



**Om utdanning og Smart Grid:
Høgskolen i Ålesund: 05.05.2014**

Smart Grid Utdanning & forskning

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Smart Grid og Smarte Regioner

2012: Forskningsprosjekt: Regionalt Forskningsfond

1. Hva er Smart Teknologi?
2. Hva er Smart Grid?
3. Hva er Smarte Hus?
4. Hva er Smart Byer?
5. Hva er Smart Regioner?

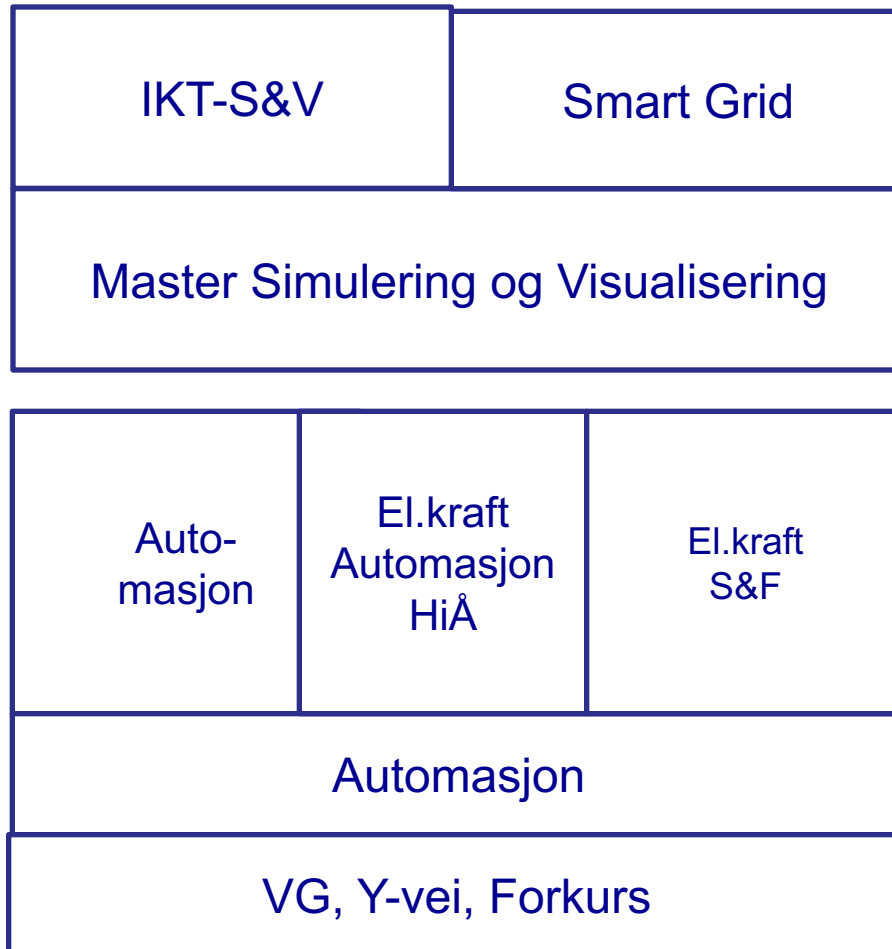


Ligger det her et felles underliggende paradigme?

Hva koker dette ned til?

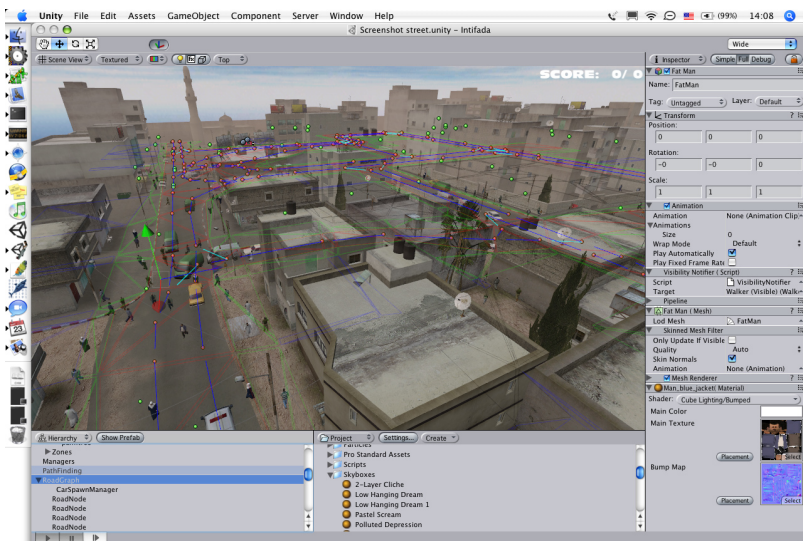
Utdanning: Automasjon & Smart Grid

Konseptmodell



Utgangspunkt i 2006

Ny spillteknologi



Smarte Ingeniørløsninger



**Maritime simulatorer
2006: OSC**

Hva kan spillmotor brukes til?

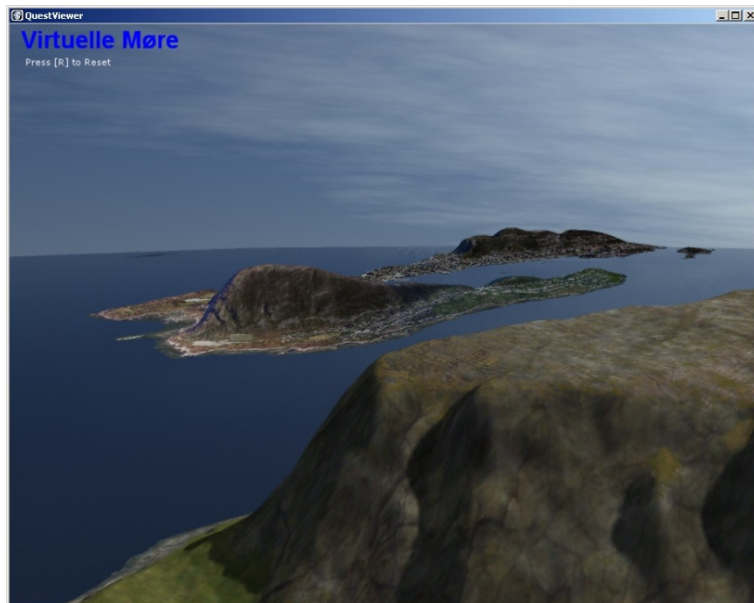
**Planlegge ingeniøroppgaver
Før produktet bygges**

Forskning: Havromsmodeller

1995->: Simulering av havrom (Barentshavet)

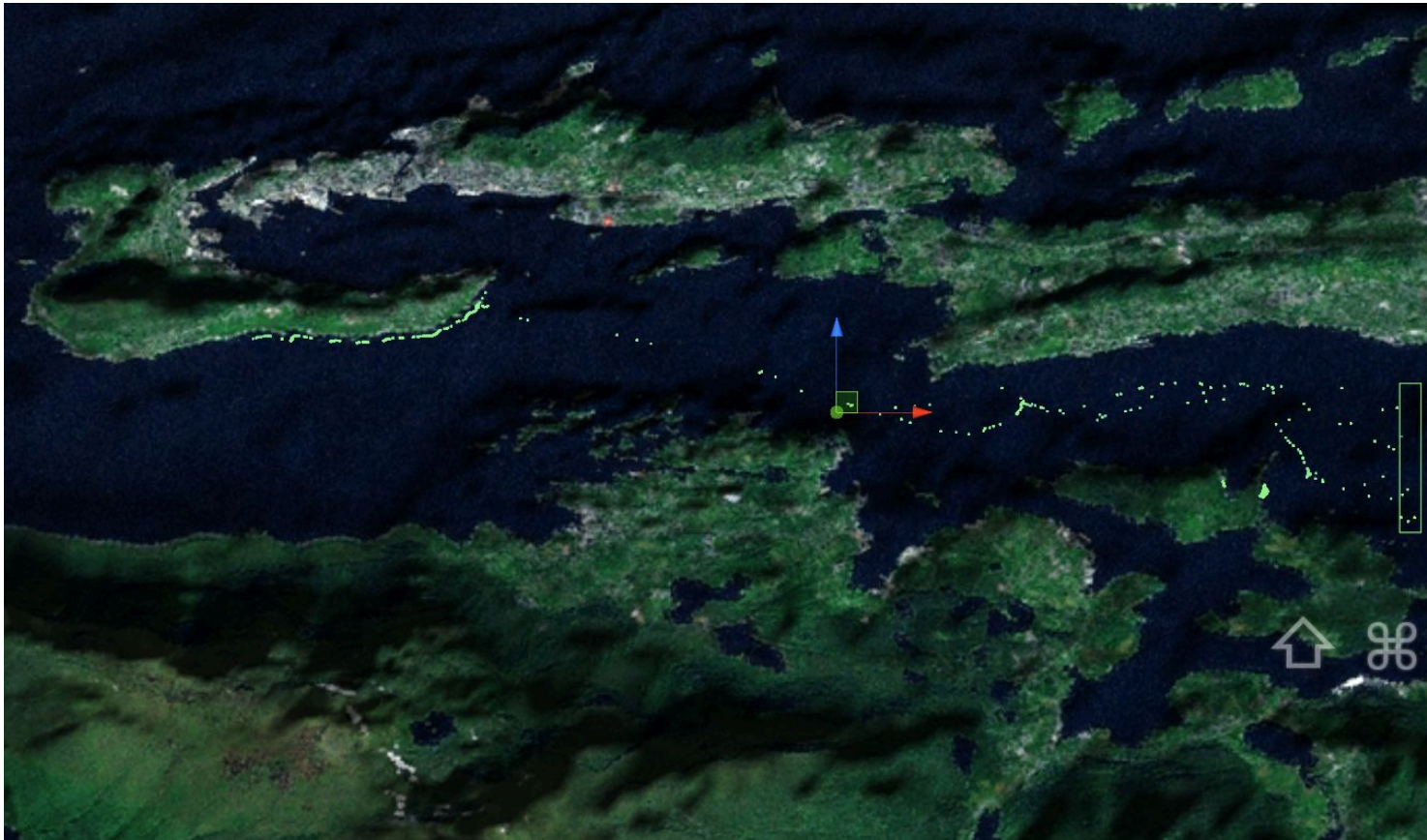
2000->: Klimadynamikk -> Økodynamikk

2008->: Visuelle havrommodeller



2012: Virtuelle Havrommodeller

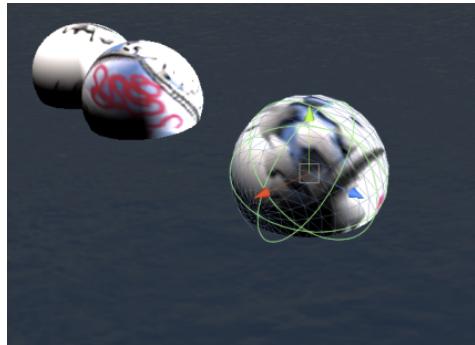
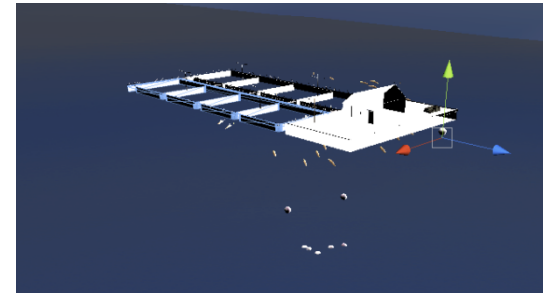
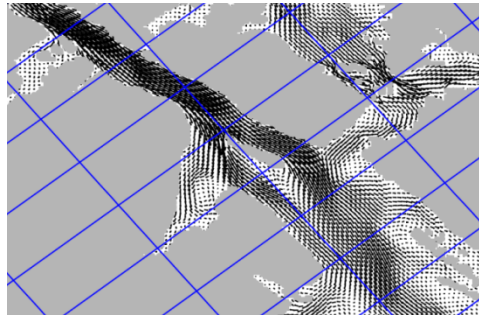
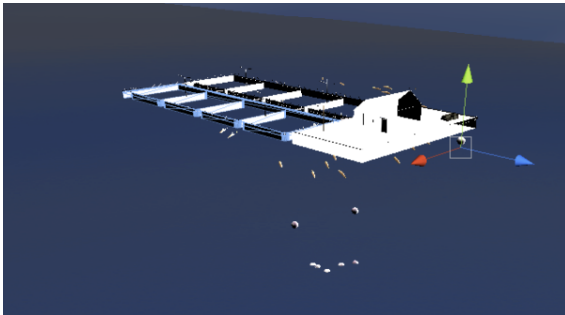
Miljøanalyse: Partikkeltransport i Borgundfjorden



2013: Virtuelle Havrommodeller

Virus smittespredning mellom oppdrettsanlegg

Agentbasert svermteori



2012->: Smarte Regioner

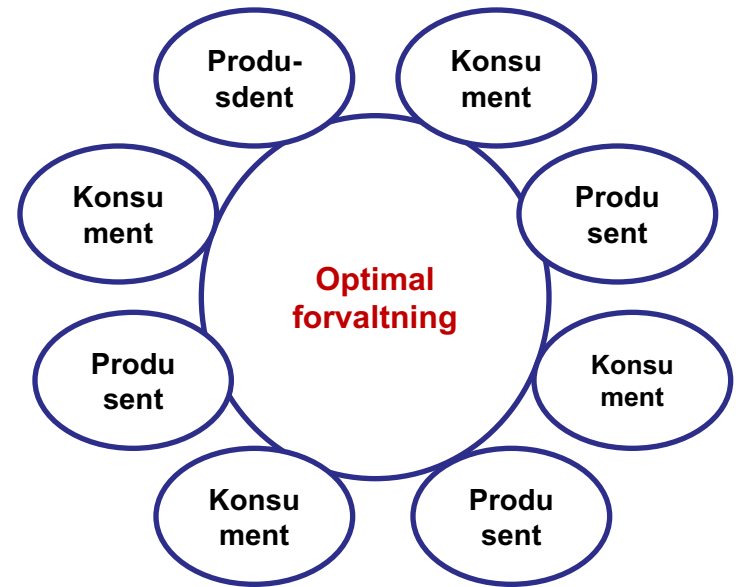
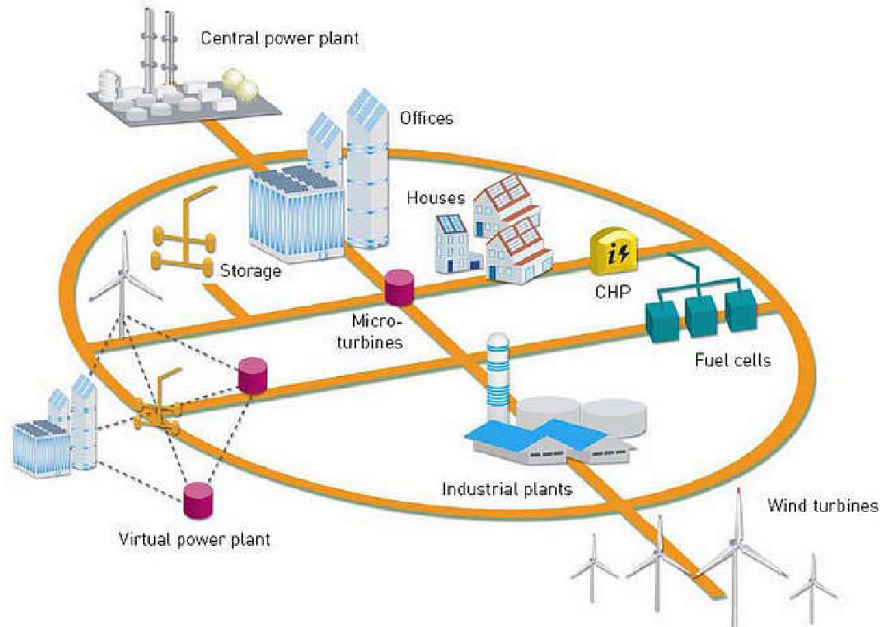


Simulering og visualisering av

- **Smarte Byer**
- **Smart Grid Energi**
- **Smart Samferdsel**

Smart Grid Energi

Redusere sårbarhet i forhold til vannkraft



Smart Grid perspektiver:

- Optimalisering av nettverket
- Optimalisering av ved node (Konsumenter & Produsenter)

Smart Teknologi + Moderne kontrollteori (AI)

Samarbeide med Mørenett



3-nivå Smart Grid utdanning?

PhD-studenter Sim & Vis	PhD-studenter Smart Grid
Ett år: Master: Sim & Vis	Ett år: Master i Smart Grid 30 stp Smart Grid-fag 30 stp Master oppgave
Ett år: Master i Simulering & Visualisering	
Bachelor-El.kraft: Smart instrumentering	

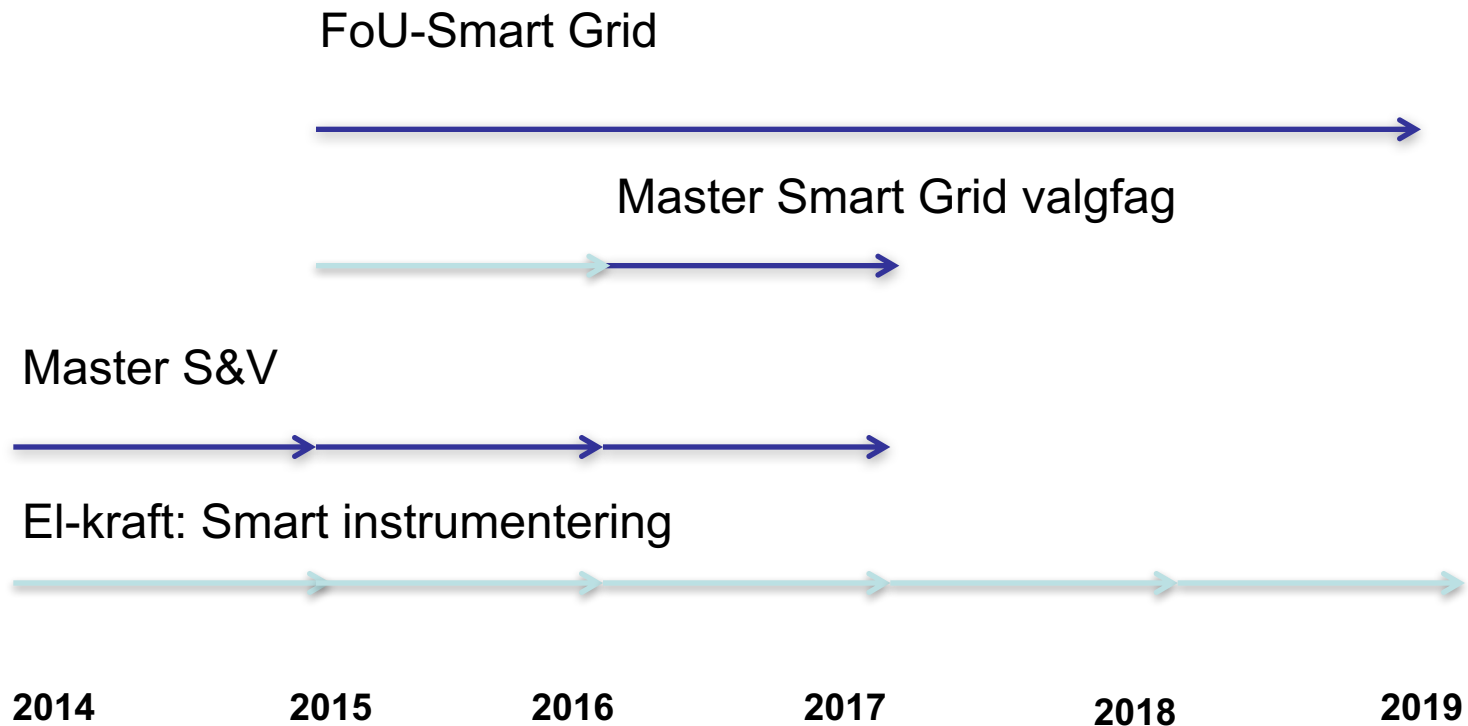
Metodeutvikling

Systemforståelse

Implementering

Smarte Grid utdanning

Mulig realisering



Smart Grid Forskning

Noen stikkord med bakgrunn i master Sim & Vis

- Simulator for Smart Grid
- Agentbasert Optimalisering
- Big Data
- Intelligent kontroll

The Center for Smarte Energy Solutions contribute to following educations:

BSc in Energy Technology

MSc in Software Engineering

BSc in Software Engineering

Minor Subject - Software Engineering

Present PhD projects include:

Modeling the Energy Dynamics of Buildings

PhD Student Ana Ionesi

An Agent Based Approach to Coordination of Resource Allocation and Process Performance

PhD Student Aisha Umair

Management framework for self learning predictive modelling of cyber-physical systems

PhD Student Morten Gill Wollsen

Software Tools and Methods to support Sensor-based Data Inspection for Optimizing Smart Energy Solutions

PhD Student Emil Holmegaard

Prediction and diagnosis of emergence for independent agents operating in a shared environment

PhD Student Newsha Ghoreishi

Securing technical product quality in energy-efficient warm air drying of extruded fish feed

PhD Student Anders Fjeldbo Haubjerg

Intelligent Demand Response Framework for Cooperative Customer Side Load Management

PhD Student Anders Clausen

Takk for oppmerksomheten

Mer informasjon?

Du finner meg, ved enden av regnbuen

<http://ansatte.hials.no/hy/>

Sim & Vis Forskningslab

