Introduction to WP3: Energy efficiency and conservation

Ove Wolfgang, 27. Feb 2023

Nordic Energy Outlooks - Final report WP3

Energy efficiency and conservation

28. February 2023

Ove Wolfgang[1] and Siri Mathisen[1] (eds), Leif Erik Andersson[1], Kristoffer Steen Andersen[5], Kristina Haaskjold[3], Sara Johansson[2], Shravan Kumar Pinayur Kannan[4], Synne Krekling Lien[1], Kang Qiu[1], Viktoria Martin[4], Erika Mata[2], Ville Olkkonen[3], Dimitri Pinel[1], Akram Sandvall[2], Tomas Wisell[2], Mirjam Särnbratt[2], Benjamin Manrique Delgado[1]

1) SINTEF, 2) IVL, 3) IFE, 4) KTH, 5) DEA

Technology for a better society

SINTEF

Nordic Energy Research

SINTEF
(Coordinator)

ivl
SVENSKA
MILJÖINSTITUTET

The Research Council of Norway

NIBIO
NORWEGIAN INSTITUTE OF
BIOECONOMY RESEARCH

IFE

Swedish Energy Agency

Danish Energy Agency

KTH
VETENSKAP
OCH KONST

UNIVERSITETET
I OSLO

Technology for a better society

Aims of the programme

For a Nordic context:

Strengthen competence and cooperation in the field of energy systems analysis

Synthesize the results of current research

Find out where there is a need for more joint research

Explore how different methods lead to different results.

Provide inputs to the updates of NECPs
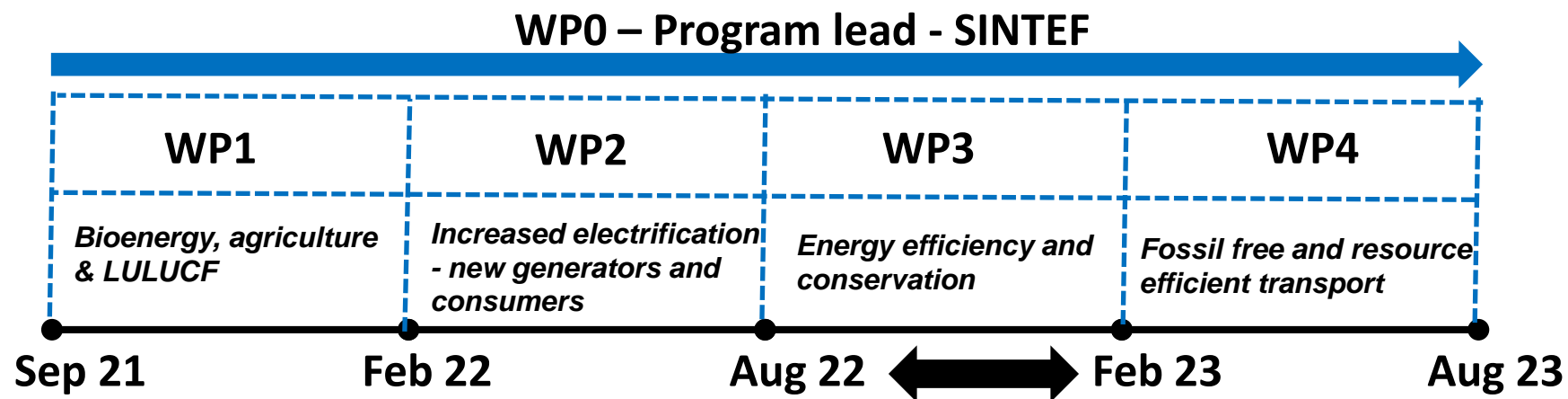
Deliverables (reports + seminar)

https://www.nordicenergy.org/project/nordic-energy-outlooks/
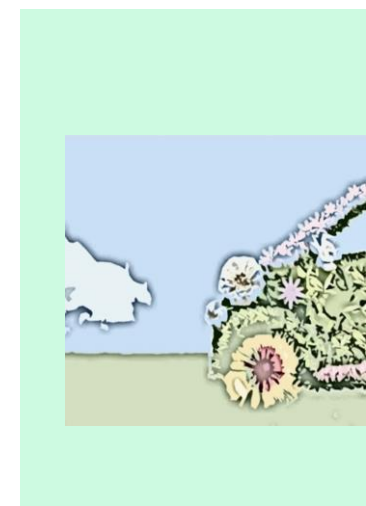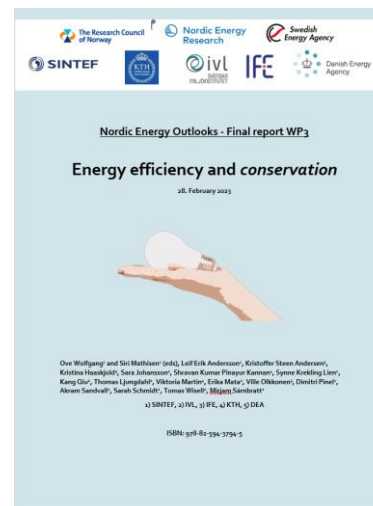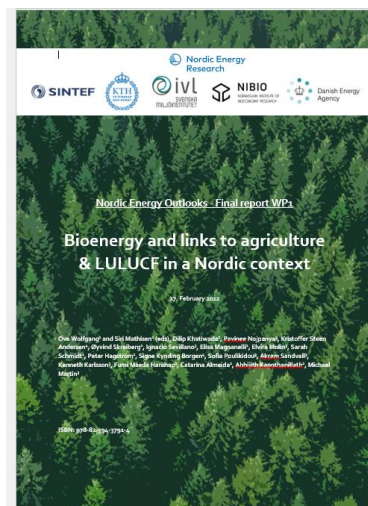
August 2023

Involved models in NEO so far, WP3 in bold

General energy system models

- **GeneSys-Mod (SINTEF)**
- **ON-TIMES (IVL)**
- **IFE-TIMES-Norway**
- **OSeMOSYS (KTH)**
- IntERACT (DEA)

Sector-specific models

- BeWhere (KTH)
- BioRes (DEA)
- SiTree (NIMBIO)
- highRES-Europe (UiO)
- ECCABS (IVL)
- **Energy Map (SINTEF)**
- EMPS (SINTEF)
- **Energy Plan (KTH)**
- **Geo-Spatial tool (KTH)**
- **PROFET (SINTEF)**
- **RE-BUILDS (SINTEF)**

Several other models are discussed in literature reviews in WP3

Technology for a better society

Main outcomes in WP3

❑ **Reviews** related to energy efficiency and conservation
- Representation in existing energy system models
- Potentials: Building sector + excess heat utilization
- Drivers & barriers for measures in building sector

❑ **Improved modelling** of energy efficiency and conservation (incl. waste heat)
- Data and representation in general energy-system models
- Soft-linking between sector-specific models and general energy-system models
- New simulations, showing impacts of improvements / soft-linking

❑ **Comments** to the updating of NECPs

❑ **Suggestions** for future research

Suggested future research by WP3

1) Long term modelling and optimisation of ECEM in the Nordic Energy System

2) Sector-coupling Industry with Excess Heat to Buildings with Heating and Cooling Demand – the Nordic Potential

3) The integration of techno-economic and socio-technical approaches in the energy system modelling: The case of energy efficiency gap in the Nordic region

4) Model Agnostic Evaluation: Data Sets and KPIs for the Nordic countries

5) Training courses - open access tools and models

	Introduction		
10:00	Welcome, agenda, HES		Ove Wolfgang, SINTEF; Erika Mata, IVL
10:15	Nordic Energy Outlooks – Program introduction		Ole Aune Ødegård, Nordic Energy Research
10:25	Introduction to WP3: Energy efficiency and conservation		Ove Wolfgang, SINTEF
10:40	-- Break --		
	Research Questions and findings (cf. next page for RQ specifications)		
10:55	RQ1, RQ2, RQ4		Erika Mata, IVL
11:30	RQ5, RQ6		Dimitri Pinel, SINTEF
12:05	-- Lunch –		
12:55	RQ3, RQ6, RQ7		Ville Juhani Olkkonen, IFE
13:30	RQ8, RQ9, RQ10		Shravan Kumar Pinayur Kannan, KTH
	Comments to National Energy and Climate Plans (NECPs)		
14:05	Comments to Swedish NECP		Viktoria Martin, KTH
14:20	Comments to Norwegian NECP		Kang Qiu, SINTEF
	Discussion and closing		
14:35	Open discussion		
14:55	Closing remarks		Ove Wolfgang, SINTEF
15:00	End		

Technology for a better society