Perspectives toward a smart DH-system

Christian Byrjalsen

Aalborg Forsyning

Shortly about Aalborg Forsyning, Energi

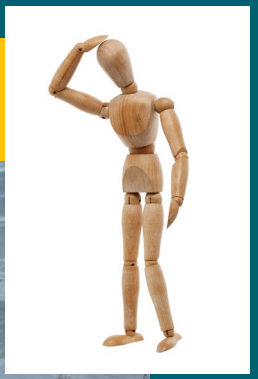
- Aalborg Varme A/S – with around 45.000 district heat costumors/meters – covers 98,8% of all potential buildings and surplies 6.683 TJ heat
- Aalborg Bygas A/S – town-gas utility company
- Aalborg Fjernkøl A/S – district cooling company, - starts 2020
- Aalborg Vand A/S – town water utility
- Nordjyllandsværket A/S – powerplant, that produces electricity and heat fueled by coal. The plant has a maximum output of 383 MW electricity and a maximum heatoutput of 420 MJ/s
- Green Hub Denmark A/S – a public/private partnership that works with green innovation, sustainable businessmodels, big scale tests and demonstration to handle climatechanges and –challenges.

Visions and goals

- Aalborg as a national **Green Testcentre and business development**
- **Developing Nefovej** for a united utility site for Aalborg
- Partnerships for **demonstration sites and startups** on Nefovej
- **New business opertunities**, e.g. sun and wind
- **Green transition and new heat production** before 2029
- Complete **strategical projects** in the energydivision

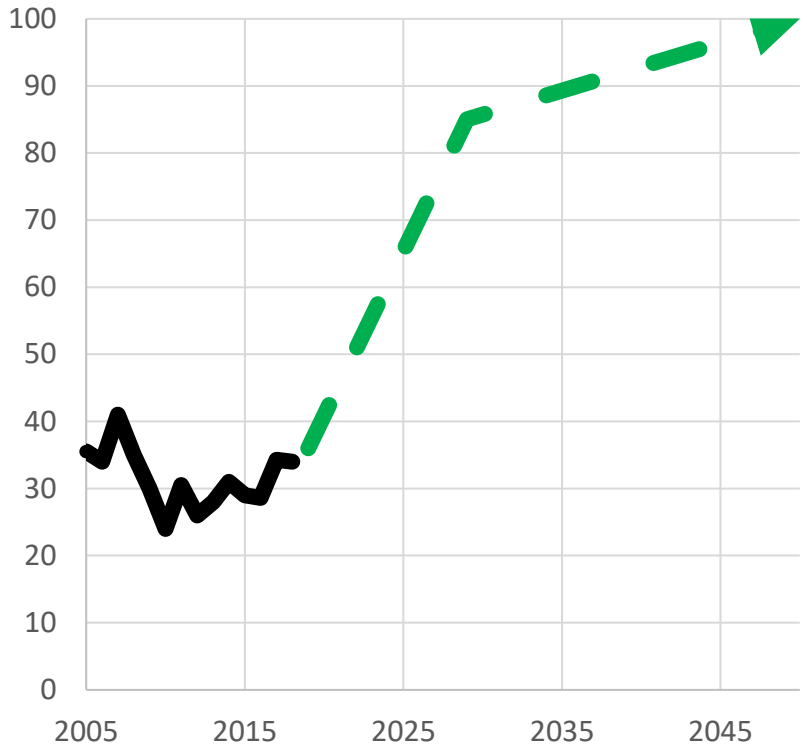
Aalborg Forsyning

Green energy – *or what?*



Aalborg Forsyning

Green energy – renewable energy



Aalborg Forsyning

2020

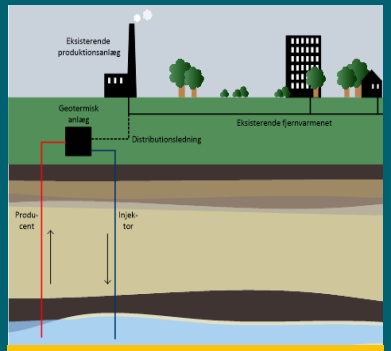
Coal

Surplus heat

Waste

2028

Heat pumps



Geothermal energy

Surplus heat

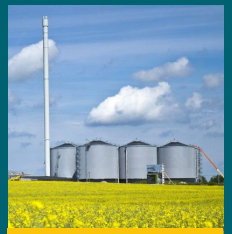
Boiler

Wind

Sun

Waste

Biomass



Biogas

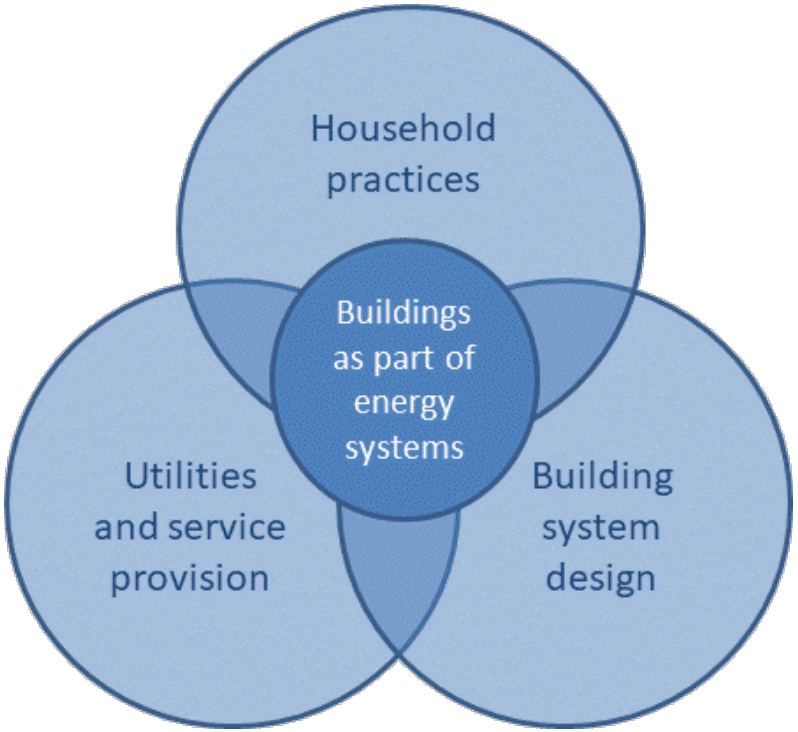
Seasonal heat storrage

Aalborg Forsyning

Aims and goals

- Green transition – decentralized production, prosumers etc.
- Reducing grid temperature
- Reducing netloss
- Reducing heat consumption at our consumers by 30%

Perspective in a short summary



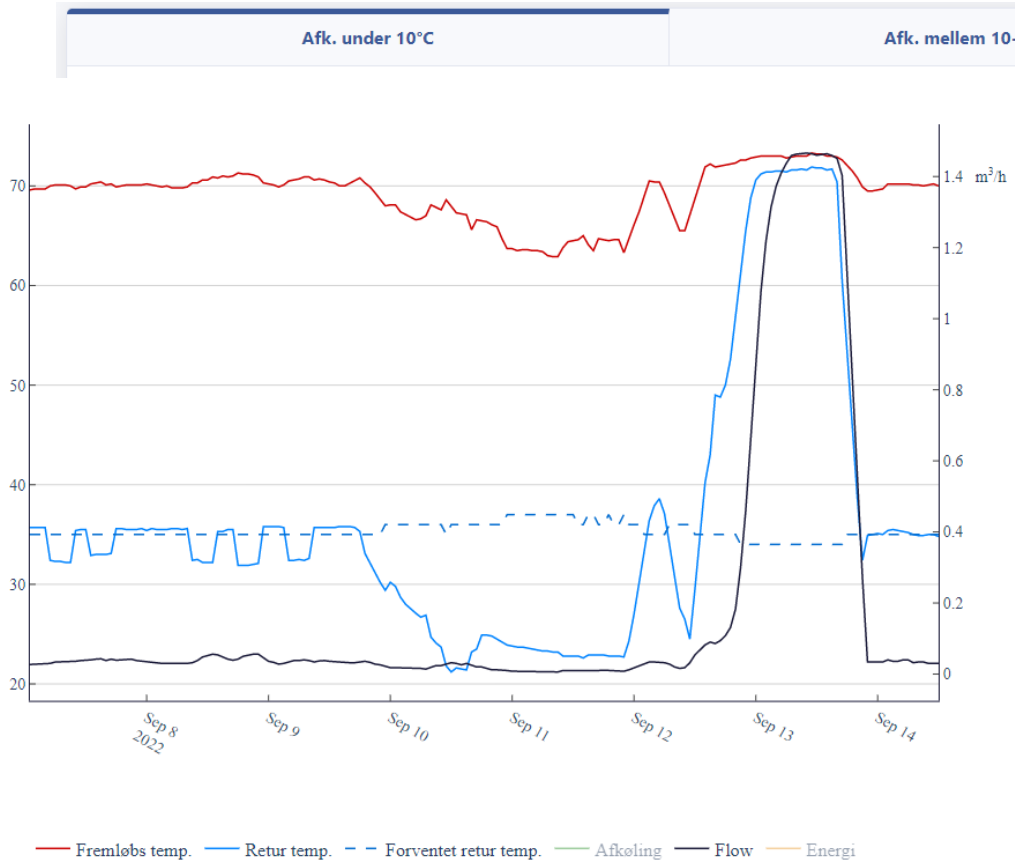
- Use the district heating system as a ‘battery’
  - In popular - produce heat when the wind blows
- Making consumers VIP consumers
  - Integrating consumers, distribution, transmission and production
- Make it possible to displace the energy consumption
  - Use energy when prices are low – and save when prices are high
- Differentiated prices

Aalborg Forsyning

Analysing meter data project

- Using data from remote read meters, building information, energy labels, weather data, consumer information

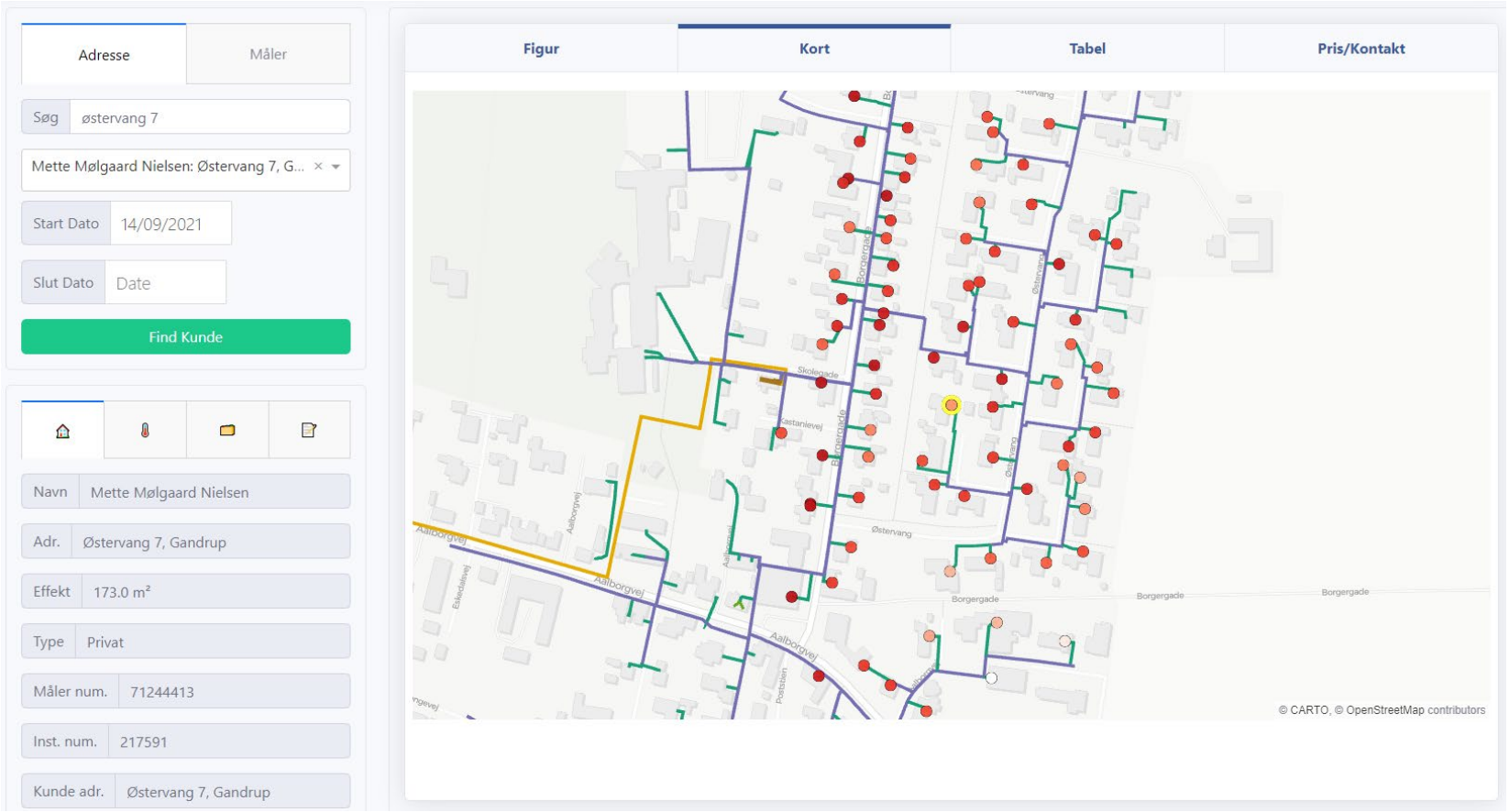
Adressing consumers with deviant consumption



°C	retur °C	Afk. °C	m³
	71.56	1.02	38.02
	72.37	7.63	28.91
	70.3	1.49	24.16
	70.42	2.57	22.63
	61.35	7.05	19.65
	58.69	9.25	19.59
	65.23	6	17.33
	62.79	9.93	13.94
	57.95	8.64	13.44
	66.52	5.48	12.59
	61.04	6.83	12.43
	62.63	5.16	11.49
	63.69	7.18	9.26
	65.08	6.29	8.9
	69.11	0.87	8.34
	64.63	6.46	8.11
	56.51	5.8	6.9
	62.32	3.81	6.83
	61.55	7.56	6.55
	62.07	7.34	5.58
	62.22	7.21	5.37

Aalborg Forsyning

Customer lookup dashboards screenshots



Aalborg Forsyning

Adresse | Måler

Søg: østervang 7

Mette Mølgaard Nielsen: Østervang 7, Ga... ×

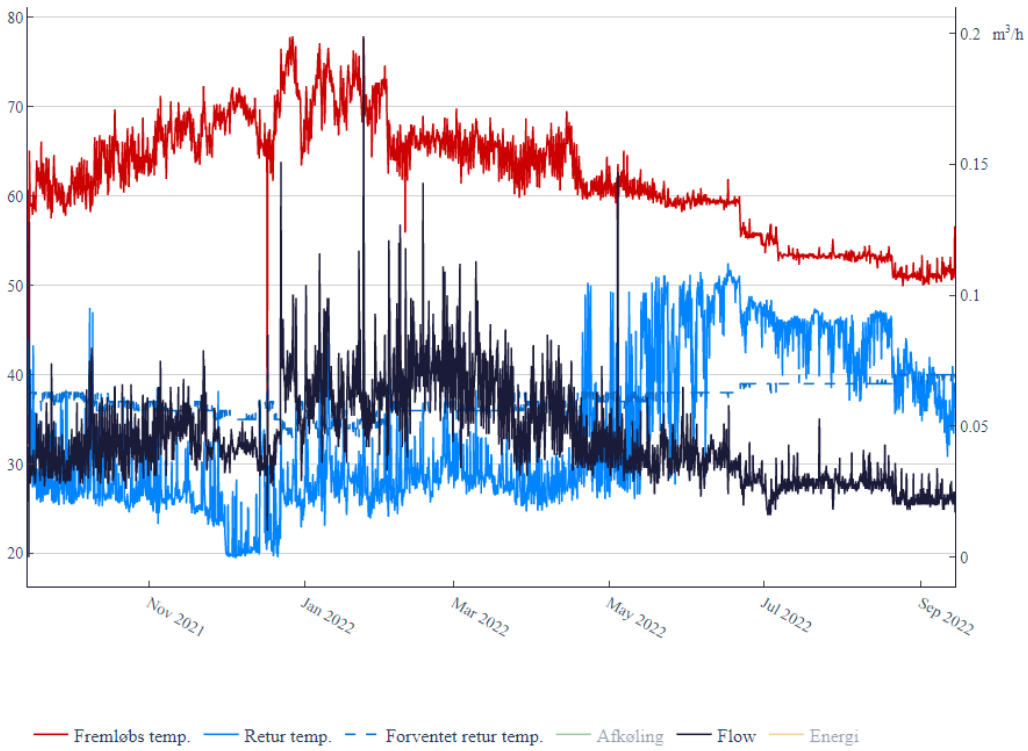
Start Dato: 14/09/2021

Slut Dato: Date

Find Kunde

m³	397.33
kWh	13519.00
Frem temp.	64.57
Retur temp.	34.66
Afkøling	29.92
Tarif	-6.00 %

Figur | Kort | Tabel | Pris/Kontakt



Frekvens

- 1 Time
- 8 Timer
- 1 Dag
- 1 Uge

Opdater Figur

Aalborg Forsyning

Watts for the overview

Download Watts gratis til iPhone og Android

Tilføj din måler med dit kundenummer og din adgangskode. Dit kundenummer finder du på din regning. Din adgangskode har du enten allerede oprettet på 'Min Side', ellers kan du oprette en ny på 'Min Side' ved at logge på med NemID. Du ændrer adgangskode under 'Rediger kontaktinfo'.

Har du glemt din adgangskode til Min Side, så nulstil din kode her.

HENT I App Store

HENT I Google play

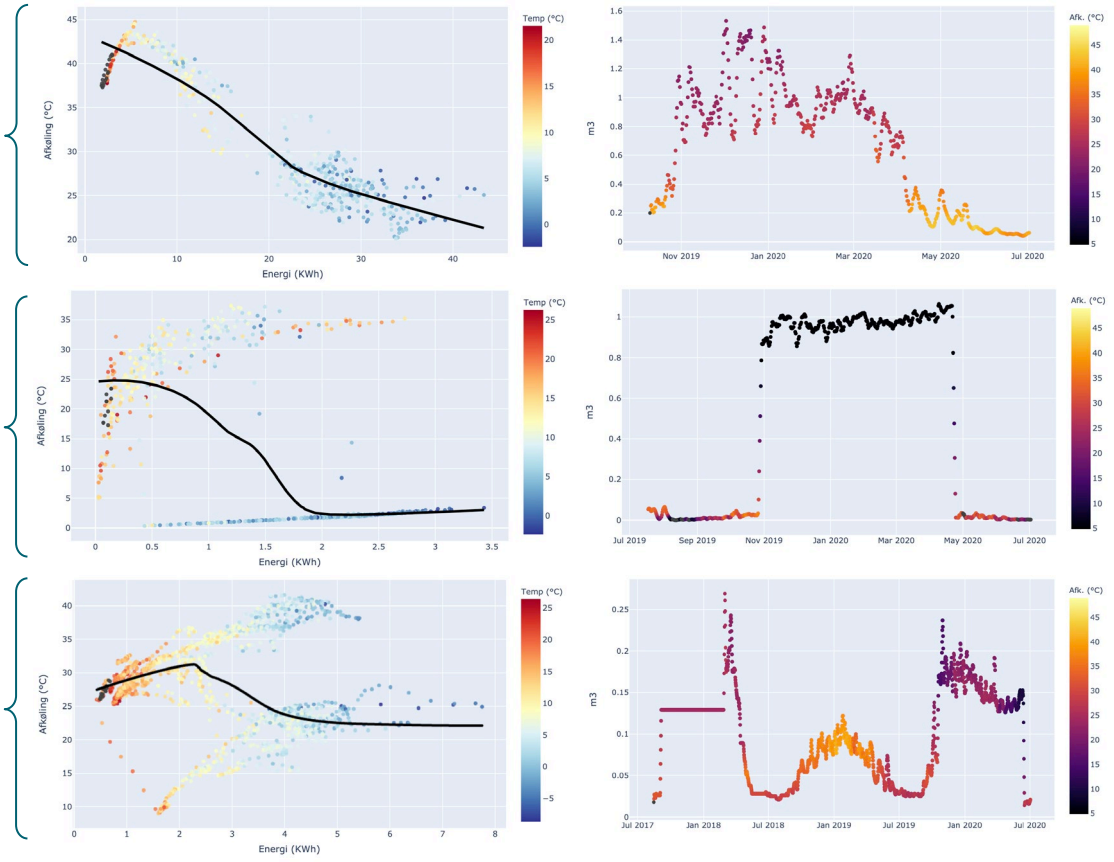
Aalborg Forsyning

Detecting probable causes for inefficient cooling

Too small heating surface or not using all radiators

Defect valve in heat exchanger

Defect in heat exchanger



Aalborg Forsyning

Personalize customer inquiries

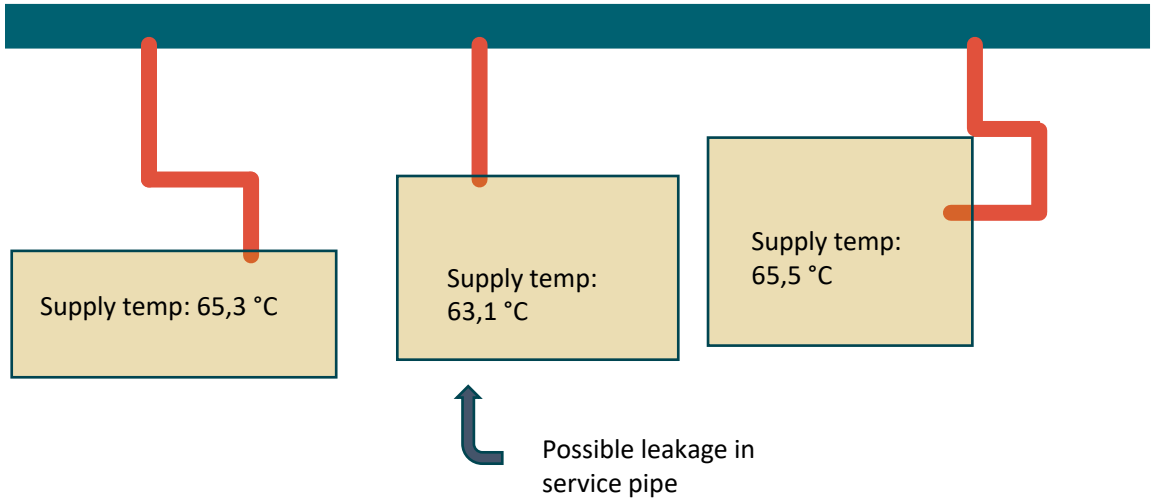
“Dear Jonathan,

We have detected, what seems to be a defect in your heat exchanger. The defect occurred on february 3rd and is currently costing you around 18 DKK per day. We estimate the yearly cost of not fixing the defect to be around 5.000 DKK.

You can get a new heat exchanger by … ”

! Detecting leaks in service pipes

We can detect leakages in service pipes by looking at the supply temperature observed from service pipes in nearby buildings. If the heat loss per meter is significantly greater for the service pipe than for service pipes close by in the network then there is a leakage.



Aalborg Forsyning