

**UiT**

NOREGS  
ARKTISKE  
UNIVERSITET

# Smarte nett

## *Framtidas fleksible energisystem*

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Bjarte Hoff

PhD stipendiat

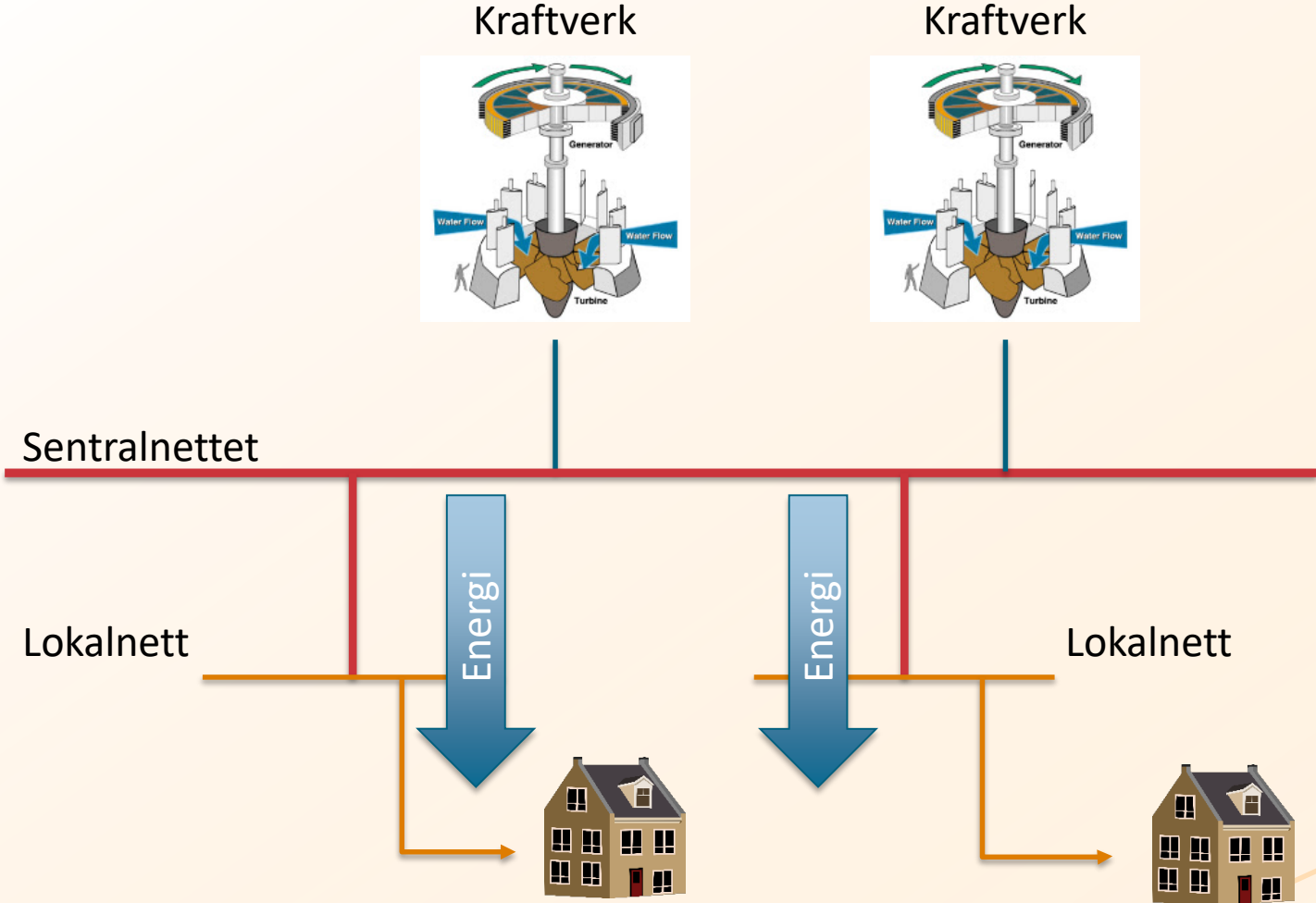
Institutt for elektroteknologi

Fakultet for ingeniørvitenskap og teknologi

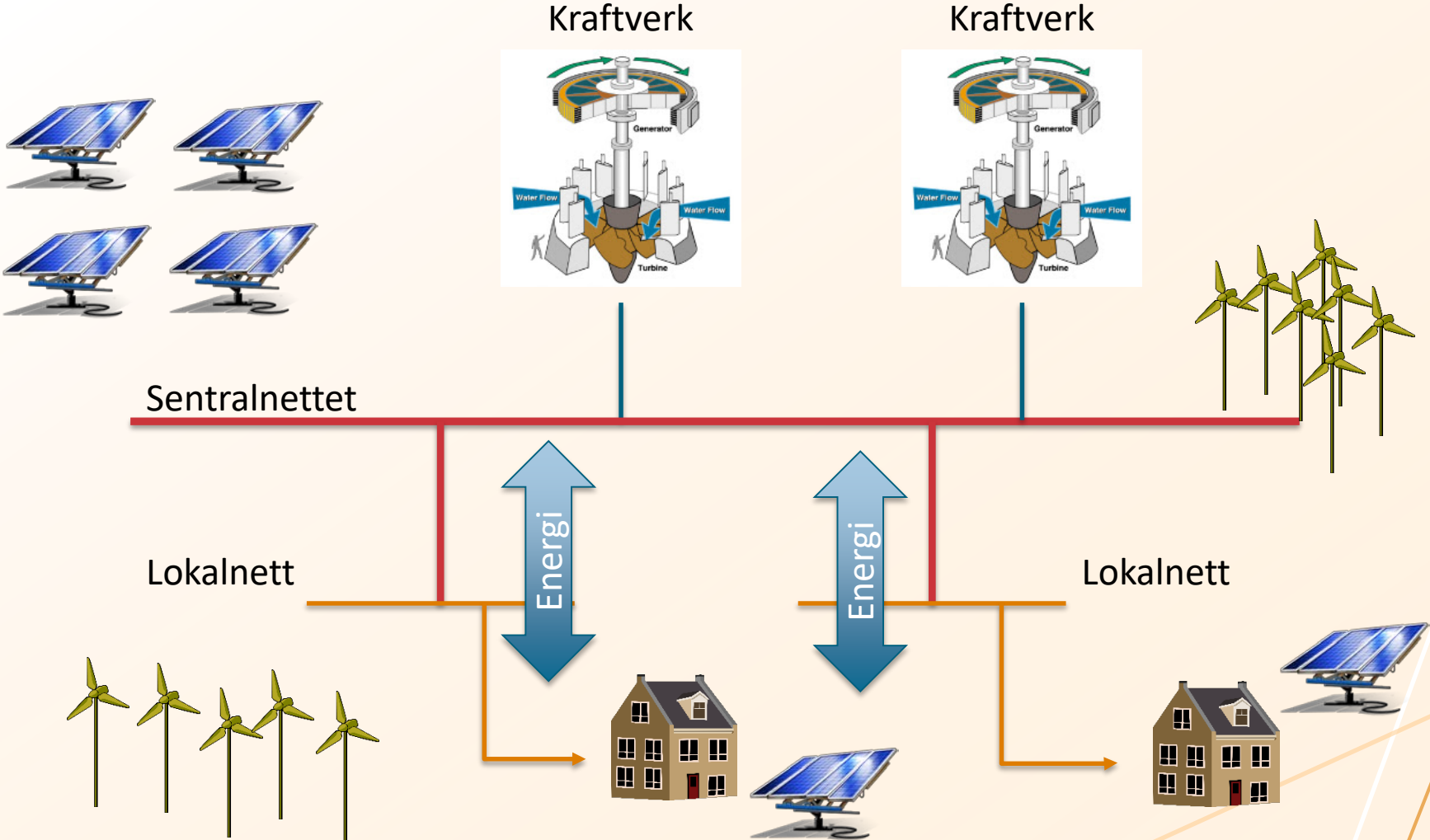
Campus Narvik



# Det tradisjonelle kraftnettet



# Det nye kraftnettet

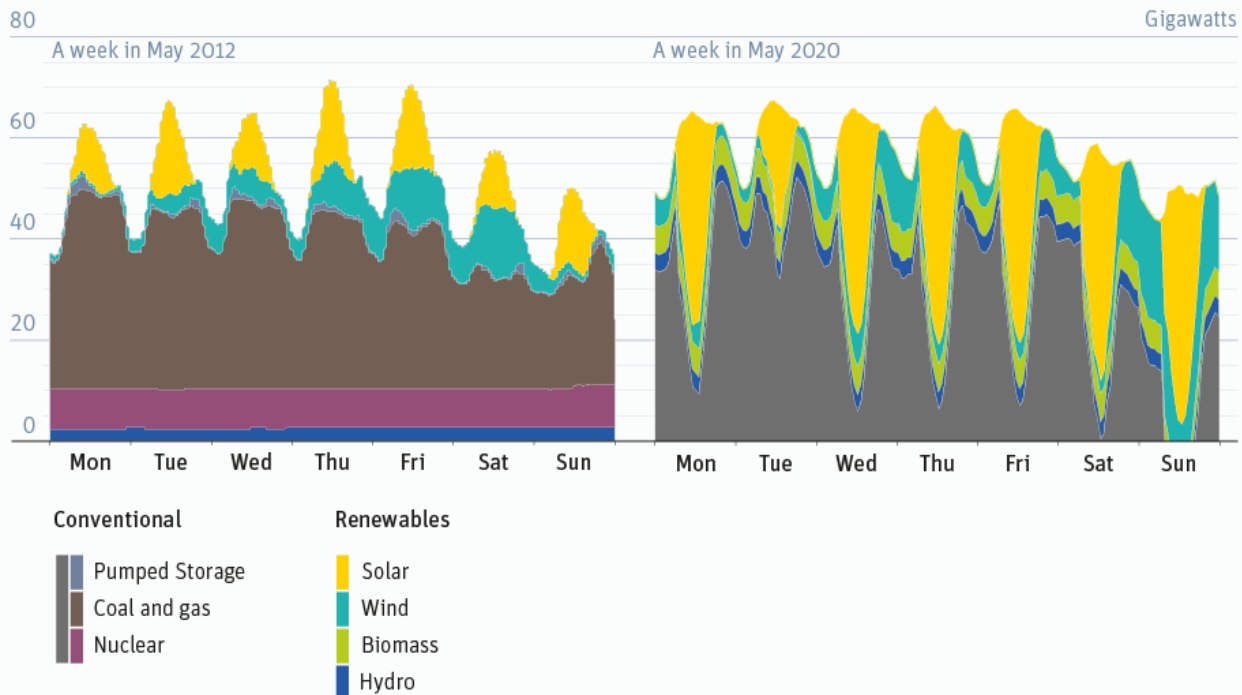


# Auka krav til fleksibilitet

## Renewables need flexible backup, not baseload

Estimated power demand over a week in 2012 and 2020, Germany

Source: Volker Quaschnig, HTW Berlin



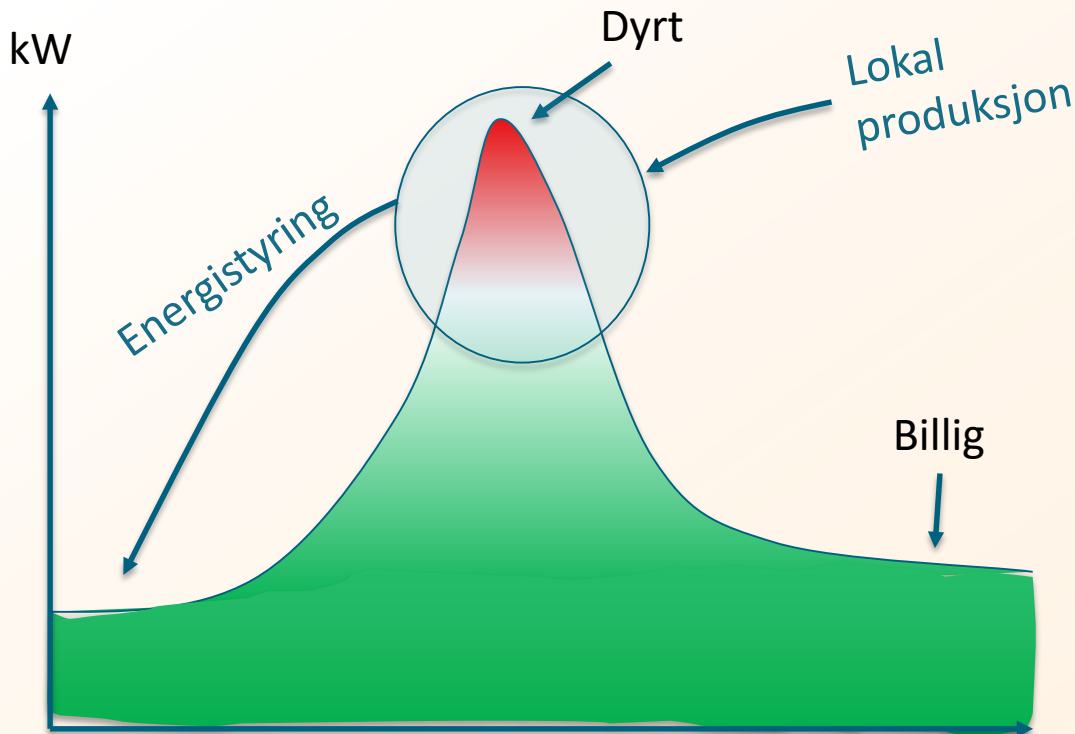
# Smarte målarar - AMS

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Innan 2. januar 2019

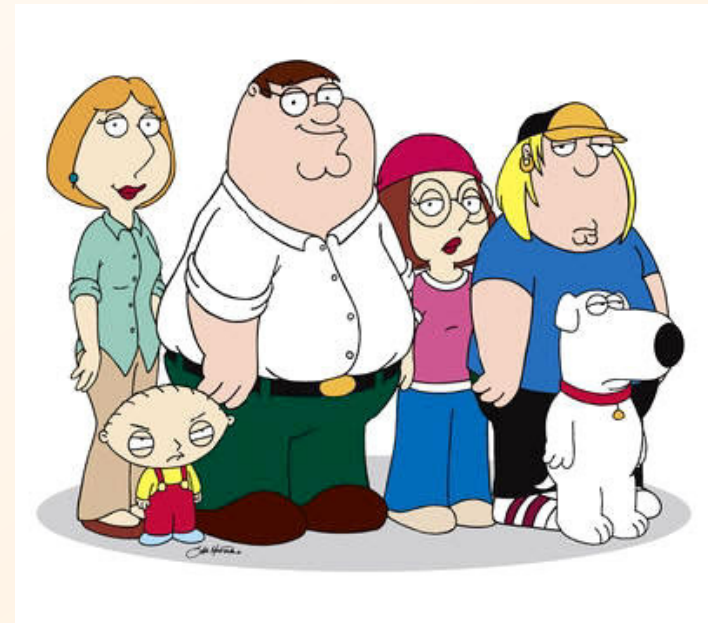
# Effektbasert tariff



- Nye effektkrevjande komponentar er ei utfordring for kraftnettet
- Effektbasert tariff - Intensiv for smart energistyring og lokal produksjon
- AMS + smarthus/energistyring + tenesteleverandør = Framtida?

# Smarte nett – Utfordring og motivasjon

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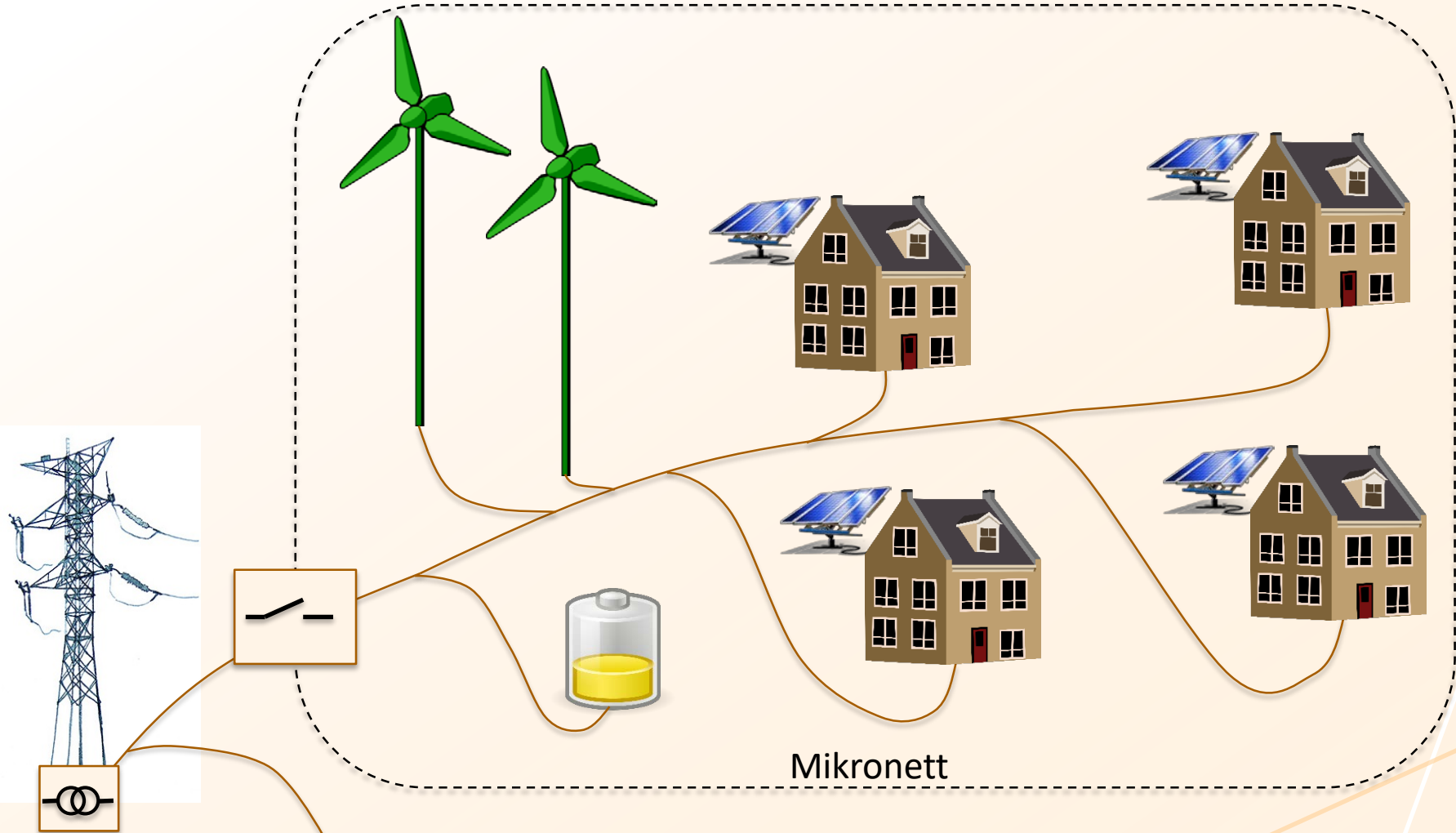


Teknologi-interessert entusiast  
Spesialbygd

Alminnelig sluttbrukar  
Hyllevare

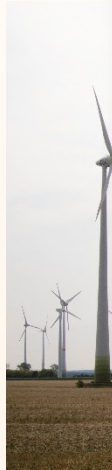


# Mikronett (microgrid)

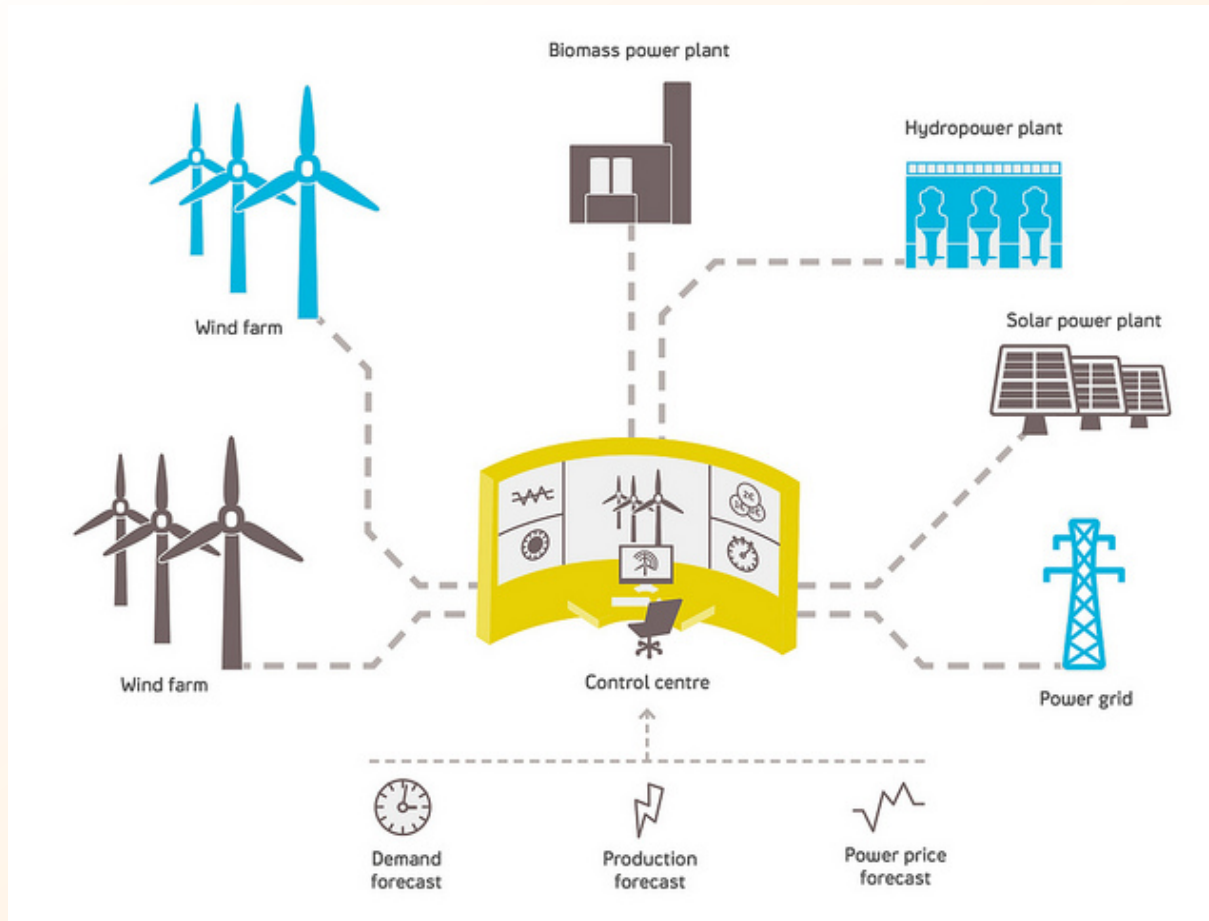




# Mikronett i praksis – Feldheim (DE)

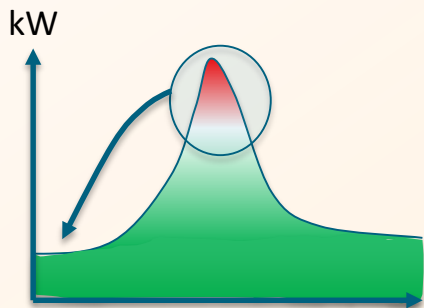
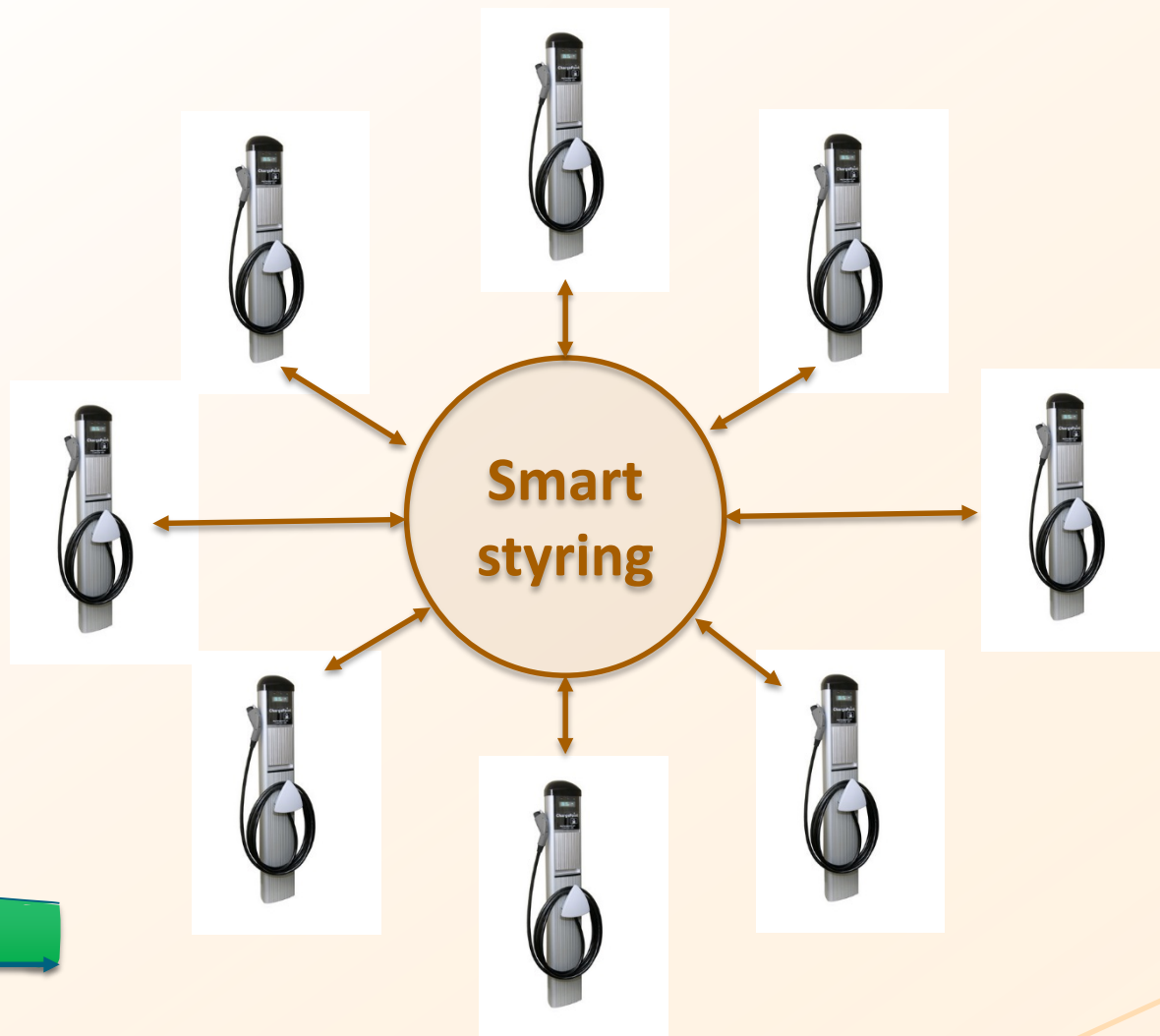


# Virtuelle kraftverk



# Smart laststyring -> Fleksibel last

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# Framtida?

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## På kort sikt:

- Smarte målarar
- Effektbasert tariffar
- Meir lokal produksjon
- Fleire ladestasjonar

## På lang sikt:

- Mange muligheitar
- Usikkert kva som blir tatt i bruk
  
- Mikronett/virtuelle kraftverk?
- Smart fleksibel laststyring?
- Krav eller frivillig?

