Energy Efficiency and RES at local level

Eurasian Economic Commission

Lisboa, 15th July 2014

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www.lisboaenova.org

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LISBON'S MUNICIPAL ENERGY AND ENVIRONMENTAL AGENCY

Non-profit organization operating under private Law, which seeks the sustainable development of the city of Lisbon

MISSION

- Energy demand management
- Energy efficiency
- Endogenous energy resources management
- Environmental management
- Best practices in Urban Planning and Construction
- Sustainable mobility

AFFILIATES


ADENE
AGÊNCIA PARA A ENERGIA


amb3e


ANACOM
AUTORIDADE NACIONAL DE COMUNICAÇÕES


AGÊNCIA PORTUGUESA DO AMBIENTE


carris
Transportes de Lisboa


metro
Transportes de Lisboa


LISBOA
CÂMARA MUNICIPAL


DECO


edp


EGEAC


emel
e.e.m.


EPAL
Grupo Águas de Portugal


ICNF
Instituto da Conservação da Natureza e das Florestas


ISA
Intelligent Sensing Anywhere


TÉCNICO
LISBOA


SIMTEJO
Grupo Águas de Portugal


UGC
UNIÃO GERAL DE CONSUMIDORES


UNIVERSIDADE NOVA DE LISBOA

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AREAS OF EXPERTISE

Energy and Environmental Strategy	Energy Efficiency and Renewable Energy	Water	Sustainable Mobility
Smart Cities	Urban Planning	Biodiversity	Environmental Awareness

COMMUNICATION

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RELEVANT CURRENT EU PROJECTS

BESOS Building Energy Decision Support Systems for Smart Cities

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BESOS proposes the development of an advanced, integrated, management system which enables energy efficiency in smart cities from a holistic perspective.

Data and services' sharing through an EMS – open trustworthy platform deployed in a typical district that are consuming or producing energy, and which nowadays normally count with an isolated IT management solution

Design and development of higher level applications –i.e. the Business Balanced score Card and DSS Cockpit - that are able to process real-time data and generate valuable analysis to affect the business and Monitoring and Control (M&C) strategies that operate a smart city – or a subset of the energy services deployed.

SEVENTH FRAMEWORK PROGRAMME

EUROPEAN COMMISSION

BESOS

Building Energy Decision Support Systems for Smart Cities

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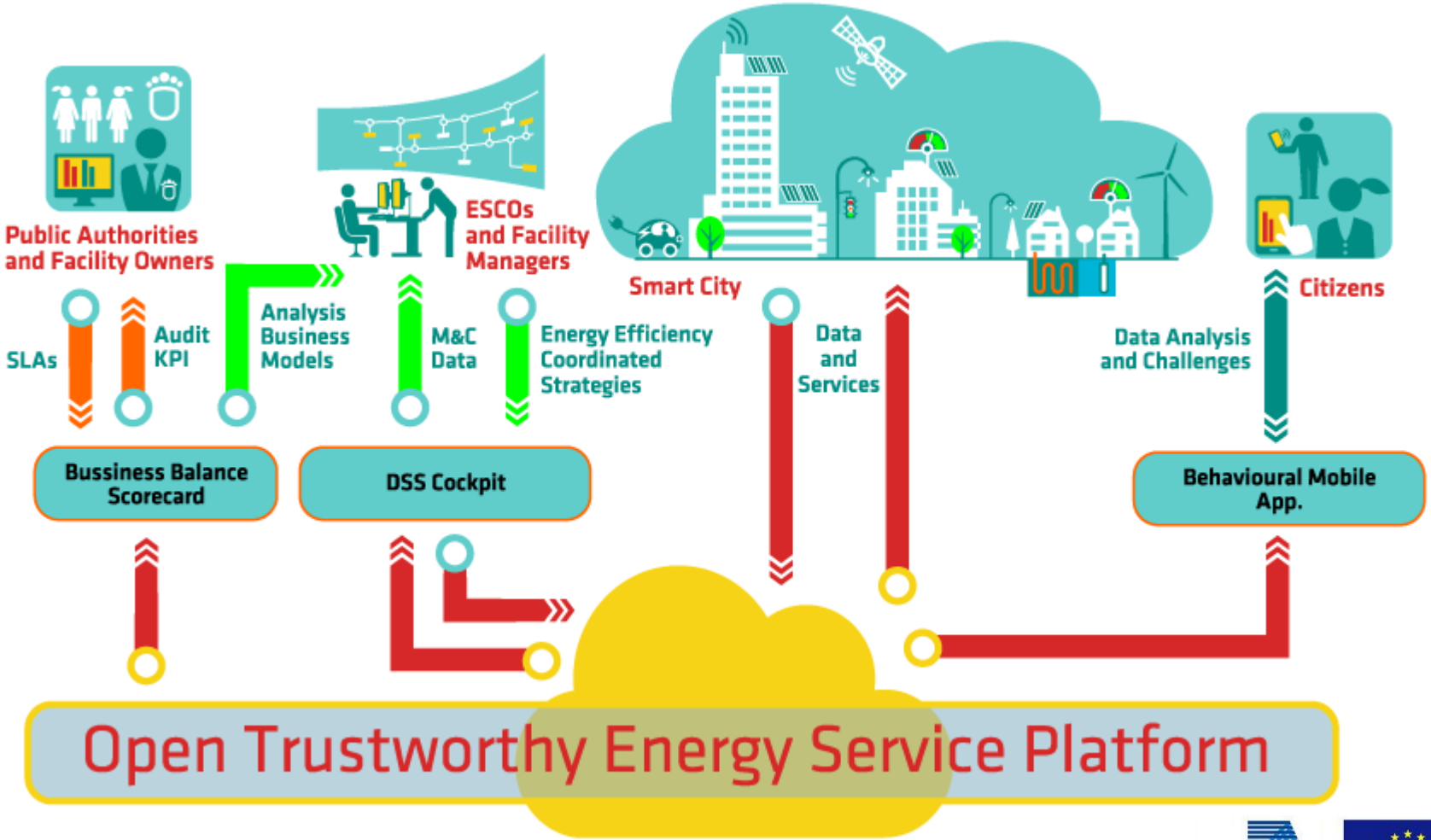

SEVENTH FRAMEWORK PROGRAMME

EUROPEAN COMMISSION

BESOS Building Energy Decision Support Systems for Smart Cities

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http://www.youtube.com/watch?feature=player_detailpage&v=IE3XSusQ_IE

URBANSOL PLUS

Solar Thermal in Major Renovations and Protected Urban Areas

Intents to promote the adoption of solar thermal systems in multi-family buildings and classified areas.

Lisbon will share it's experience regarding the adoption of solar thermal in classified areas and focus on the promotion of collective solar thermal systems in multi-familiar buildings requalification's.

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

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LED IN TRAFFIC LIGHTS

- Replacement of 4000 bulbs for LED in the last 3 years (15%)
- Reduction of 1300 MWh in energy consumption
- Less 48 ton CO_2/year
- Less130.000 Euros/year in the energy bill of the Municipality

EPC IN TRAFFIC LIGHTS

- Replacement of 22500 bulbs for LED during 2013
- Reduction of 6,2 GWh in energy consumption/year
- Less 230 ton CO_2/year
- Less 700 k Euros/year in the energy bill of the Municipality

PUBLIC LIGHTING

3 levels of action:

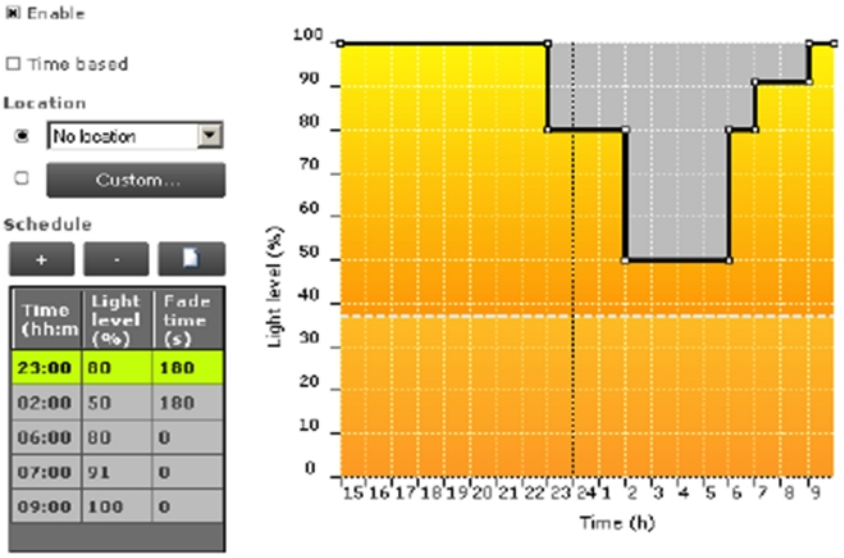
PPEC – Energy Efficiency Promotion Plan (NRA)

- Equipping existing 250 W (HP Sodium-vapor lamps) luminaires with electronic ballasts (light flux reduction and less energy consumption) and remote-management.

- Historical buildings efficient lighting

- Energy consumption reduction

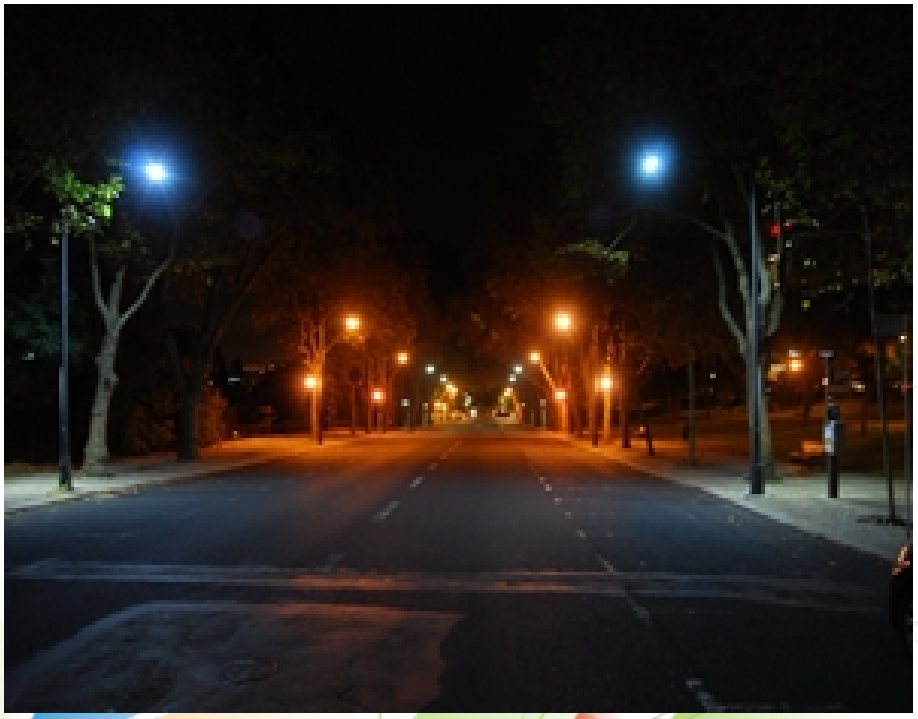
- 791 MWh.



PUBLIC LIGHTING

EPC in Public Lighting

Preparing an entire District for more efficient lighting under na EPC procedure



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HORIZON 2020 RELEVANT CALLS

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LISBON'S ENERGY AND ENVIRONMENT STRATEGY

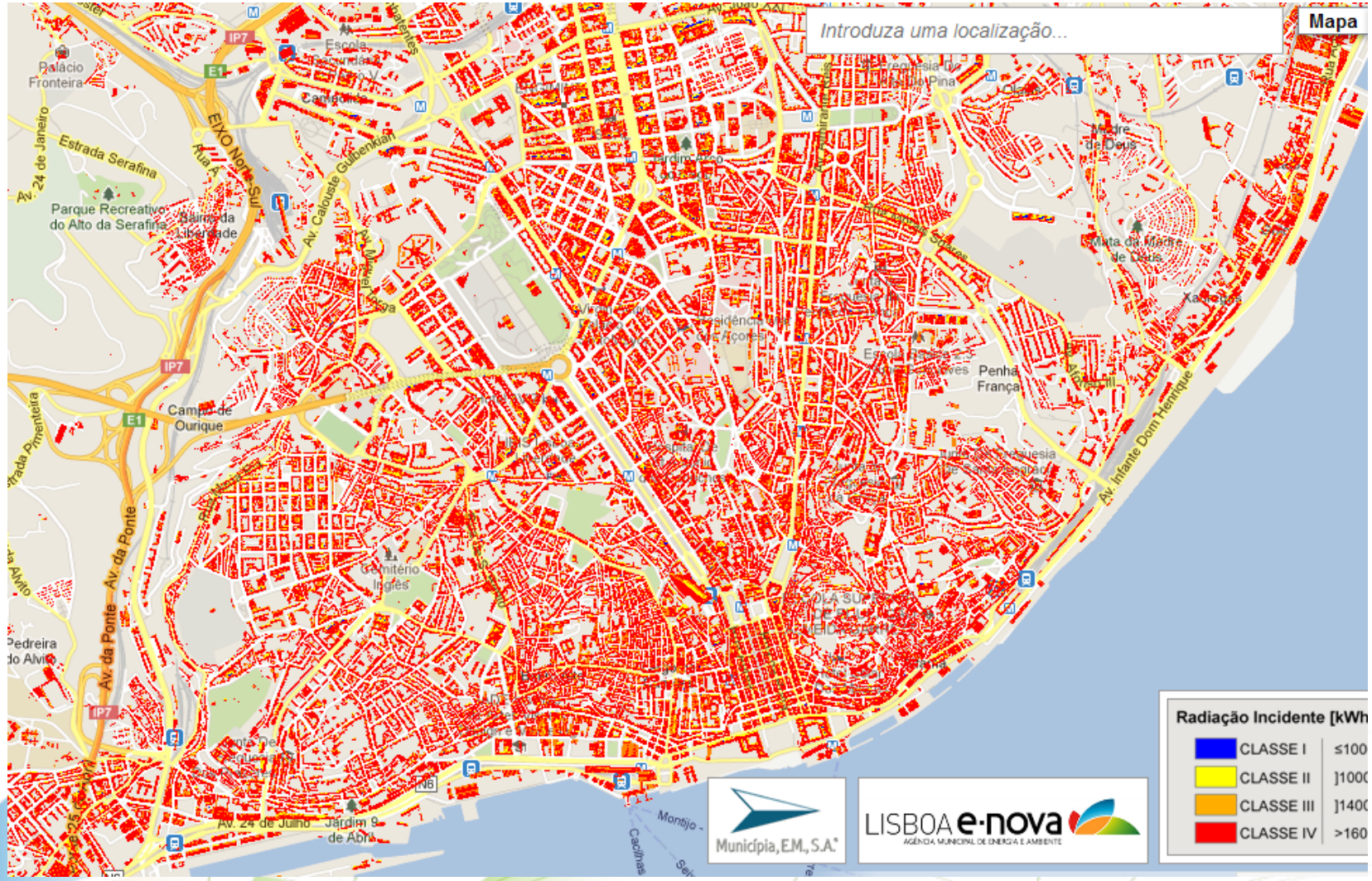
Defined goals to accomplish between 2009-2013 (political mandate) in the sectors: energy; water and materials

COVENANT OF MAYORS

Lisbon undersigned this Document in 2009 and Lisboa E-Nova was responsible for the definition of Lisbon's methodology for the Sustainable Energy Action Plan, and is currently monitoring it.

Covenant of Mayors
Committed to local sustainable energy

LISBON'S SOLAR POTENTIAL CHART



www.lisboaenova.org/cartasolarlisboa

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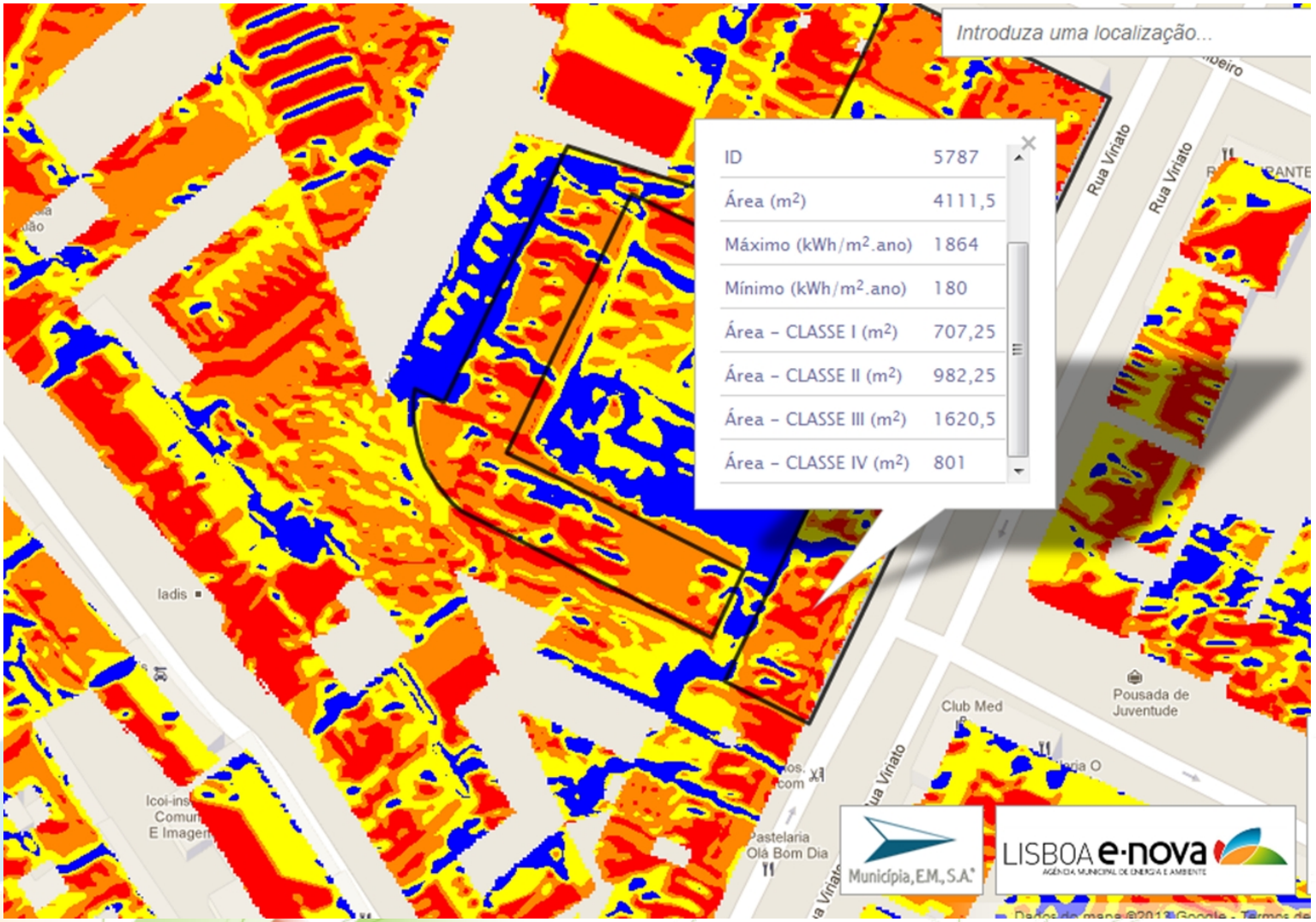
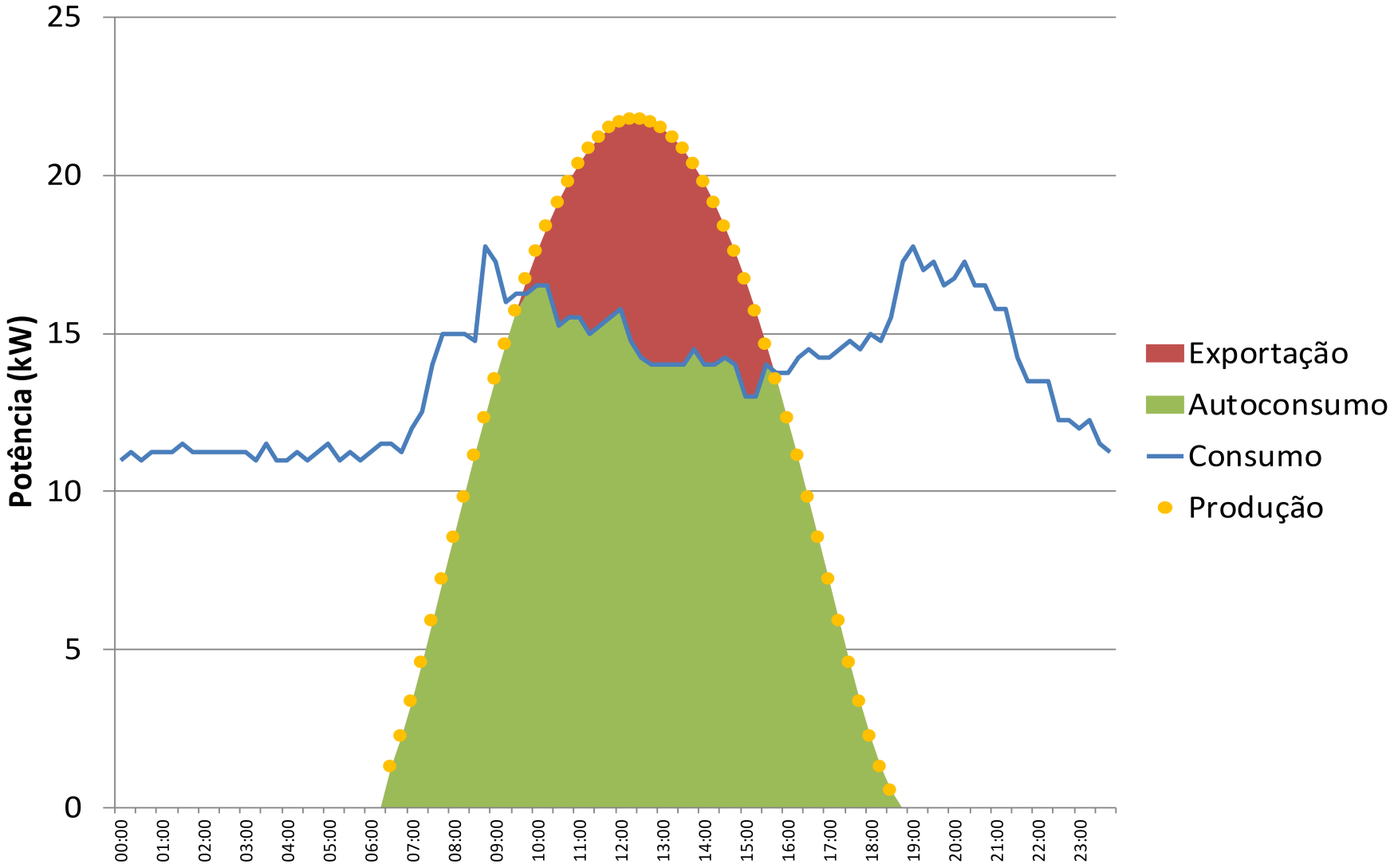
LISBON'S SOLAR POTENTIAL CHART



LISBON'S SOLAR STRATEGY

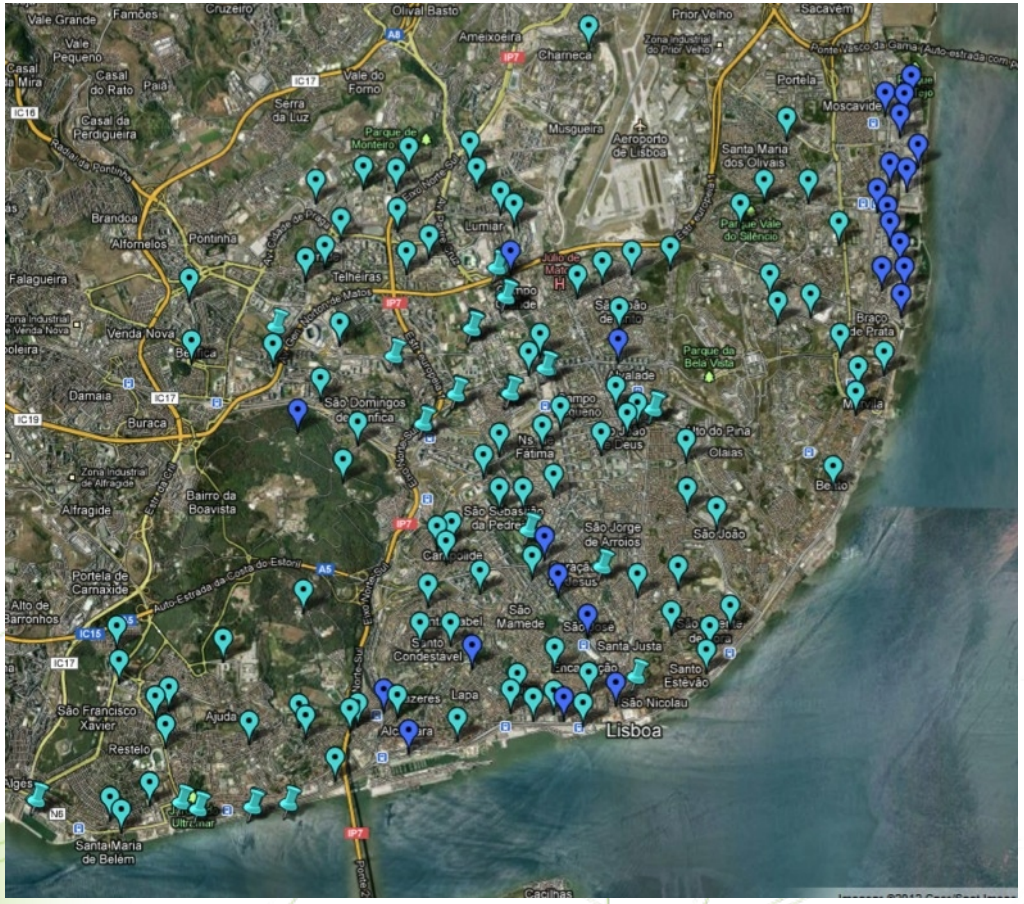


MOBI-E: ELECTRIC MOBILITY IN LISBON

Project coordination of the location of 514 slow charging points for electric cars in the city of Lisbon.

During 2012 will be installed:

- 30 slow charging points for electric motorcycles/ bicycles
- 9 fast charging points



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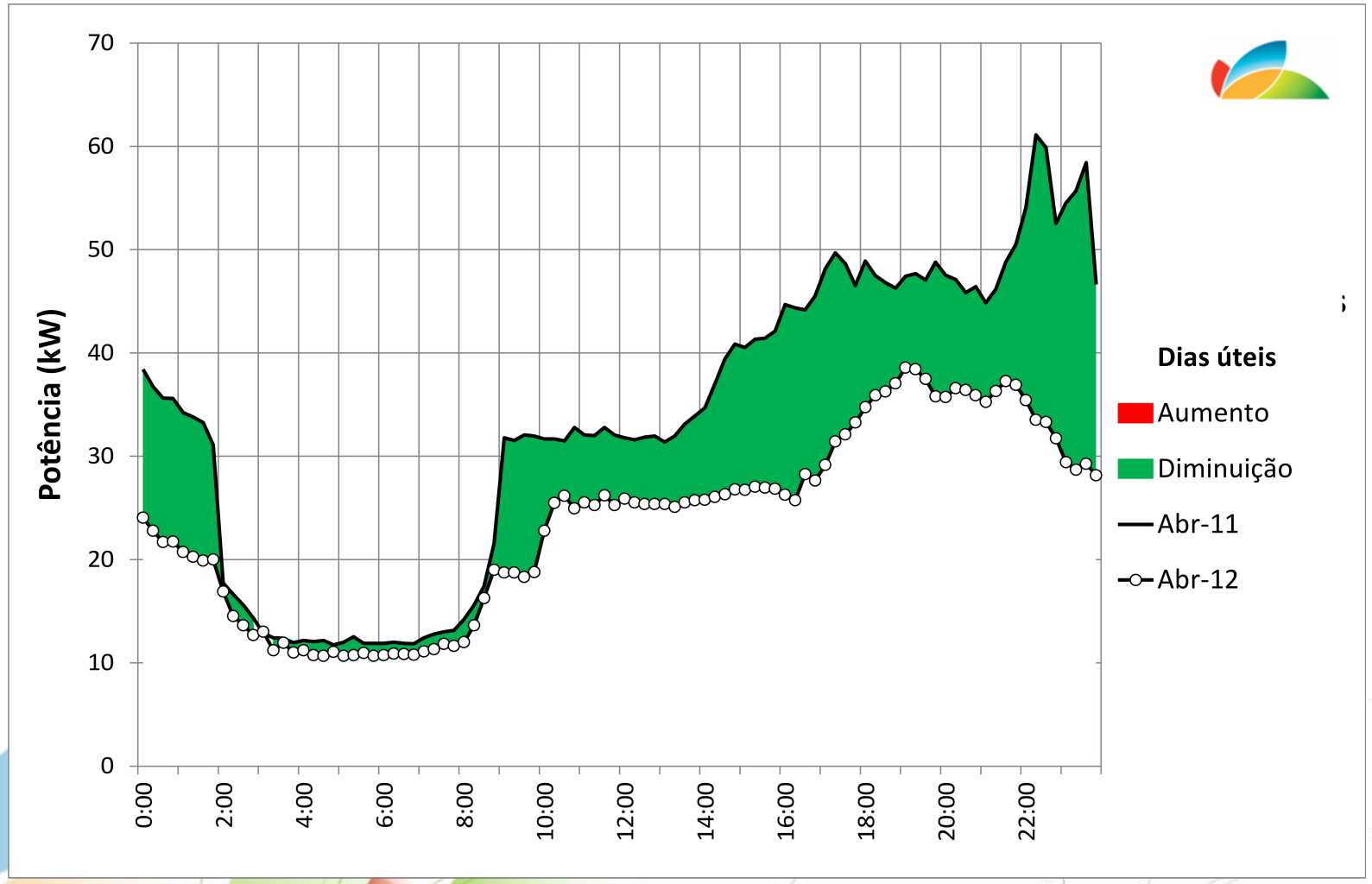
LISBOA E-NOVA DEVELOPPED DIFERENT ENERGY EFFICIENCY SOLUTIONS BASED IN ICT AND BEHAVIOURAL CHANGE

LISBOA E-NOVA DEVELOPPED DIFERENT ENERGY EFFICIENCY SOLUTIONS BASED IN ICT AND BEHAVIOURAL CHANGE

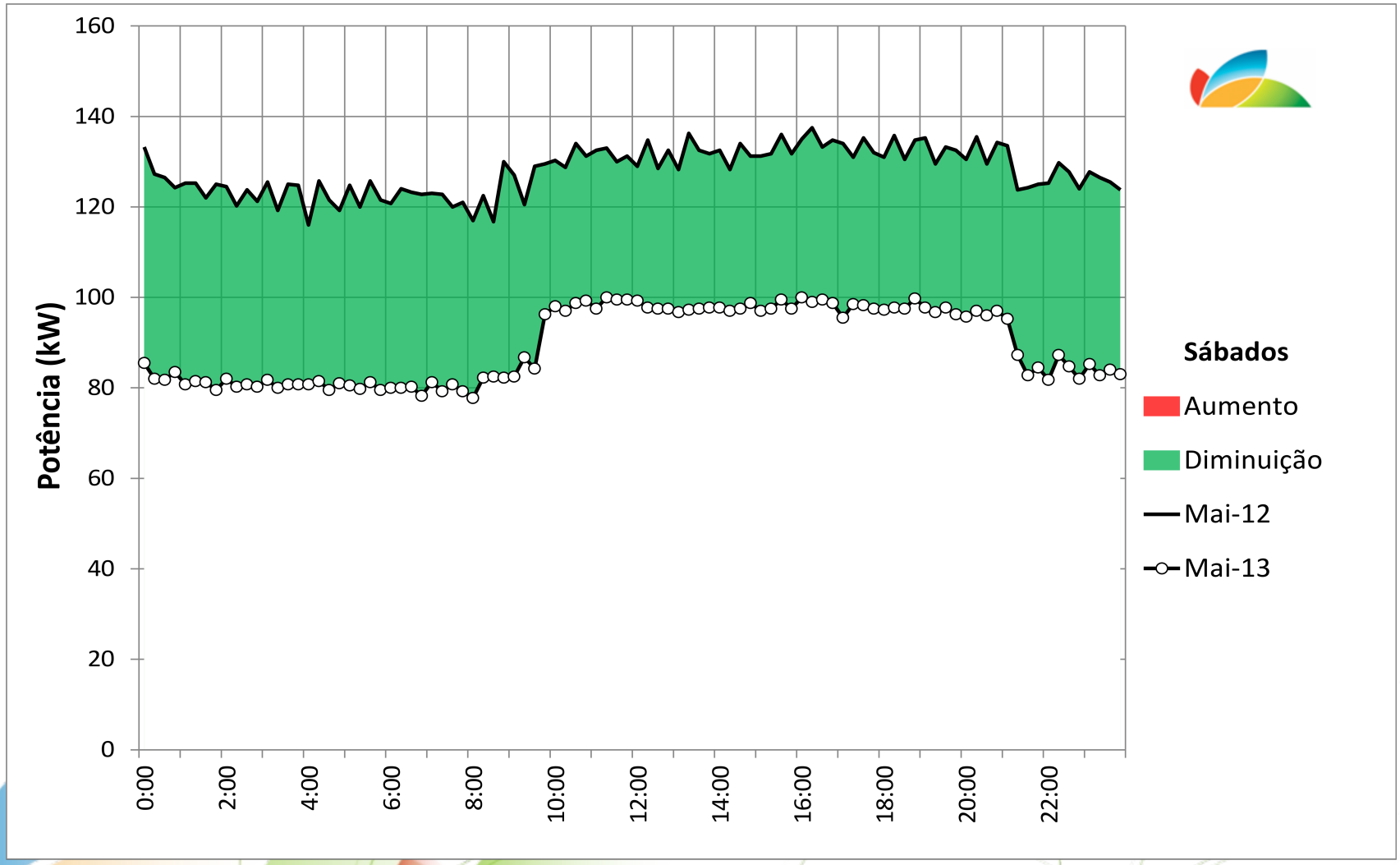
- For residential energy consumers and service buildings
- Diferent investment in metering equipment

	No investment	With investment
Dwellings	Competition	Smartmeter
Service buildings	Remote Manager Tool	Online electrical Disaggregation

CASE STUDY 1: - 300 000 kWh/year Savings: 28%



CASE STUDY 2: - 150 000 kWh/ano Savings: 12%



DWELLINGS – RESIDENTIAL BUILDINGS

Energy efficiency based in smart metering and feedback mechanisms (user empowerment through information and behaviour change)

Promote energy efficiency and behaviour change through the use of smart meters and practical accompaniment towards the adoption of more energy efficient actions and empowered and skilled households to manage and save energy

Annual savings: 0,4 – 0,8 GWh/y
Total investment: 250.000 €

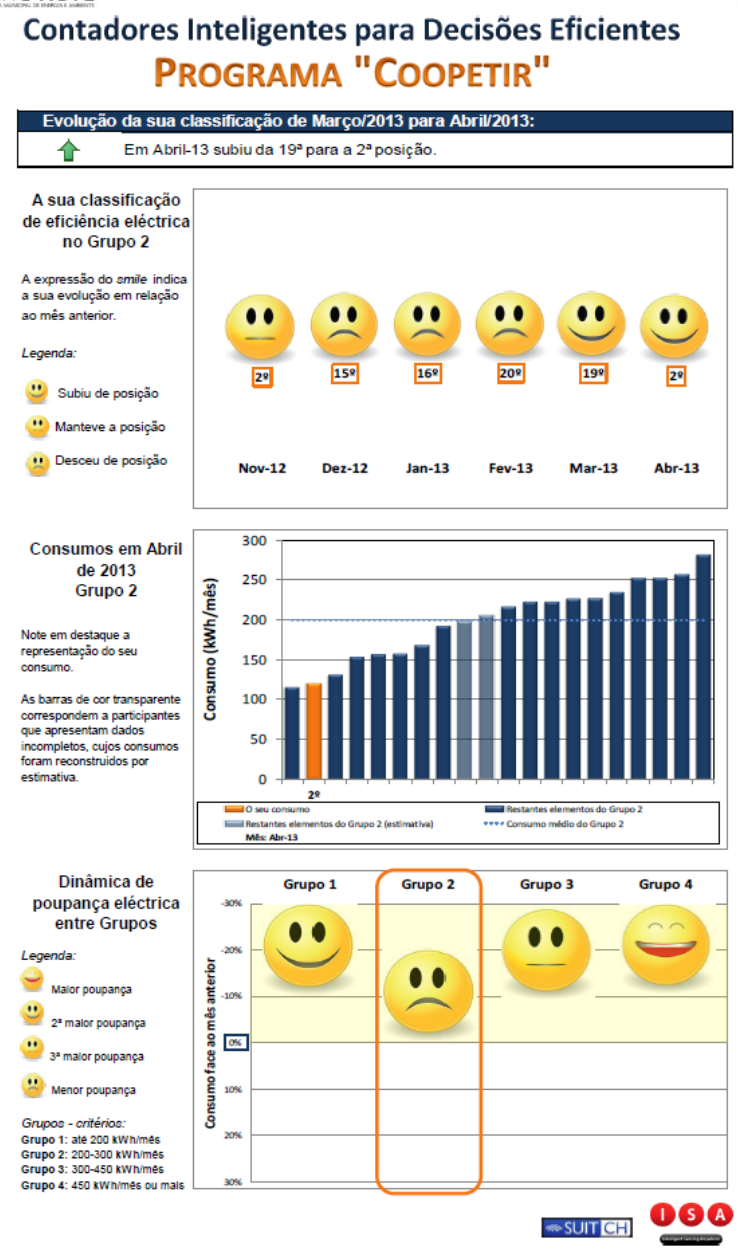
DWELLINGS – RESIDENTIAL BUILDINGS

Empowered consumer

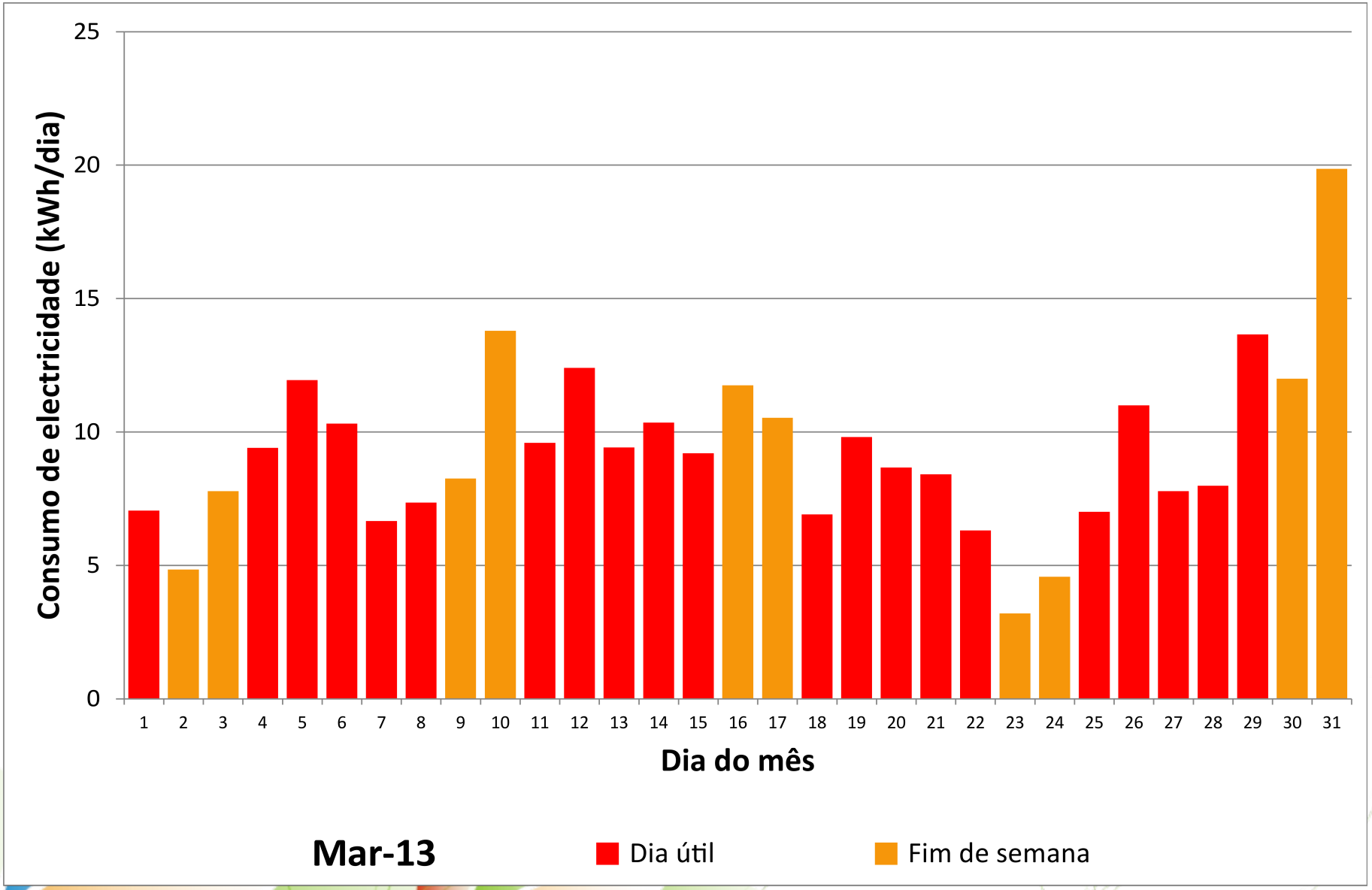
- **ICT**
- **Information** (Informative billing)
- **Continuous motivation**
- **Results** (Energy savings and decreasing energy costs)

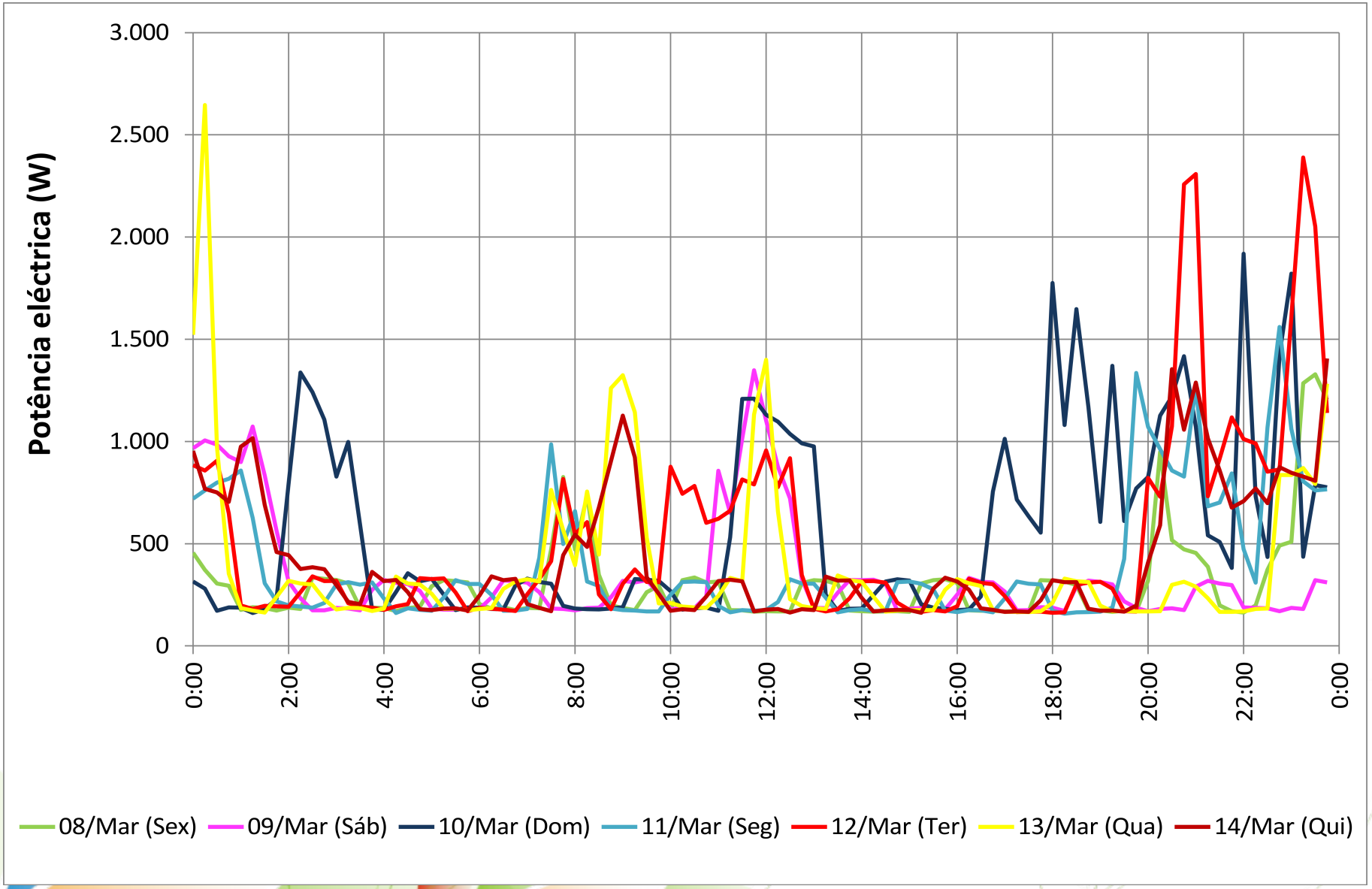
PERSONAL FEEDBACK GIVEN

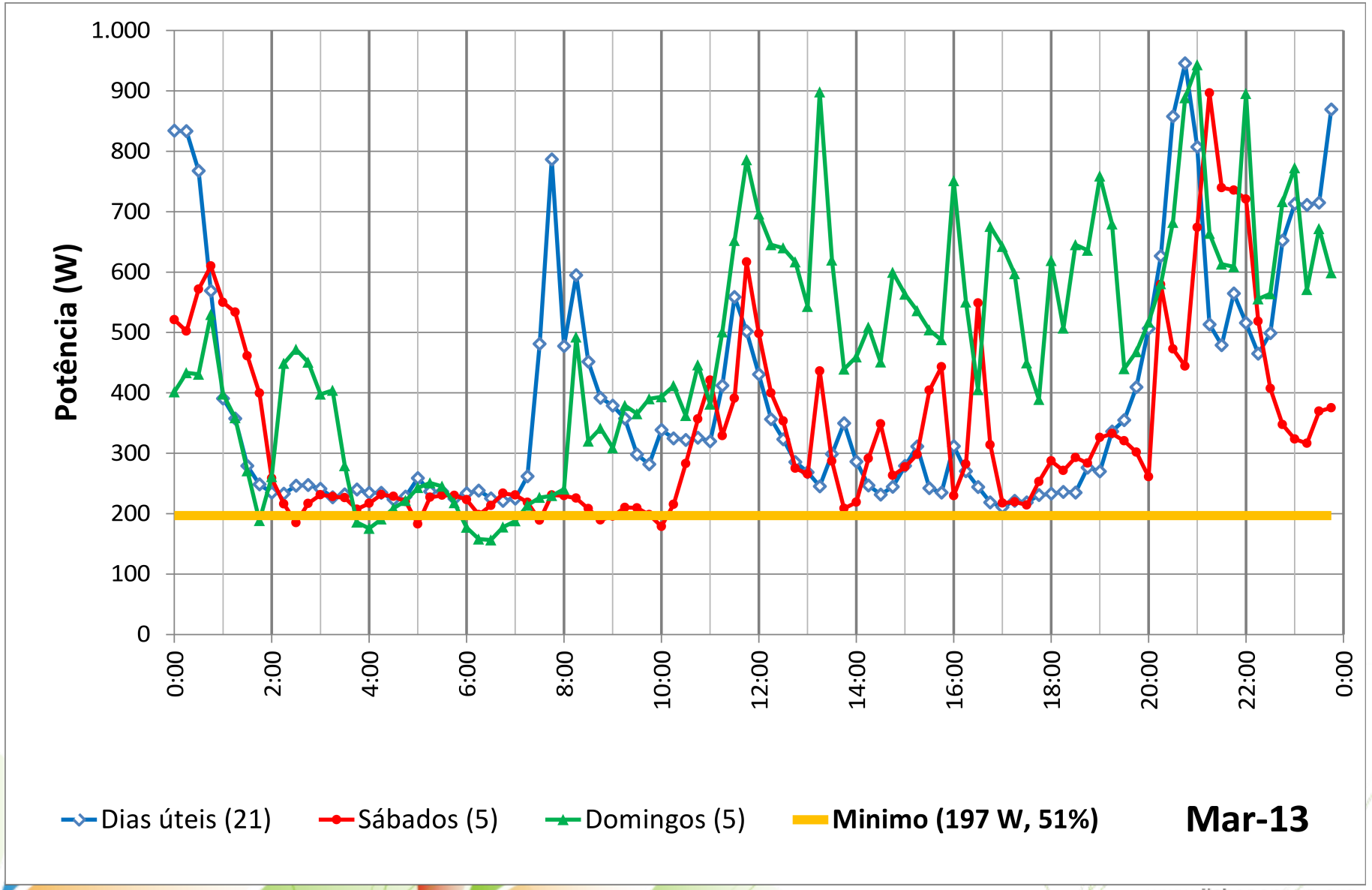
- Facebook group for knowledge and experience sharing;
- Monthly workshops with users;
- Permanent and individual technical support;
- COOPETITION;
- Monthly graphical reports.

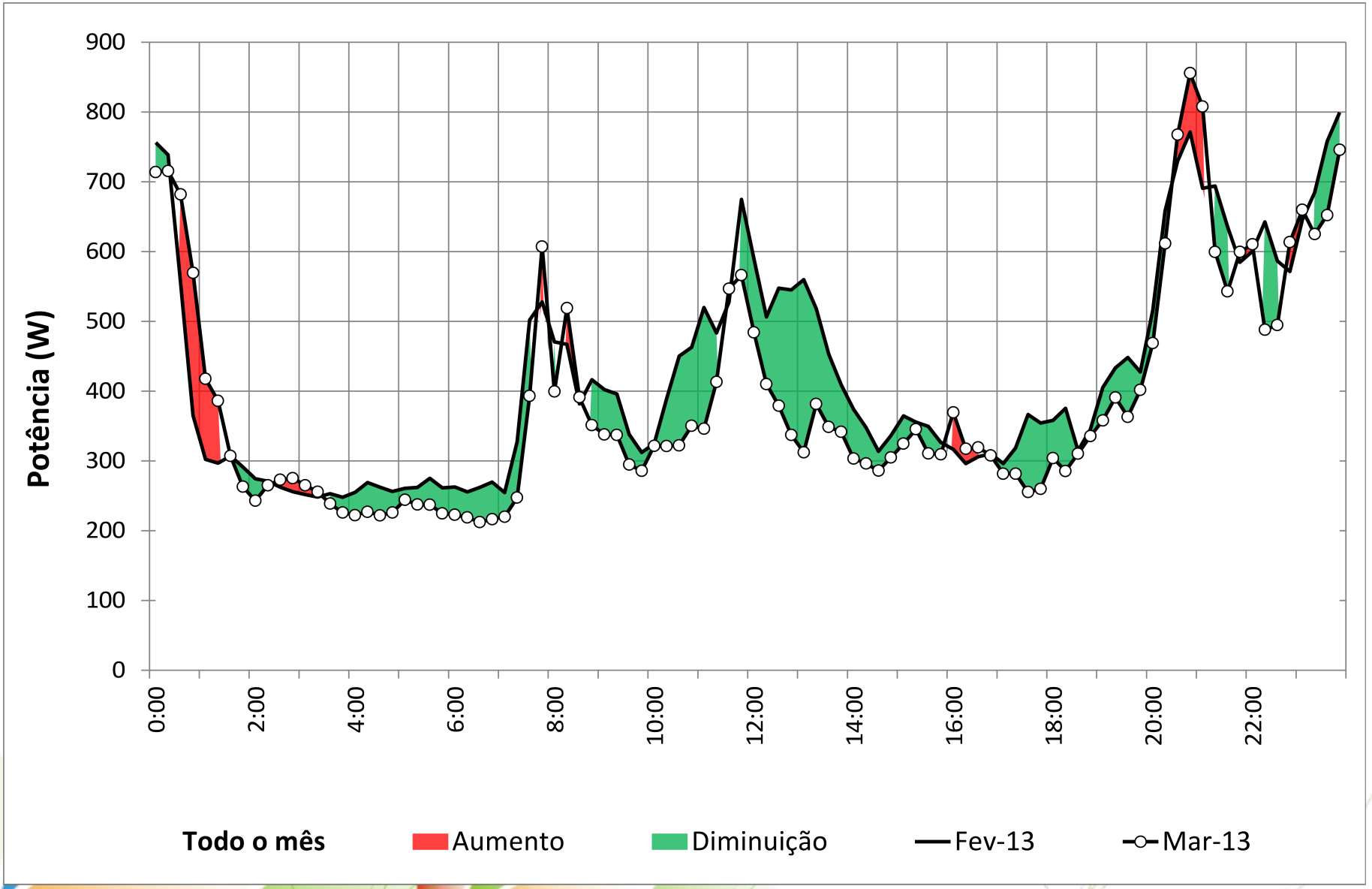


Behavioural sheet of the participant with best performance in Group 2


Consumo de electricidade (kWh/dia)
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Dia do mês
Mar-13
Dia útil
Fim de semana


Potência eléctrica (W)
3.000
2.500
2.000
1.500
1.000
500
0
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
08/Mar (Sex)
09/Mar (Sáb)
10/Mar (Dom)
11/Mar (Seg)
12/Mar (Ter)
13/Mar (Qua)
14/Mar (Qui)


Potência (W)
1.000
900
800
700
600
500
400
300
200
100
0
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Dias úteis (21)
Sábados (5)
Domingos (5)
Minimo (197 W, 51%)
Mar-13


Potência (W)
900
800
700
600
500
400
300
200
100
0
0:00
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
Todo o mês
Aumento
Diminuição
Fev-13
Mar-13

SOME RESULTS:

- Minimal power:
  - Individually, 41% of the total consumption;
  - Consumption groups, 66% of the total consumption;
- Average power between 0h-7h is 85% of the average power between 7h-24h
- Average consumption ~ 400 kWh or ~ 70 €

THANK YOU!

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