



**UNET/ENET Workshop 3 - 10 May 2022**  
**University Network on PhD programs in Energy Technology (UNET Erasmus+ project)**  
**Energy Technology Network (ENET NorhedII project)**

Host: NTNU, Dep of Energy and Process Engineering and NTNU Energy  
 Venue: NTNU, Trondheim, Norway. Room KJL4 (H2 for Friday 6 May)  
 Time: Tuesday 3 May - Tuesday 10 May, 2022  
 Contact: ole.j.nydal@ntnu.no

Workshop 3 will cover collaboration between 12 universities in the UNET and ENET projects, with one day overlap for joint dissemination and communication.

**Agenda UNET Tuesday 3 May - Thursday 5 May 2022**

Meeting room: KJL4 EPT [KJEL4, Kjelhuset, NTNU - Gløshaugen - MazeMap](#)

Time	Chair	
<b>Tuesday 3 May</b>	<b>Room KJL4</b>	<b>Course Catalogue and Training Nodes</b>
08:30	NTNU	Coffee
09:00	NTNU	<b>Welcome from DVC Research Tor Grande</b>
		Practical information by OJ
Morning	AAU	Joint PhD Course Catalogue
	Course coordinators	<i>Course Working Groups: Reviews of course descriptions and specification of course material</i>
12:00	Lunch	Canteen at campus
Afternoon	MAK	Equipment for Training Nodes
	<i>Partner coordinators</i>	<i>Status and plans for acquisition of equipment</i>
<b>Wednesday 4 May</b>	<b>Room KJL4</b>	<b>Course Catalogue and Mid Term Reporting</b>
Morning	AAU	Joint PhD Course Catalogue
	Course coordinators	<i>Course Working Groups continuing: Reviews of course descriptions and specification of course material</i>
12:00	Lunch	Canteen at campus
Afternoon	NTNU	<i>Mid Term Reporting</i>
	WP Leads	<i>Updating on UNET deliverables and financial status for mid term report WP 2, 3, 5, 6, 7</i>
<b>Thursday 5 May</b>	<b>Room KJL4</b>	<b>Course Catalogue</b>
Morning	AAU	Joint PhD Course Catalogue
	Course coordinators	<i>Course Working Groups continuing: Reviews of course descriptions and specification of course material</i>
12:00	Lunch	Canteen at campus
Afternoon	AAU	Joint PhD Course Catalogue
	Course coordinators	<i>Course Working Groups: Summary and Status on Course Catalogue</i>

## **UNET/ENET Workshop 3-10 May 2022**

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## **Open Day Friday 6 May 2022**

Many of the partner universities in the UNET Erasmus+ and the ENET NorhedII projects have a history of collaboration which includes development of Small Scale Renewable Energy systems and components, small scale denoting the levels of households and institutions.

The group of UNET/ENET universities joining for a Workshop at NTNU are:

NTNU	Norwegian University of Science and Technology, Norway
USGM	Università degli Studi Guglielmo Marconi, Italy
UDSM	University of Dar es Salaam, Tanzania
MAK	Makerere University, Uganda
UEM,	University of Eudardo Mondlane, Mozambique
AAU	Addis Ababa University, Ethiopia
MUBAS	Malawi University of Business and Applied Science
JUBAUni	University of Juba, South Sudan
UDOM	Dodoma University, Tanzania
BU	Busitema University, Uganda
UniSAVE	Universidade Save, Mozambique

We have worked on the challenge of developing energy systems and components under the following requirements:

- Answer to the energy needs of both rural and urban African population
- Compatible with local cultural and social norms
- Off-grid applications
- Low cost and robust solutions
- Local production and maintenance

Activities under such requirements often fall outside the scope of EU and national research programs, outside the interest of investors and even outside the research strategies of academic institutions.

The questions we raise for discussion at the Workshop are therefore:

- 1) **How can small scale energy systems be developed?**
- 2) **How can new technology be implemented?**

The ambition is to jointly develop actionable concepts for implementation in rural Africa. Towards that end, we have invited experts to highlight different starting points:

- **Design driven.** Early involvement of end users can be important for a successful implementation of new technology. A research group at NTNU advocates design driven technology development. [Manisha Rayaprolu \(NTNU\)](#) will present the aims and examples of design driven development in Asia based projects may be equally applicable in Africa
- **Industry driven.** For cases where there is a commercial market, new technology can be developed and implemented based on private investments. NABA (Norwegian African Business Association) promotes investments in Africa and will present some views on the question: Can small scale technology be a case of interest for NABA members? (This will also be on the agenda for Monday 8 May.)
- **Research driven.** University staff have some opportunities to define their own research directions. Some project members will comment on the question of researchers as driving forces for the small scale technology development. Are researchers also interested in being drivers for the implementation?. The drivers can come both from the technical and the social side. [Govert Valkenburg \(NTNU\)](#) participates in the collaboration project and will give views from the social side. [Ashmore Mawire \(North West University, South Africa\) on-line](#) has very long research experience on solar solutions for cooking.
- **University driven.** Innovation and entrepreneurship are frequent words also on the agenda of universities. Can our Small Scale Technology Development be driven by innovation programs at universities? [Per Arne Wilson \(NTNU Strategic Area Innovation\)](#) will present examples of programs promoting innovation at NTNU
- **Public funding driven.** Grant programs are sometimes directed towards innovation and the energy transition challenge, at EU and at national levels (Research Councils). Are such funding schemes relevant for our Small Scale Technology Development for the African context? [Patrick Reurink \(NTNU\) on-line](#) is a contact point for the collaboration with universities in Low Middle Income Countries (LMIC). Patrick will give some views on opportunities in EU programs. It is also to be noted that in the new Strategic Plan (2022-2025) of the United Nations Development Program (UNDP) the "Renewable Energy at Scale " is a part including 18 African countries.  
[Therese Marie Uppstrom Pankratov \(Innovation Norway\) on-line](#) will present shortly the Humanitarian Innovation Programme at Innovation Norway.
- **Humanitarian Engineering driven.** Engineers are challenged by the need for technical solutions which can improve efficiencies, reduce costs and therefore presumably lead to better living conditions. Engineers Without Borders target the cases where the purchasing power is low and technical support is needed. Can EWB also be drivers for development of

new technology? EWB will present the organization together with examples of projects and activities.

- **Development collaboration driven.** NORAD programs include collaboration on education and research. Can NORAD take on a role as a driver, or facilitator, for implementation of research results in Small Scale Renewable Energy Technology as well?. [Anette Løken \(Norad\) on-line](#) will present the Norad Strategy with particular comments on the relevance for universities.
- **Civil Society driven.** Can the various organizations on development collaboration also be partners in development and implementation of small scale energy systems? [Morten Fauerby Thomsen \(CARE Norge\) - on-line](#) will present experiences from the CAMP+ project, which includes energy systems designed for refugee camps in Uganda.
- **Environment and sustainability driven.** Sustainability, conservation, natural environment and climate are rising on the political agendas. Can these be major drivers for the development and implementation of small scale energy systems?. [Eivin Røskoft \(NTNU\)](#) Eivin Røskoft will give his views based on his more than 30 years of experience in Conservation projects in Tanzania.
- **Individuals driven.** Individual persons who have the dedication and resilience to pursue ideas and goals, often outside an institutional base and funding, and often on an idealistic basis. The internet access to knowledge and communication, as well as backyard workshops, makes this "Boot-strap" driver today a worldwide option. [Wolfgang Scheffler and/or Heike Hoedt \(Simply Solar\) on-line](#) have almost a life time of experiences on development and application of the Scheffler Reflector system for various energy needs at various scales. They will give a brief overview of their experiences on development and implementation of the systems.
- **Round-The-Table Discussions**  
The short presentations will be followed by a round-the-table discussion including the presenters. The floor is open for questions and comments.

Although the questions posed can be of a general in nature, we do keep in mind that the group of universities currently have results and technologies ready for external implementation to the benefit of their local communities and society at large.



## Agenda UNET/ENET Open Day Friday 6 May 2022

Meeting room H2 Hovedbygningen, 1st floor (<https://link.mazemap.com/K1Y0RWrf>)

Time	Presenter	
<b>Friday 6 May</b>	<b>Room H2</b>	<b>Open Day</b>
08:30	NTNU	<b>Welcome from Department of Energy and Process Engineering</b> <b>Welcome from NTNU Energy</b> <b>Welcome from Norhed office NTNU</b>
09:00	NTNU	Overview of the UNET and ENET projects with focus on the challenges of development and implementation of <b>Small Scale Renewable Energy Systems</b> .
09:20	NTNU	Design driven development: concepts and experiences
09:40	NTNU	Research driven: Social Science
10:00	NWU, SA	Research driven: Engineering and Natural Science (on-line)
10:20	Scheffler	Individual driven (on-line)
10:40	NTNU, SKI	University driven: NTNU
11:00	NABA	Industry driven
11:20	Innovation Norge	Public funding driven (on-line)
11:40	Lab visit	Some prototype heat storages for cooking in the lab. Students with posters
12:00	Lunch	Kjelhuset Canteen
13:00	NORAD	Development collaboration driven (on-line)
13:20	NTNU EU	Public funding driven (on-line)
13:40	EWB	Humanitarian Engineering driven, Engineers Without Borders
14:00	CARE	Civil Society driven (on-line)
14:20	NTNU	Environment and conservation driven
14:40	Break	
14:50		Survey results. Panel discussions with the presenters.

## VENUE

Dept of Energy and Process Engineering is here: <https://goo.gl/maps/ysZmRpUcNe5Mokmu6>

Meeting room Friday 6 May H2 Hovedbygningen, 1st floor (<https://link.mazemap.com/K1Y0RWrf>)

Meeting room other days: KJL4 EPT [KJEL4, Kjelhuset, NTNU - Gløshaugen - MazeMap](#)



## ON-LINE OPTION

The workshop will take place in a **hybrid mode** using [Microsoft Teams](#) The meeting link is:

## Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Or call in (audio only)

+47 21 40 22 36,544681907# Norway, Oslo

Phone Conference ID: 544 681 907#

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## Survey during lunch break

We have mentioned different aspects which can be of importance for the **1) Development of Small Scale Energy Technology** and the **2) Further implementation of the results**.

Please give 5 points on the aspects you believe should get special attention at the stage we are now.

- If you are project member: What should we at best do now? **I AM A PROJECT MEMBER**
- If you are not project member: What is your advice? **I AM NOT A PROJECT MEMBER**

You can spread the 5 points as you wish on several or only on a few of the aspects. The total sum of points should not exceed 5. You can also add other aspects.

We will show the accumulated responses after the coffee break.

Aspect	Points
Involve social scientists and designers now	
Look for industry partners now	
Researchers should start companies for implementation now	
Mobilize the TTOs at the universities to contribute to the case now	
Continue applying for EU Grant funding	
Explore UN system (UNDP etc.) for implementation support now	
Explore Development Agencies for implementation support now	
Look for teaming up with Civil Society partners now	
Look to convince an individual with dedication and willingness to take the case!	
Other	

## Agenda ENET Monday 9 - Tuesday 10 May 2022

Meeting room: KJL4 EPT [KJEL4, Kjelhuset, NTNU - Gløshaugen - MazeMap](#)

Time	Presenter	
<b>Monday 9 May</b>	<b>Room KJL4</b>	<b>Sharing of experiences on systems for implementation of research results</b>
		Sharing of experiences on systems for implementation of research results
09:00	UDSM	University of Dar es Salaam, Tanzania
	MAK	Makerere University, Uganda
	AAU	Addis Ababa University, Ethiopia
	MU	Mekelle University, Ethiopia
	UEM	Eduardo Mondlane University, Mozambique
	MUBAS	Malawi University of Business and Applied Sciences, Malawi
	UDOM	Dodoma University, Tanzania tentative
	JUBAUni	University of Juba, South Sudan
10:45	Break	
11:00	NTNU	<b>Mini-workshop: From lab to field: The value of participatory design</b> PhD researcher Manisha Rayaprolu Department of Design, NTNU
12:00	Lunch	Canteen at campus
13:00	NTNU TTO	Technology Transfer at NTNU (Camilla Jørås Larsen, Head of Ideas)
13:30	NABA	Win-win NABA + Universities? (Mathilde Thue & Kjersti Næss)
	NTNU	Discussions with focus on implementation cases for ENET. Survey results
<b>Tuesday 10 May</b>	<b>Room KJL4</b>	<b>Systems and programs at NTNU</b>
09:00	Runa Nilssen	Administration systems for PhD programs. Faculty of Engineering
09:20	Morten Grønli	Laboratory management systems. Laboratory manager Department of Energy and Process Engineering
09:40	Marianne Trælnes	Procurement systems, Department of Energy and Process Engineering
10:00	Kristin Skjeldestad	Training for supervisors, Department of Teacher Education
10:30	Break	
<b>11:00</b>		<b>ENET progress reviews</b>
11:00	UDSM	MSc Programs: Revisions and Tracer Studies
	All	MSc candidates: status and plans
	All	Mobility and joint research: Status and plans
	All	Recruitment and awareness actions: status and plans
	All	Stakeholder involvement: status and plans
12:00	Lunch	Canteen at campus
Afternoon	All	12 PhD candidates: brief progress notes
	NTNU	Round the table closing remarks
		Safe travels