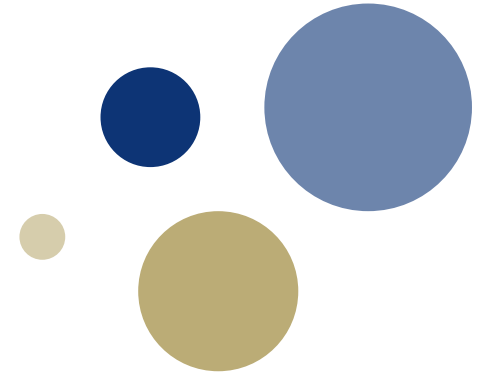




Norwegian University of  
Science and Technology



# D 4.1.1 Analysis of IoT Ecosystem

By Konstantin Lenchik

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Noll

# Planned contribution



To define an ecosystem of IoTSec:

- Define groups of stakeholders
- Populate those groups with members
  - Define main companies
  - Explore their products\services
  - Perform precise classification
- Establish relations between groups
  - Discover relations
  - Define “thickness of relations” by exploring them in detail
- Position SGSC on this graph
- Analyse what is considered to be outside of the research and industrial applicability

# Interconnection with other Deliverables in IoTSec project



The results of my deliverable will be an input for:

- T3.2 Security usability
  - T3.2.1 - Conflicting Incentives Risk Analysis for IoT. Perform the analysis based on ecosystem defined in T 4.1.1
- T4.1 IoTSec ecosystem
  - T4.1.2 Industrial network. To establish industrial network with regard to core stakeholders defined in T 4.1.1

# Defined groups of Stakeholders



1. Production of energy
2. TSO
3. DSO
  
4. Security companies
5. Software development
6. Consulting
  
7. Manufacturers of “smart meter value chain”
  
8. Legislative
9. Research
  
8. Prosumers\ Customers

# Research



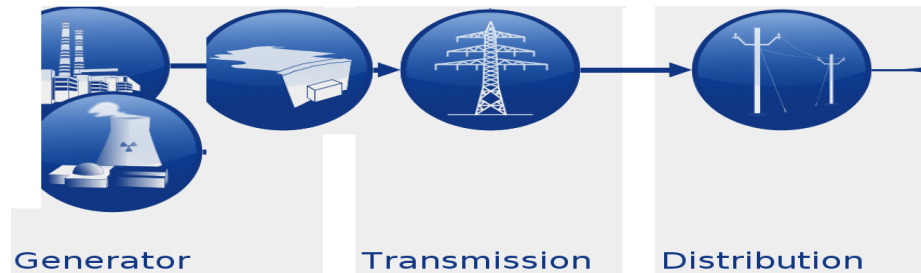
- Sintef
- Simula
- NTNU
- UiT
- UiS
- Trøndelag forskning og utvikling (TFOU)
- Norwegian Computing Centre (NR)
- Movation
- Development of security laws
- University of Agder (Centre for Integrated Emergency Management (CIEM))
- Open Innovation Lab of Norway
- - Mondragon University
  - University of Victoria
  - Universidad Carlos III
  - University of Roma La Sapienza

# Legislative

- Government
  - Norwegian Water Resources and Energy Directorate (NVE)
  - Norsk Elektrisk komite (NEK)
    - Development of standards for electrical devices and networks...
- Trade Unions
  - Energi Norge
- Company unions
  - Nettalliansen
  - KS Bedrift Energi
  - Sol Energi Klyngen
    - Unite companies producing solar power for better cooperation



# Production of energy, TSO, DSO (1)

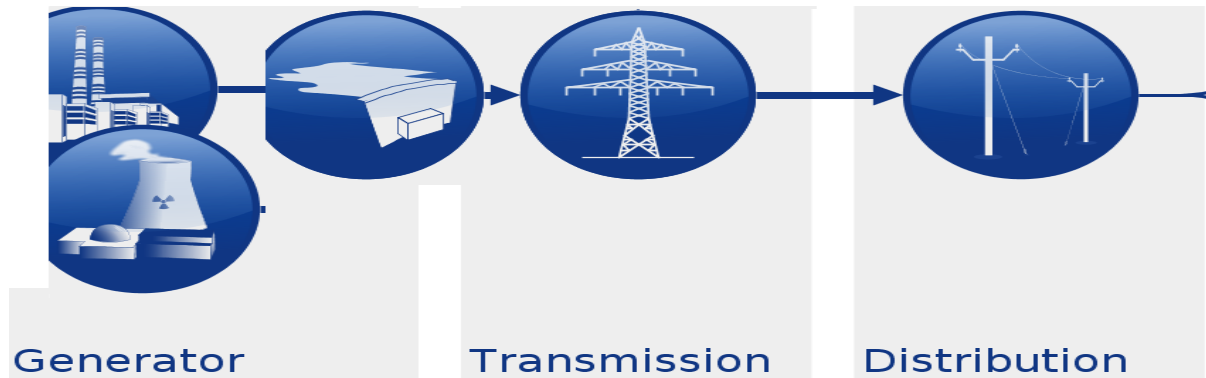


Statkraft

Statnett

Hauflund
Eidsiva
ISE
Helgeland Kraft
Istad
Lofotkraft
Lyse Energi
NTE
Nordmøre Energiverk
Sognekraft
Svorka Energi
Troms Kraft
TrønderEnergi
Varanger Kraft

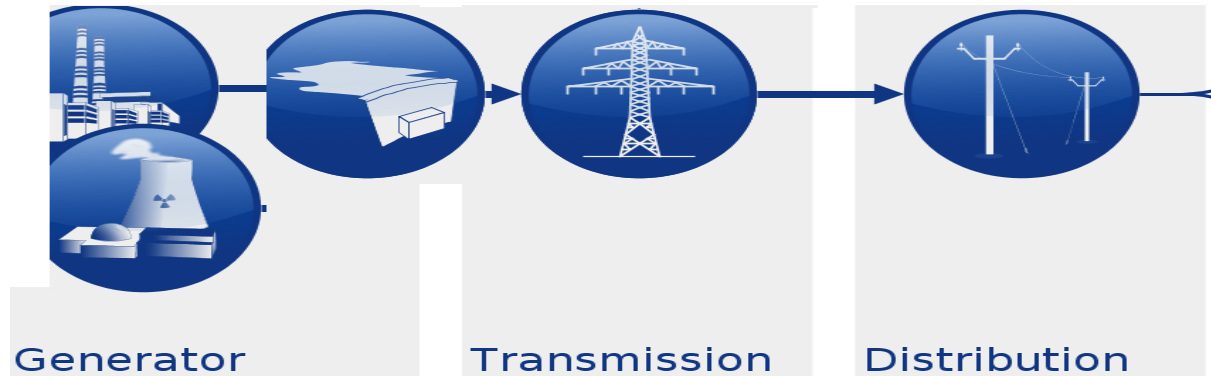
# Production of energy, TSO, DSO (2)



<b>BKK</b>		<b>Fjordkraft</b>
<b>Agder Energi</b>		<b>LOS (daughter of Agder Energi)</b>
<b>Nordkraft</b>		
<b>Skagerak Energi</b>		
<b>Tinfos</b>		
<b>BE Produksjon AS (Bodo Energi)</b>		<b>BE Kraftsalg AS</b>
<b>Salten Kraftsamband</b>		<b>Salten Kraftsamband</b>
<b>Glitre Energi</b>		<b>Glitre Energi</b>



# Production of energy, TSO, DSO (3)



<b>E-CO Energi</b>
<b>Arendals Fossekompani</b>
<b>Firma Albert Collett</b>
<b>Akershus Energi</b>
<b>Industrikraft Midt-Norge</b>
<b>Kraftverkene i Øvre Namsen</b>
<b>Naturkraft</b>
<b>Norsk Hydro</b>
<b>Østfold Energi</b>

<b>Nordlandsnett</b>
<b>Energi Nett AS</b>

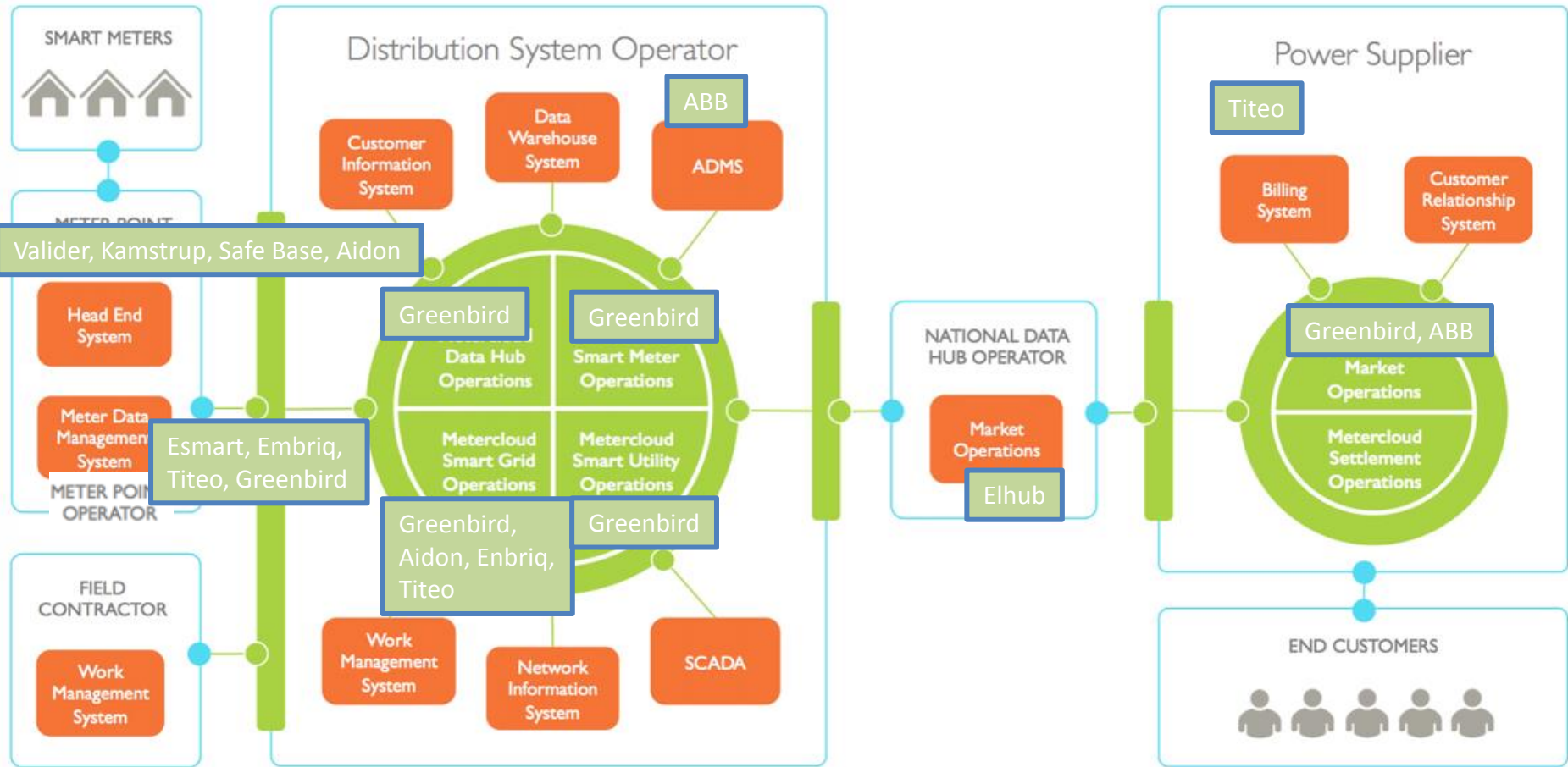
<b>Askøy Energi (d: FEN)</b>
<b>Røyken Kraft (d: FEN)</b>
<b>Follo Energi (d: FEN)</b>
<b>Norgesnett Fredrikstad</b>

# Software development (1)

- Power grid management systems (PGM)
  - Aidon
  - Embriq
  - Titeo
- Automatical planning for Power production companies
  - Powel



# Software development (2)





**Thank you for attention!**