

# The Sunnyside of Smartville

Linn Eirin Paulsen  
[linnepa@ifi.uio.no](mailto:linnepa@ifi.uio.no)

## EMPOWER:

local Electricity retail Markets for Prosumer smart grid pOWER services

A description of EMPOWER from different stakeholders' perspective.

- Claus, the standard energy customer
- John, the producing house owner
- Mary, the young tenant
- Ingrid, the top executive with a summer house

# Claus, the standard energy customer



- Claus, the standard energy customer. Owner of a grocery store.
- Has installed two new heat pumps at home, still uses 18.000 kWh a year
- Freezers and fridges are the main contributor of the electricity bill in the store
- Summer worst: store front in the sun, air-conditioning works hard
- Reads about SESP - Smart Energy Service Provider - pay annual fee
- They sell you locally produced energy, good for shop image
- A friend tells him he can earn money by getting gadgets that control the temperature on freezers, coolers and air-conditioning
- Comes with an app for smartphone, can get an alarm if anything is wrong
- Claus thinks SESP option seems good, he should sign up this very night

# John, the producing house owner



- John is a member of Smartville Energy Society, a SESP that offers local trade
- He has a roof top solar PV power system
- Was tired of feeding the market with surplus energy that did not pay off so he placed his offers on the local market and the SESP.
- The last month he has supplied the market with 300 kWh surplus
- 55% has been stored. He wants to save some of this energy for winter
- He might spend it, or sell it if he goes away on that cruise
- Starbucks and McDonalds have placed a long term bid on the local energy, they are willing to pay up to 0.2 eurocent/kWh for clean, local energy
- Earns credit by curtailing local feeds and demand. €20 and 5000 bonus points
- His balance sheet at the end of the year could read €550 or more
- Bonus points could be cashed in or used for travelling
- PV investment and all the gadgets with it will be paid back in 6 years

# Mary, the young tenant



- Mary rents a reasonable priced apartment, with energy costs included
- This reduces her financial risk and gives her a feeling of control
- Part of the SESP and the energy the apartment uses is produced locally
- Collectors and PV's are installed on the roof
- A sensor registers when she leaves the house and learns her routines
- Based on this it decides where energy can be saved
- Concerned about a system learning her routines, she seeks legal council, and she is assured that the landlord has taken security measures
- “Her personal house buddy” - a house robot, guarantees that her apartment is safe and locked and that no iron or stove is on when she leaves the house
- One app could start her favourite playlist when she walks in the door
- By hooking in smoke detectors you could get 10% off house insurance
- Mary told people at work about it - and they signed up



# Ingrid, the top executive with a summer house



- Ingrid owns a summerhouse that her family use for 6-7 weeks during summer
- They join the local SESP and get good offers on PVs and micro wind
- They pick what they need to exploit the sun in summer and wind in winter
- All with a guarantee that they would produce their first kW within two days
- Anxious about getting to involved, Ingrid wanted the “Super Market Deal” where they would be guaranteed a price for their surplus every quarter
- She was more enthusiastic about going green and consume their own energy
- The surplus they produce would go in the SESP energy bank
- Her husband Tom wanted the “Click and Trade ++” option, and a personal robot taking part in auctions. It was easy to create it, like shopping online
- Tom received a text message from the agent “You just earned 5 euro”
- Tom is happy, and so is Ingrid