Energy and ICT Infrastructure
- an end user perspective

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Aarhus Vand – a few facts...

Aarhus Vand is a water utility, owned by the Municipality of Aarhus.
Total budget of € 90 mil.
250 employees
We produce 15 million m$^3$ good, clean drinking water.
We rinse and dispose 30 million m$^3$ wastewater
- and we know how to keep our products to apart!

100+ IT Systems
300+ locations
100.000 I/O points

We collect data from 20 years old PLC systems, and deliver to latest version of smartphone-whatever
And we use a bit of electricity...

26 GWh
Utility ICT and energy

Over 10 years, annually power consumption has been reduced from 30 to 26 GWH.

Virtualization reduced server farm from 70 to 15, saved 150 MWH equal of 3,8% of total saving.

... could be reduced to 3 servers, saving additional 60 MWH, but high availability standards require decentralized IT infrastructure.

When installing new process equipment, the power consumption from required ICT is seldom taken into account.
Challenges

Public mobility infrastructure are focused on urban areas, where you find 4G/LTE, public WiFi’s etc. 10 km from center of Aarhus, there are still GSM Black-holes.

Many brilliant solutions are made as barbwire protected out-of-the-box solutions, I can’t fit into an existing architecture (OPC is the single greatest achievement here).

Technology is outdated before we can finish the implementation process.
My prayer to the ICT vendor..

Don't be ashamed to look over your competitors shoulder and get inspired. Agree on de facto standards for how design equipment and applications. Open up your protocols, and let the company next to you make some killer software for your brilliant hardware. Make it easy to share data. And please someone… make an augmented SCADA client - so I can get me a pair of Google Glasses.