Paris meeting 4th – 5th May 2017
Work Package 4 presentation

Erik Ladefoged, COWI

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Demonstration project Ringgaarden

The design fase and status until now

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Next >

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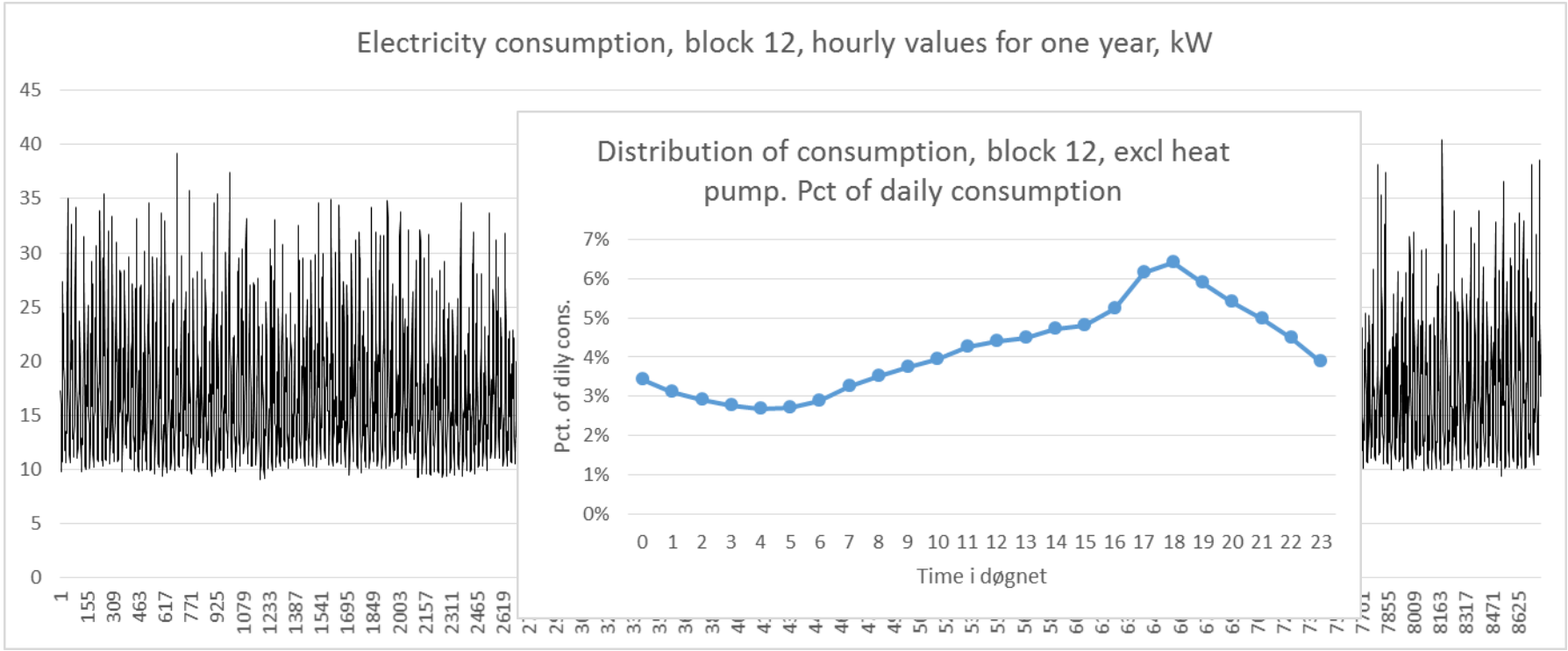
Design of PVT and Battery installation



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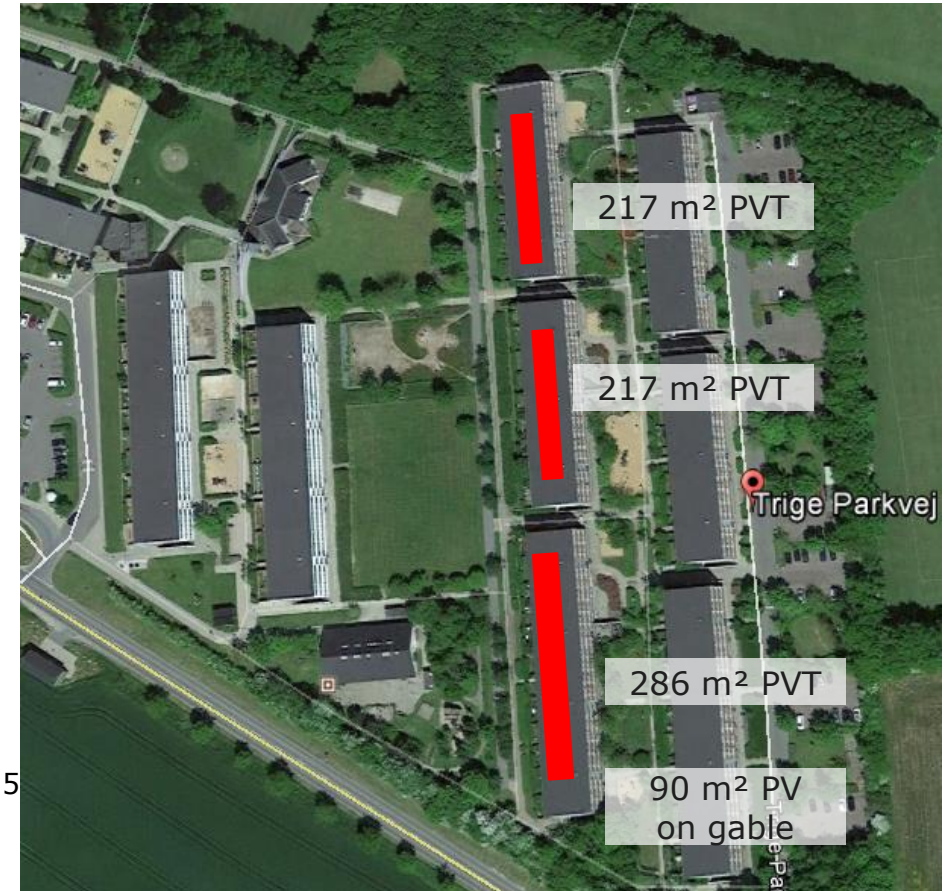
Design of PVT and Battery installation



Area for PVT on roof and for PV on gable

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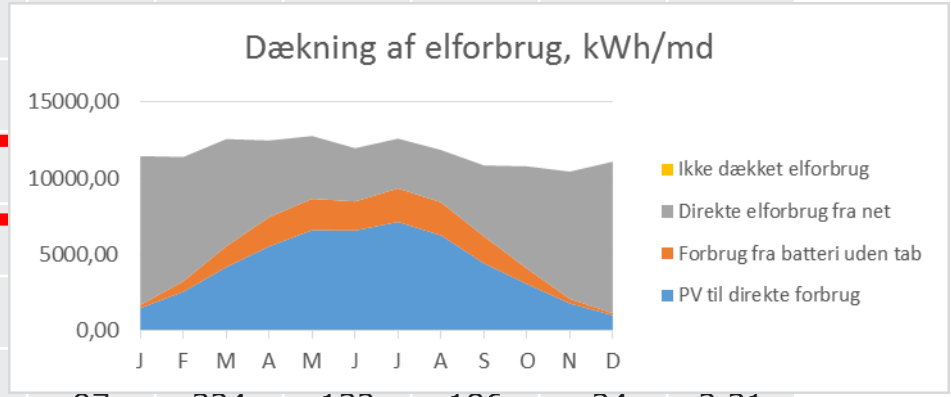
Design of PVT and Battery installation

Size of battery	Total investment	Solar	Battery	Battery reinvestment	Yearly running expenses	Of this financing	Buying electricity	Sale of elecricity	Final cost per kWh
kWh	tkr.	tkr.	tkr.	tkr.	tkr./år	tkr./år	tkr./år	tkr./år	kr/kWh
300	2.366	1.451	938						
200	1.978	1.451	625						
100	1.790	1.451	313						
75	1.750	1.451	250						
50	1.685	1.451	156						
26	1.642	1.451	94	97	324	132	186	-24	2,31
10	1.594	1.451	31	112	325	128	194	-26	2,31
-	1.451	1.451	-	-	314	116	198	-27	2,24



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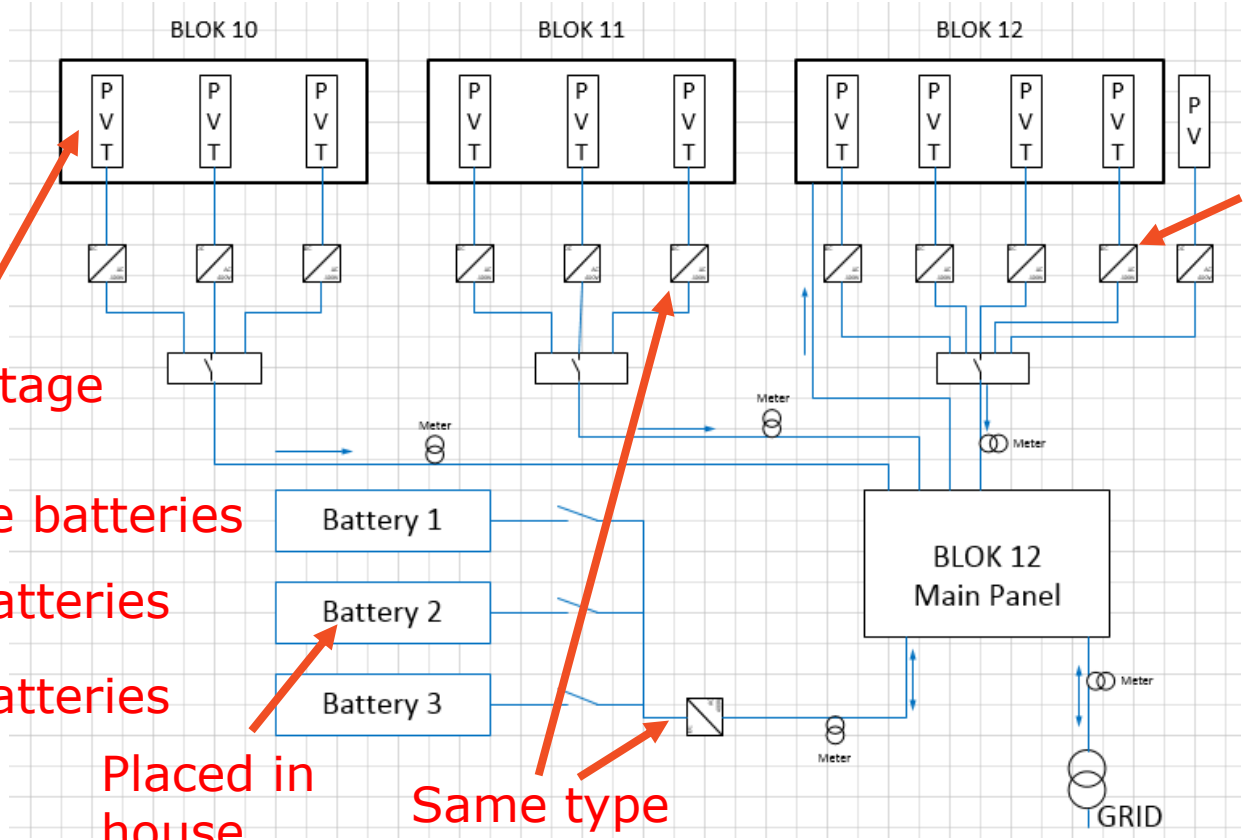
Electrical design



Equal voltage

Placed on roof

2nd. life batteries

New batteries

New batteries

Placed in house

Same type

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Battery house

Technical house

Technical house

LiTHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS

10.1.2017 – Confidential - Rasmus Rode Mosbæk - Slide 10

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Power Hub

WP4

”Virtual power plant” visions

Communication

Communication

Forecasts

- Price
- Solar irradiance?
- Temperature?

Grid side ESS control

- ESS monitoring
- Decisions based on forecasts

Local ESS control

- Local charge/discharge decisions
- Local inverter control
- Transmit to Grid-Side ESS Ctrl
  - Heartbeat
  - Inverter status
  - Battery Status
  - SoC
  - Error flags

LiTHIUM BALANCE
BATTERY MANAGEMENT SYSTEMS

READY

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Building control system

Danfoss ECL310 units

Control on internet

Control:
Start wh
larger th
the heat
Shift fro
solar tan
of PVT is
temperat
tank.

Electricity

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The next steps

Getting offers for building renovation and choosing constructor

Erection and commissioning

Monitoring

Evaluation

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Questions ?