

Värmepumpar på NordPoolen?

Heat pump for the NorthPoole?



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Nord Pool Spot runs the leading power market in Europe, offering both day-ahead and intraday markets to its customers.

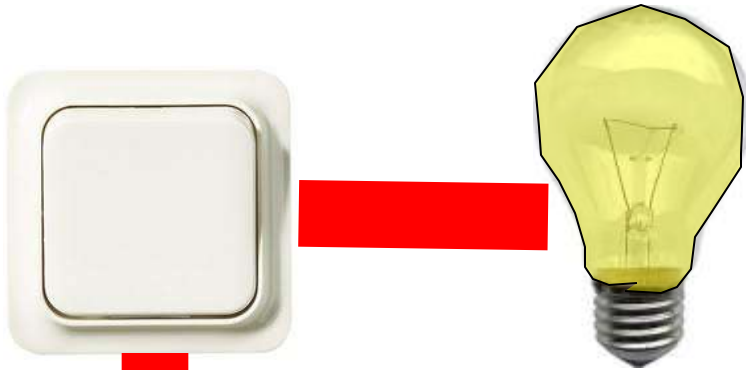
The internet of things, IoT

- What would it mean if all things could talk to one another?
- IPv4 today 32-bits addresses => roughly 4 billion addr.
- IPv6 128-bits addresses => $3,4 \cdot 10^{38}$ addr.
- Corresponds to 0,67 billion billion addr./mm² earth surface
- With IPv6 every thing can have it's own IP address
- 6LoWPAN = IPv6 over radio network
- IPSO **I**nternet **P**rotocol for **S**mart **O**bjects
- 50 billions connected units by 2020?



To light a light bulb

Yesterday



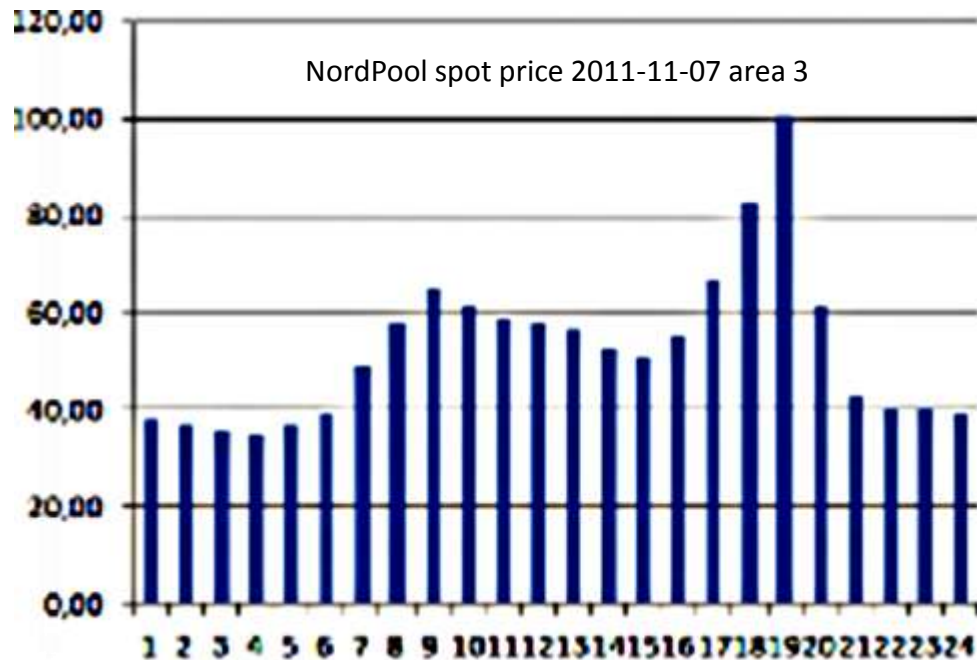
230 V
25 W

Tomorrow



12 V
5 W

Price of electricity



- Germany will abandon nuclear power
- Sweden will expand wind power
- The Danes have surplus wind-power
- The transmission lines are built out
- Electric cars might be introduced

Four price zones

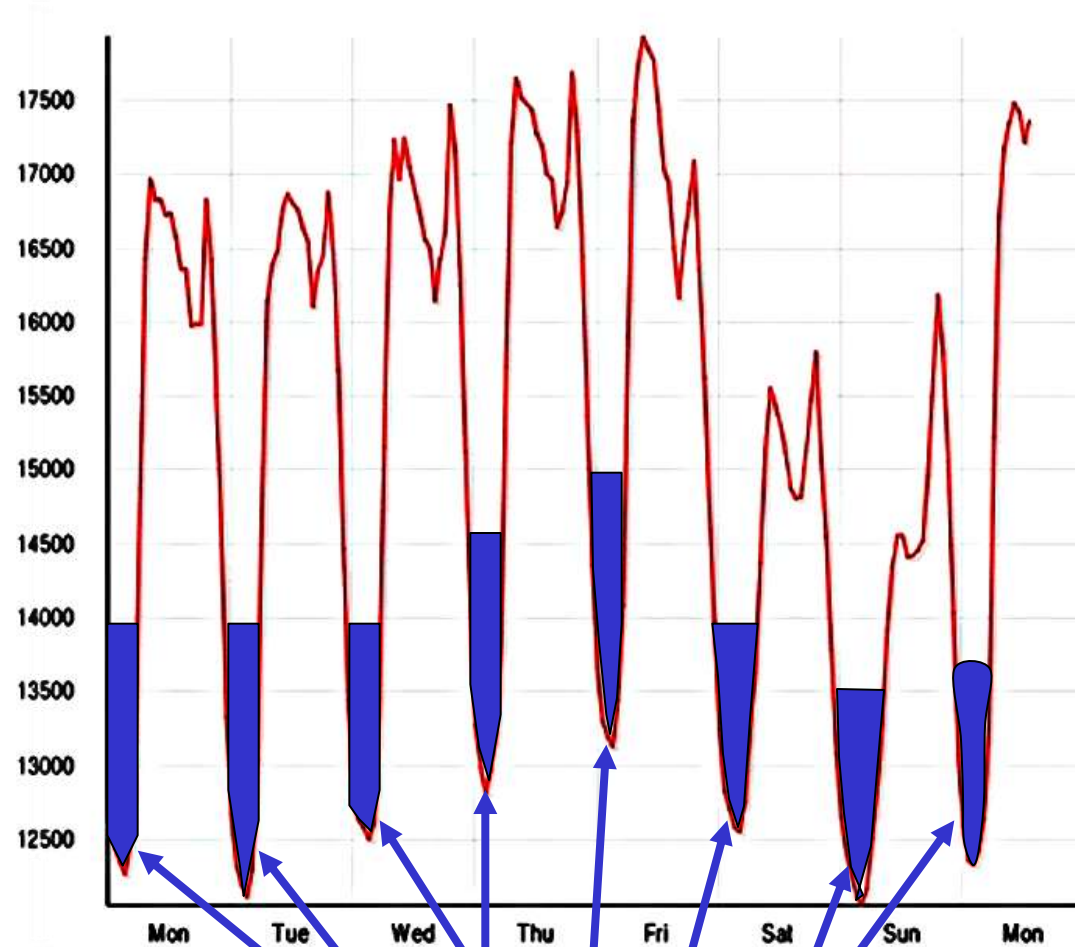


Swedens power demand today

Expensive el.



Cheap el.



Energy bargain?

Agenda?

- Forget (very) smart electric meters
- Aim for stupid meters in smart networks
- Use hourly electric meters
- Develop new tariffs (The customer must gain!!)
- Connect to NordPool spot

Use thermal inertia of buildings and storages

- A normal Swedish villa contains 25 kWh / K
- A water tank of 1 m³ contains 12 kWh at 10 K Δt
- The HP-power-coverage might rise over 100%
- That is dimensioned for now in many places in Germany

NordPools spotprice on an ftp server

- Heat pumps and heating systems can collect the spot price automatically 24 h in advance.
- Password: spo1245t
- Userid: spot
- Move your demand to a low price period!
- Link:

<ftp://spot:spo1245t@ftp.nordpoolspot.com>

Companies on red alert - Members of IPSO_Alliance



Thanks Anders Kjellström

who gave me a lot of help

Svenska Smart Grid föreningen

www.ipsousersweden.se

www.ipso-alliance.org

www.behovsbo.se

(newsletter there too)

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