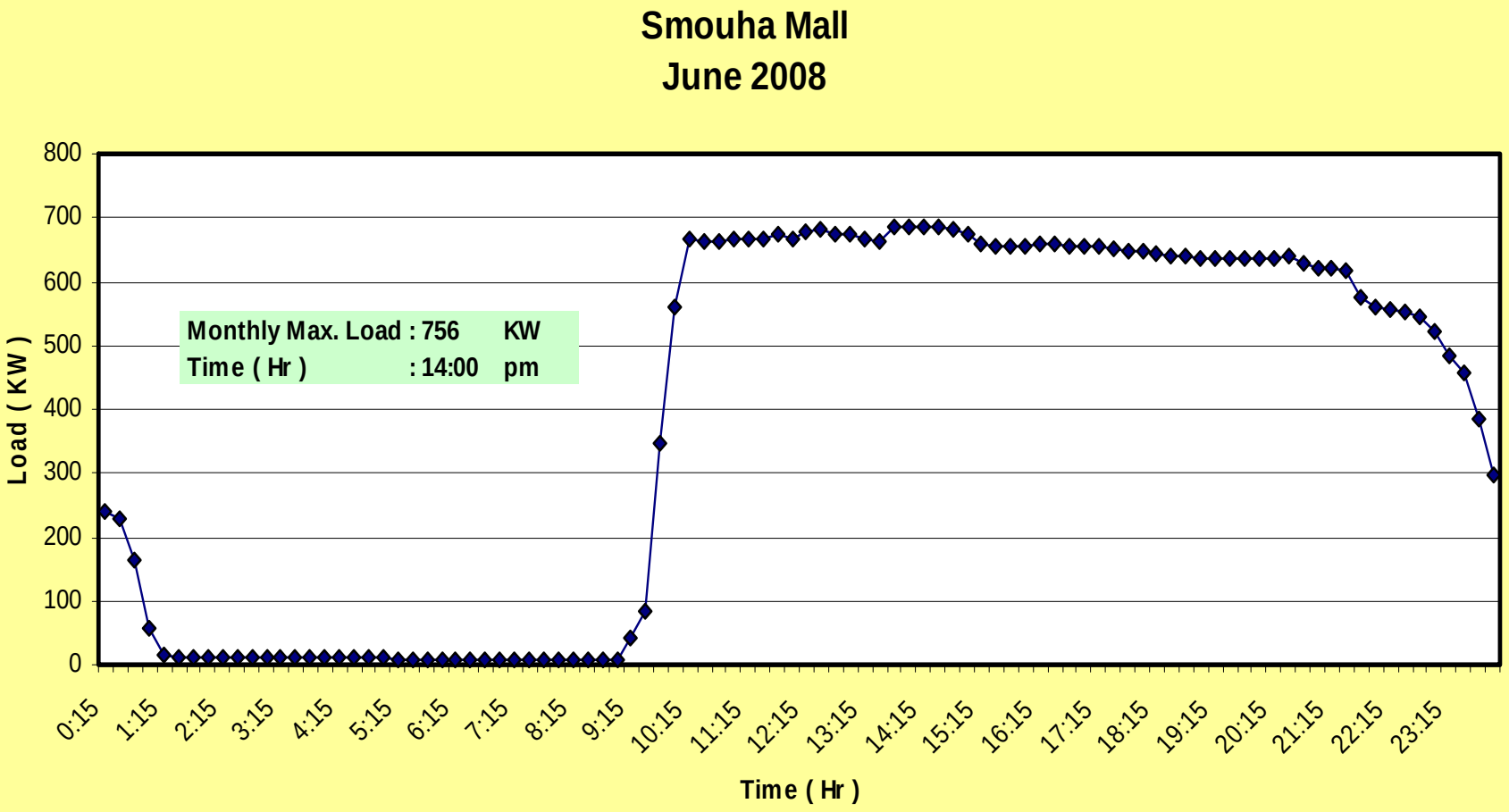
Average Day Load Profile – Gov. Buildings



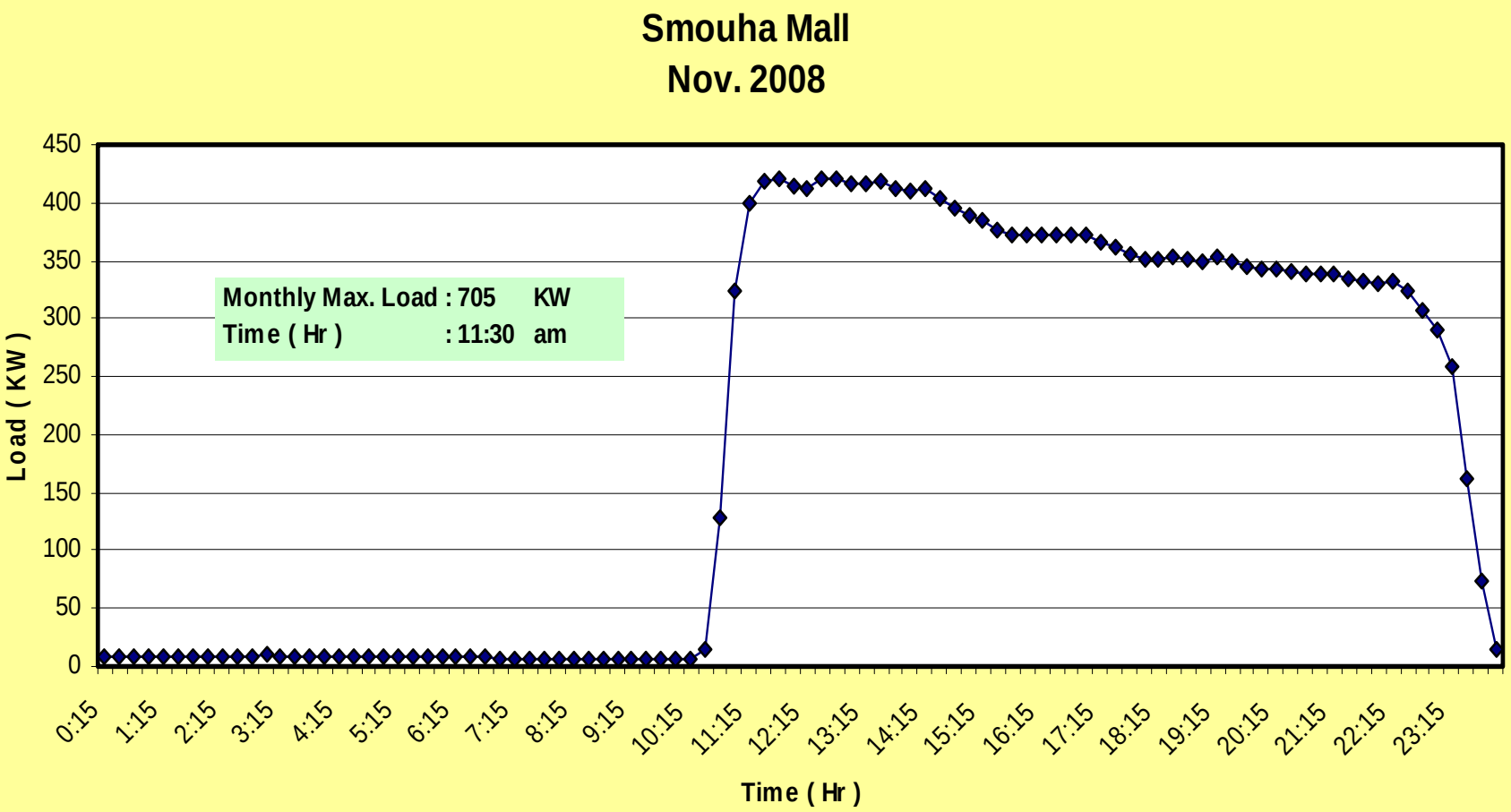
Average Day Load Profile – Gov. Buildings



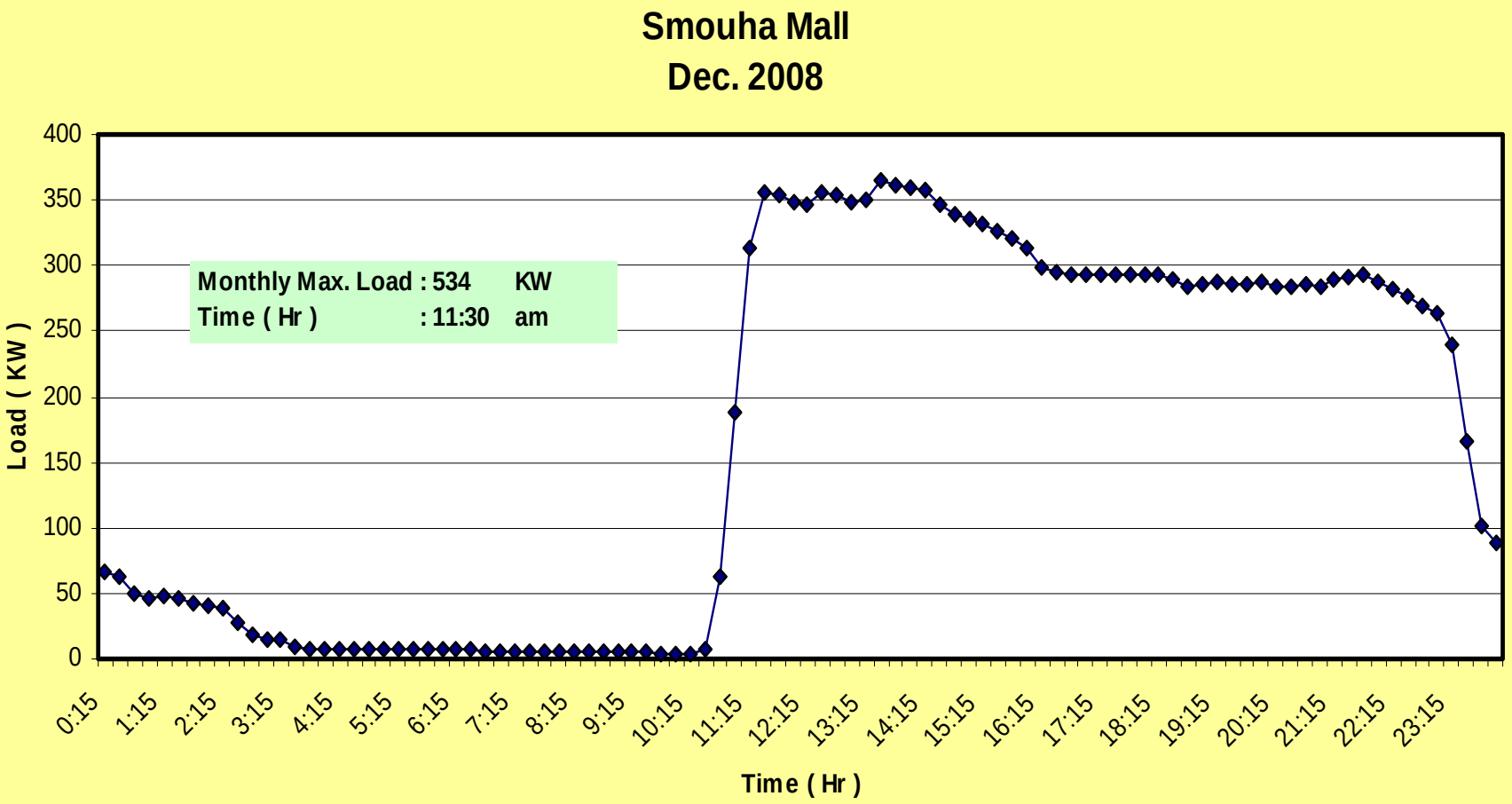
Average Day Load Profile – Commercial Buildings



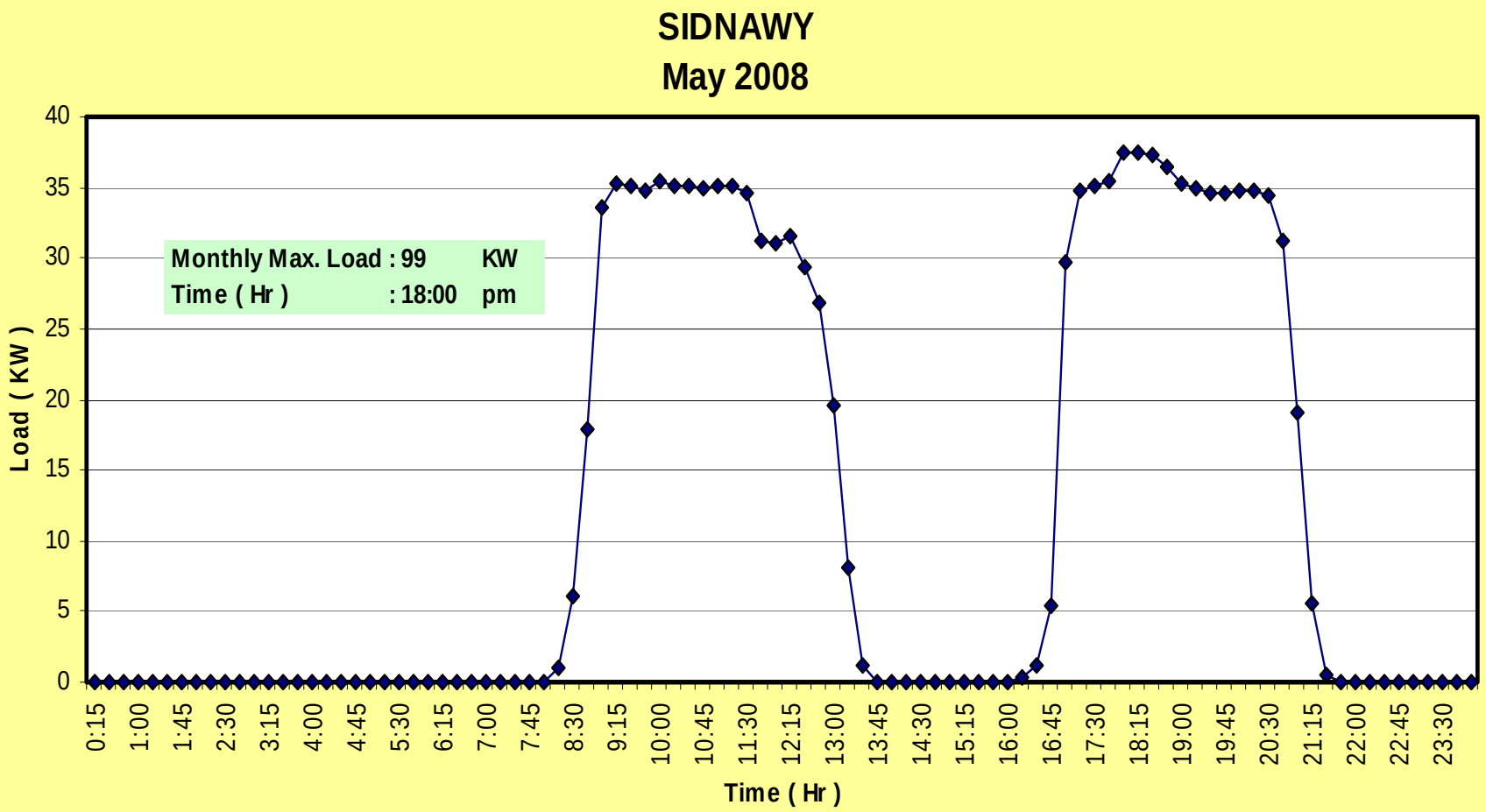
Average Day Load Profile – Commercial Buildings



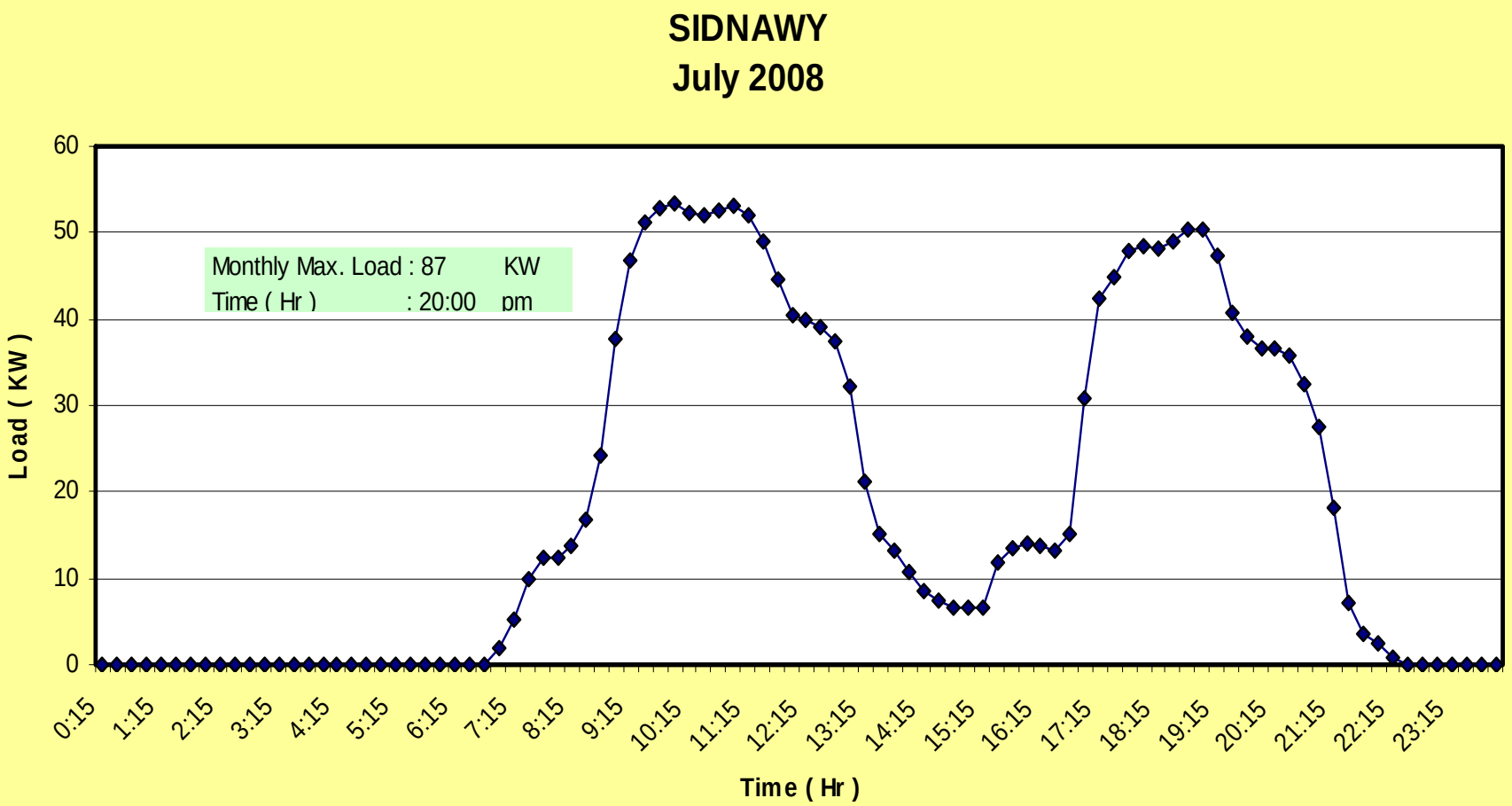
Average Day Load Profile – Commercial Buildings



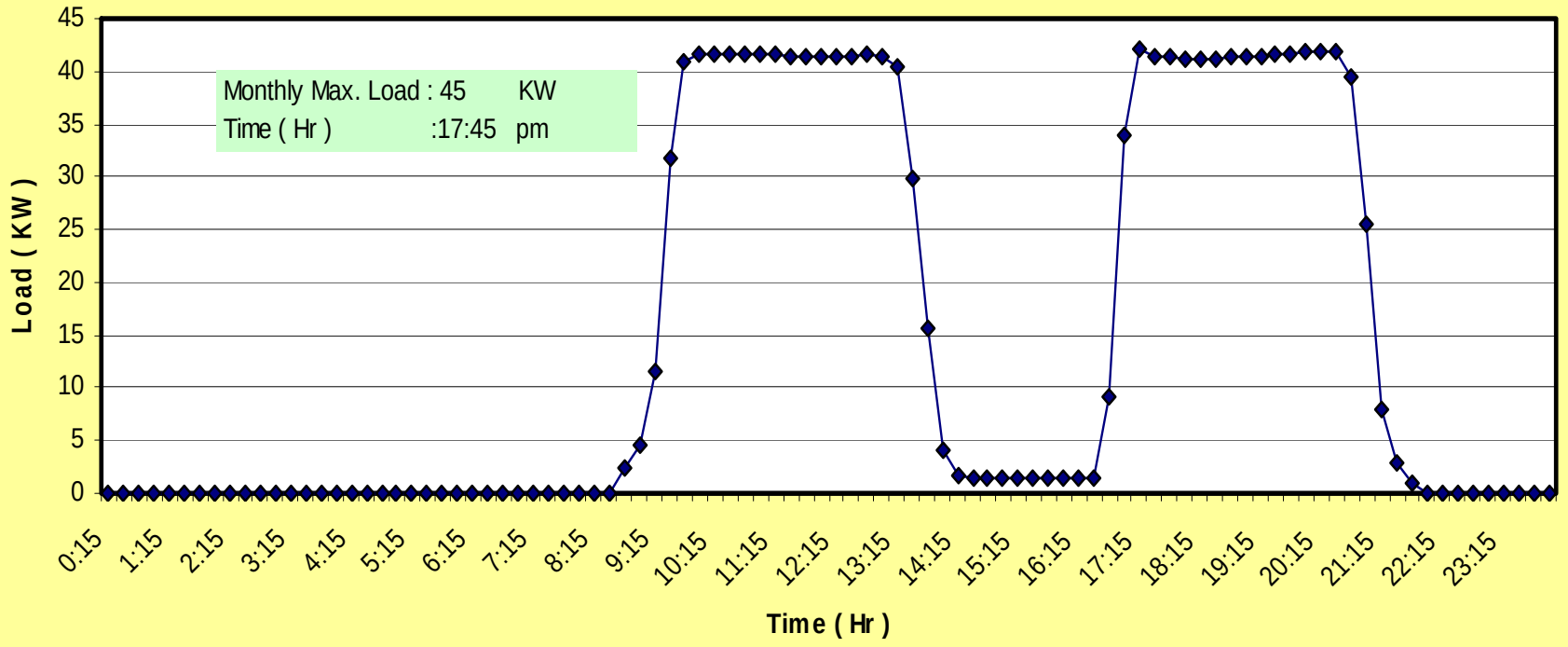
Average Day Load Profile – Commercial Buildings



Average Day Load Profile – Commercial Buildings



Average Day Load Profile – Commercial Buildings



4-Main Loads for Different Types of Buildings

1-Resedential Building :

(Lighting, Appliances, Water Pumps, …)

2-Governmental Buildings :

(Lighting, Air-Conditions, Elevators, Electrical devices, …)

3-Commercial Buildings :

(Lighting, Air-conditions, Elevators, …)

5-Potential Energy Saving in Buildings

Sector	Energy Saving (%)
Residential Sector	5
Governmental Sector	10
Commercial Sector	15
Total (Sum of the three sectors)	6

6 - Impact on System Load and Energy

Energy saving at system level :

about 2900 million KWh (about 2.7%)

Peak load reduction at system level :

about 600 MW (about 3.5%)

7-Conclusions and Recommendations

- The high growth of consumption in Egypt necessitates an urgent action to apply energy efficiency and conservation measures mainly in the building sector.
- Different types of buildings may have different load profiles expressing variable loading over the day / season.
- Efficient lighting systems are major applications in different types of buildings

Conclusions and Recommendations

- Energy efficiency measures in buildings would achieve energy saving of about 2900 million KWh (~ 2.7 %) and peak load reduction of about 600 MW (~ 3.5 %)
- Energy efficiency codes for residential, commercial and governmental buildings in Egypt are recommended for application to achieve further energy savings at the national level.

Thank You

for Your Kind Attention