

ALP STORE



Pilot Region Mantua

 rete luce

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## Before AlpStore: Our Challenges

- Scattered generation by RES plants
- A VPS of pv and biogas plants realized with AlpEnergy
- No public EV charging station installed in the whole province
- Will to connect RES plants and sustainable mobility





## Mantua pilot case study: the partnership





The cooperation between public authority, public services company, local energy agency and technologies suppliers for the sustainable mobility has allowed the development and test of the first EV charging station in Mantua.

The charging station, for free for all the EV users till the end of the project, is running in the Mantua town center from August 2014. The initiative has created interest by many citizens and local bodies.



## è rete luce

### EV charging station features:

- 2 sockets and car places
- Free charging (by card supplied by TEA by registration)
- Free access to the station in the restricted traffic zone by registration.
- Sockets type 2 (Mennekes)
- Power supply: 22 + 22 kW
- Charging time: 1 ÷ 4 h
- Equipped with lead gel battery to simulate renewable energy supply



BMW i3 supplied for free loan by BMW till the end of december 2014.

Features:

- autonomy: till 160 km
- Lithium battery capacity: 19 kWh





## Mantua Virtual Power System (VPS)

It's a monitoring/communication system for managing and measuring:

- The energy production of 3 renewable energy plants in province of Mantua (2 photovoltaics, 1 small power biogas plant fed by zootechnical waste).
- Energy consumption of the EV charging station.
- Energy received, stored and delivered by the battery.

The VPS allows:

- Correct sizing of new EV charging stations.
- Efficiency and feasibility analysis of the installation of the battery.



BMW i.



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# Imantua Virtual Power System (VPS)



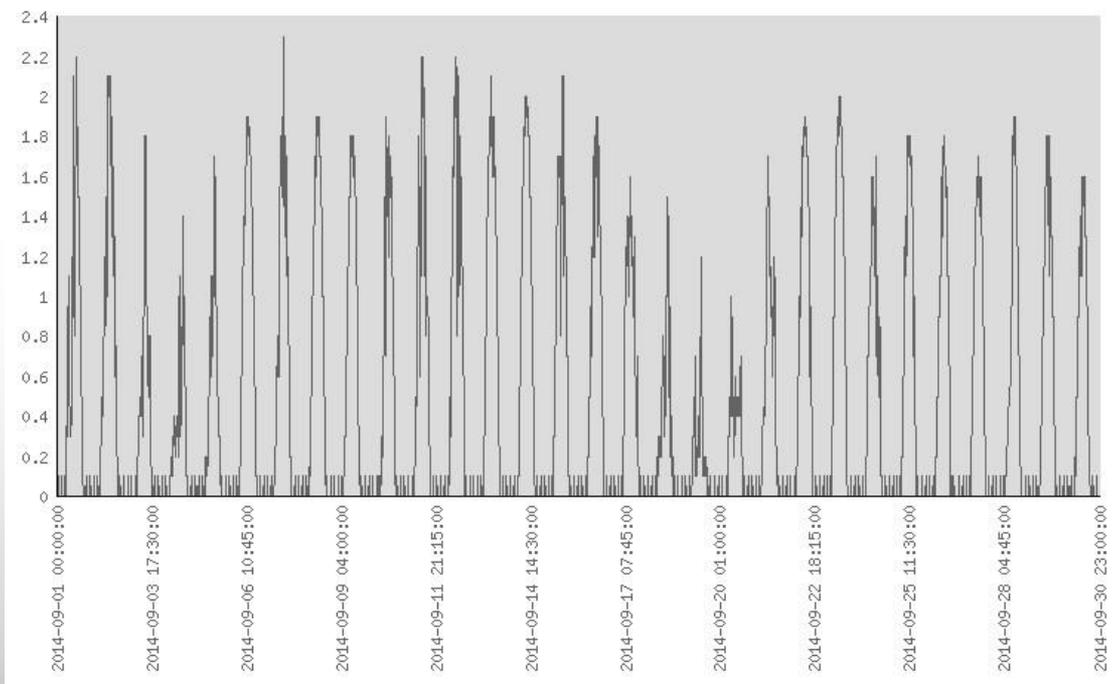
# Mantua Virtual Power System (VPS)

## ALPENERGY - ENERGY GRAPH

Select site and period

Mobili Ghidoni ▾ 01-Sep-2014 00 ▾ 00 ▾ 30-Sep-2014 23 ▾ 00 ▾

**Total Energy in selected time period = 1292.7 kWh**





# Mantua Virtual Power System (VPS)

www.teareteluce.it

Accedi Registrati

**Map**

Search...

**Stations list**

Name	Plug 1 energy supplied [kWh]	Plug 2 energy supplied [kWh]	Station state	Plug state
Mantova Corso della libertà	281.77	312.37		1  2

**Station summary**

Numero totale di veicoli abilitati	2
Overall energy supplied	594.14 kWh
Overall charges count	97
Average energy supplied	6.13 kWh
Average charge time	61 min

**UPS**

Stato della carica	90%
Energia totale erogata	0 kWh
Energia media giornaliera erogata	0 kWh
Energia totale assorbita	8.28 kWh
Energia media giornaliera assorbita	0.22 kWh
Autonomia della batteria	44 ore 33 min

**Energy from accumulation system**

Station: Mantova Quantity: Absorbed energy

Interval: Daily Period: 21 November 2014

8.30

**Directions**

By car: 22 m, 1 min

1. Head northwest on Corso della Libertà toward Galleria Enrico Ferri

**Webcam**

Mantova

21/11/2014 10:42:42





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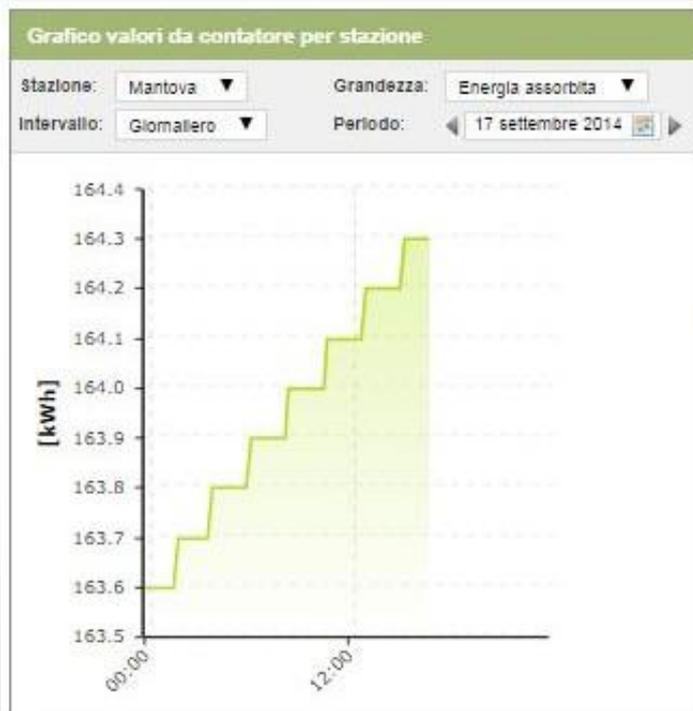


GAMMA ENERGIA



# Mantua Virtual Power System (VPS)

Stazioni								
ID	Nome	Numero ricariche	Energia complessiva erogata [kWh]	Energia media erogata per ricarica [kWh]	Tempo medio di ricarica [min]	Utilizzo medio [%]	Stato stazione	Stato prese
19	Mantova Corso della Libertà	34	57.2	1.66	4	0.00021		1  2



**Riepilogo stazioni**

Numero complessivo di ricariche	34
Numero medio di ricariche per stazione	34
Energia complessiva erogata	126.06 kWh
Energia media erogata per ricarica	3.71 kWh
Tempo medio di ricarica	4 min

**Eventi stazione**

Stazione: Mantova | Tipo evento: Tutti  
Inizio: 17 settembre 2014 | Fine: 17 settembre 2014

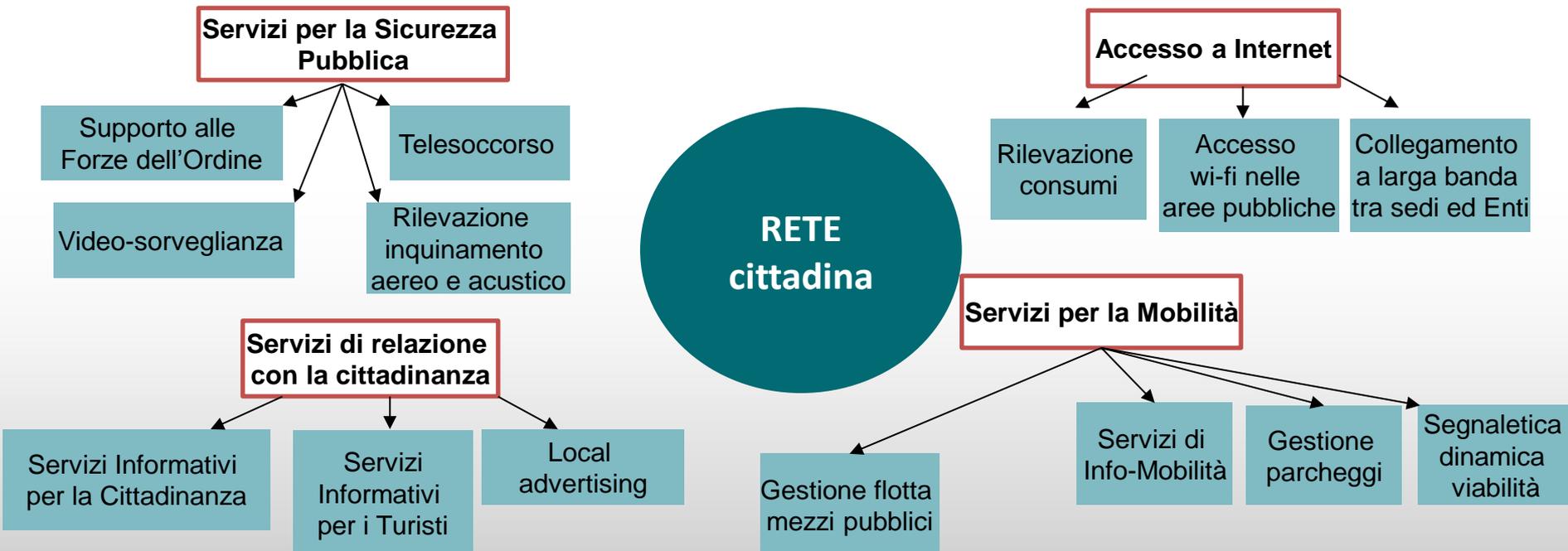
Nessun evento presente

# New public lighting network management: smart services

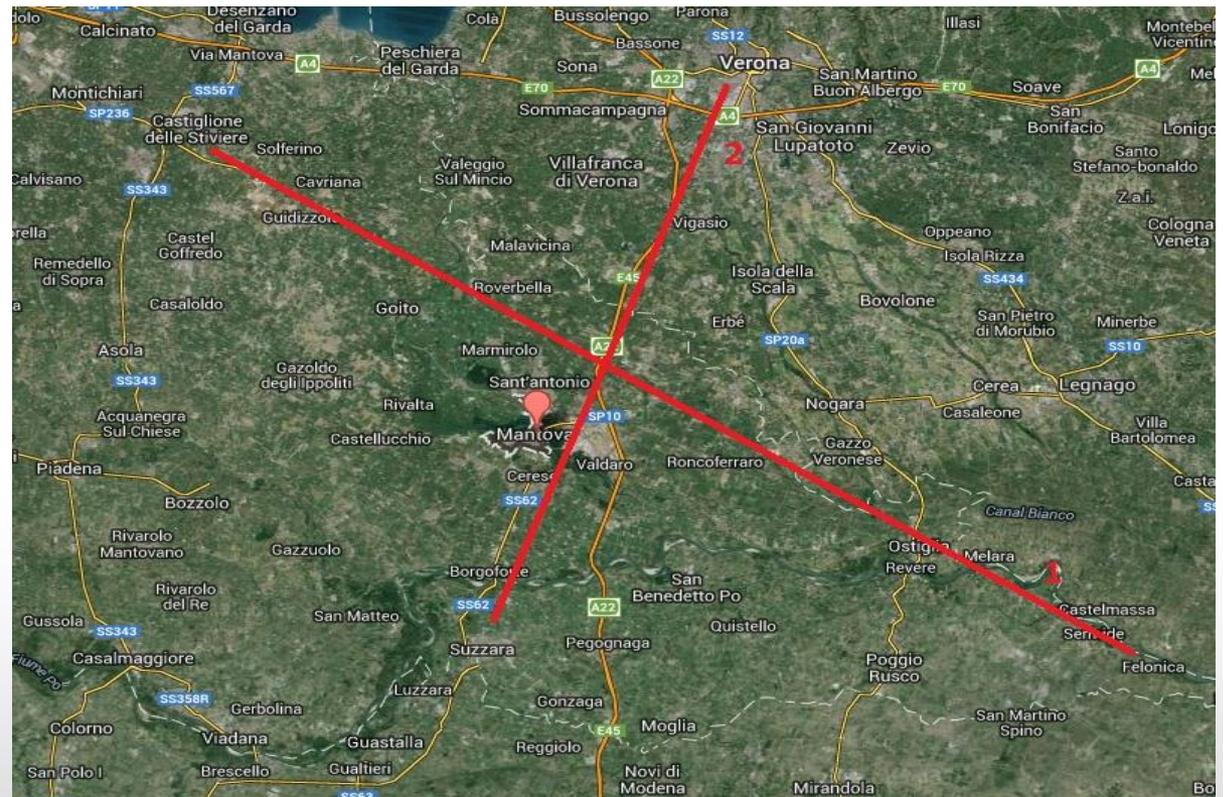
Gruppo Tea



## Smart City



The farthest distances between the municipalities of the province of Mantua (circa 100 km) can be crossed by the current EV with usual autonomy. These municipalities will be served by new charging stations installed by the Rete Luce project (masterplan).



**Distances:**

**1: 100 km**

**2: 60 km.**



**Thank you for the attention!**