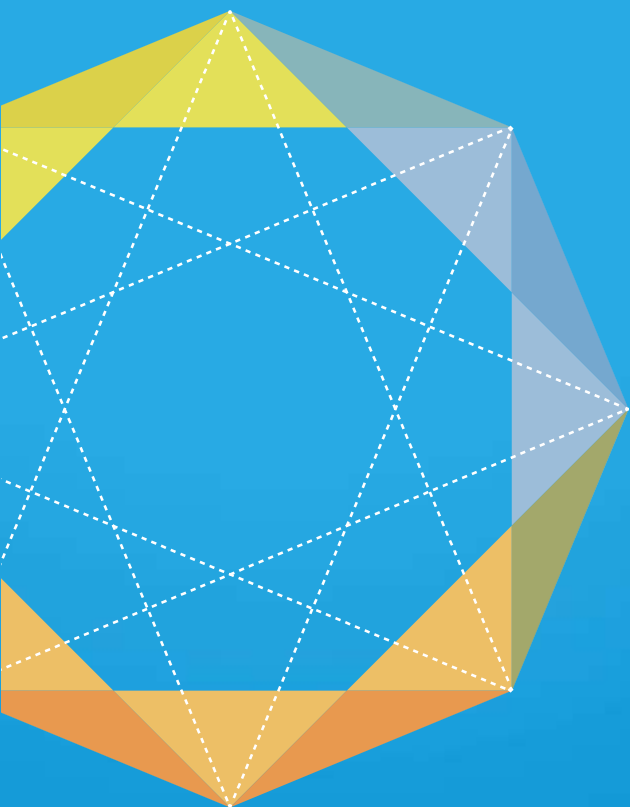




# 17<sup>th</sup> ETIP SNET Regional Workshop

## Proceedings



# ETIP SNET

European Technology and Innovation Platform  
Smart Networks for Energy Transition



## **Authors**

### **CORE Team & Technical Support**

- Rainer Bacher, BACHER ENERGIE AG
- Nikos Hatziargyriou, ICCS
- Aris Dimeas, ICCS
- John Karakitsios, ICCS
- Ludwig Karg, BAUM Consult GmbH

## **Editors**

- Martin Bracken, CLERENS
- Marianna Richter, CLERENS

## **Review**

- Maria Laura Trifiletti, ZABALA
- Edoardo Genova, ZABALA

## **Acknowledgements**

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## **EUROPEAN COMMISSION**

Directorate-General for Energy  
Directorate B – Just Transition, Consumers, Energy Efficiency and  
Innovation Unit B5 – Innovation, Research, Digitalisation,  
Competitiveness

*Contact: Mugurel-George Păunescu*

*E-mail: [mugurel-george.paunescu@ec.europa.eu](mailto:mugurel-george.paunescu@ec.europa.eu)*

*European Commission  
B-1049 Brussels*



# **17th ETIP SNET Regional Workshop**

Proceedings



**ETIP SNET**



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1. Introduction

As part of its mission of guiding Research and Innovation activities to support Europe’s energy transition, the European Technology and Innovation Platform for Smart Networks for Energy Transition (ETIP SNET) will organize 8 Regional Workshops in the course of the next 3 years, covering the whole European Union.



To guarantee to cover all EU countries (including associated ones), these Workshops have been named “Regional” because they gather together Member States in 4 Macro “Regions”. The gathering is mainly based on criteria of neighbourhood and common geographic characteristics and priorities. Please find them below:

- **Western Region:** (France, Ireland, Portugal, Spain and the United Kingdom)
- **Central Region:** (Belgium, Netherlands, Luxembourg, Poland, Austria, Germany, Switzerland, Czech Republic, Slovakia)
- **South-Eastern Region:** (Bulgaria, Croatia, Cyprus, Greece, Hungary, Italy, Malta, Romania and Slovenia)
- **Northern Region:** (Finland, Denmark, Norway, Latvia, Lithuania, Estonia)



This “Regional” dimension has been discarded for the last 3 workshops due to the pandemic crisis and due to the fact that the workshops have been held online. As of the 17<sup>th</sup> Regional Workshop, a return to this regional aspect and a restructuring of the sessions, objective and content was made.

In the framework of ETIP SNET – from 2016 till today – a first series of 8 Regional Workshops has already taken place. You can find the minutes and PPTs of all of them [HERE](#).

The 17<sup>th</sup> workshop took place on 21 March from 10.00 to 16.15 EEST.

## 1.1 Objectives of the Regional Workshops

The aim of the regional workshops is to contribute to the next ETIP SNET R&I Implementation Plans, Roadmap update and the Progress Reports. The selected R&I projects present their findings and will help to identify R&I gaps to update the R&I Implementation Plans (2023-2026) and update of the current Roadmap 2020-2030.

The Regional Workshops have four overall objectives:

- Present and create knowledge on project research results, good practices and lessons learnt of R&I projects on energy system integration.
- Monitor and identify gaps in R&I topics and priorities and to have convergence among national, regional and the European levels.
- Ensure consistency between national and European views.
- Collect information from national and regional projects to feed the Progress Reports and Implementation Plans and Road Map.

## 1.2 Re-structured Organisation of the Regional Workshops

In response to the changing environment surrounding the previously established regional workshops, a re-structuring of the workshops was undertaken. It is understood that this structure was a pilot and that amendments to this structure may still occur but the idea of further involving the respective regional/national R&I programme managers and representatives is the conceptual cornerstone of this new structure.

### Regional Workshop Structure

On March 21, in the morning session the attendees heard from keynote speakers, were introduced to the ETIP and they were able to share their opinions. In the afternoon session important EU, national and regional R&I projects were discussed in panel sessions relating to various elements of energy transition.

### The workshop comprised of moderated expert panel sessions

Representatives of ETIP SNET who presented European R&I programmes and plans (particularly the ETIP SNET Roadmap, Implementation Plan and Project Results and Impact Monitoring) and representatives from member states and countries who presented national programmes, exchange views on RI topics and priorities, identifying potentials for cooperative approaches.

Coordinators of national and EU projects together with representatives of the national funding agencies of the Nordic region were invited to panel sessions to elaborate their findings in the aim of identifying gaps, common challenges in how national, regional and EU projects relate to each other and to the higher-level EU R&I roadmaps, in particular the ETIP SNET Roadmap and Implementation Plan.

The inputs to and the results of these meetings will be assembled to a formal document for the EC, the ETIP SNET and will be summarised to the participants. This way, the outcomes of the expert-roundtables can foster joint approaches, activities, and messages across the wider European energy R&I community. At the same time, the R&I mapping of national, regional and EU



project outcomes to the ETIP SNET Implementation Plan will help bridge the outcomes of projects with EU-level and national-level R&I priorities.

### **The added value of organising the workshop during the Vaasa Energy Week was because there was:**

- Networking opportunity within the stakeholders in attendance,
- Hosting important discussions that lead to key recommendations for EU policymakers on R&I priorities in Smart Networks,
- Visibility toward the European Commission as an organiser of an event that involve several MSs
- Gather crucial information from other MSs' R&I priorities and funding opportunities at national and regional levels

## **Background**

As part of its mission of fostering Research and Innovation activities to support Europe's energy transition with the goal to research, develop and demonstrate technologies, services and their integration across all energy carriers and considering grids and storage, the European Technology and Innovation Platform for Smart Networks for Energy Transition ([ETIP SNET](#)), organises Regional Workshops with the aim to:

- Allow for national and regional R&I programmes to present their approaches and projects of significant added value as input for the development of roadmaps and implementation plans in Europe,
- Align thematic priorities of national programmes and the ETIP SNET/BRIDGE Working Groups, describing concrete developments of technologies towards products, services and how they are integrated in demonstrations, identifying unsolved RD&I topics and monitoring the implementation of RD&I activities at national and regional levels in Europe,
- Ensure consistency between national and European views and stimulate knowledge-sharing between stakeholders of multiple sectors and among European countries,
- Foster the efficient implementation of RD&I projects with their integration of technologies, services across sectors and energy vectors and create interoperable, reusable, scalable results with impact all over Europe.

ETIP SNET implements these workshops in close cooperation with experts of the European Commission, and many relevant institutions. It liaises with national and transnational and international initiatives such as [BRIDGE](#), various ERA-Nets (e.g. [JPP SES](#)) and the recently started Clean Energy Transition Partnership ([CETPartnership](#)). The workshops have been named "regional" because they bring together representatives of Countries in 4 Macro "Regions". The gathering is mainly based on criteria of neighbourhood and common geographic characteristics and priorities.

The Regional Workshop for the **Northern Region took place on 21<sup>st</sup> March 2023.**

## **Audience**

The workshop was held in the Northern Region in Vaasa, Finland organized within the Energy Week, an event well attended by participants from **Sweden, Finland, Denmark, Norway, Latvia, Lithuania and Estonia**. The University of Vaasa and Vebic supported ETIP SNET in the workshop organization.

- **kind of stakeholders:** EC, MSs representatives from ministries in charge of energy and related R&I, as well as funding authorities, industries, municipalities, academia and research centers.

## **Outline of agenda:**

The workshop comprised of moderated expert roundtables with

- Representatives of ETIP SNET who presented European R&I programmes and plans (particularly the ETIP SNET Roadmap, Implementation Plan and Project Results and Impact Monitoring) and representatives from member states and countries presented national programmes, exchanged views on RI topics and priorities, identifying potentials for cooperative approaches.
- Coordinators of national and EU projects together with representatives of the national funding agencies of the Nordic region were invited to panel sessions to elaborate their findings in the aim of identifying gaps,



common challenges in how national, regional and EU projects relate to each other and to the higher-level EU R&I roadmaps, the ETIP SNET Roadmap and Implementation Plan.

The inputs to and the results of these meetings will be assembled to a formal document for the EC, the ETIP SNET and will be summarised to the participants. This way, the outcomes of the expert-roundtables can foster joint approaches, activities, and messages across the wider European energy R&I community. At the same time, the R&I mapping of national, regional and EU project outcomes to the ETIP SNET Implementation Plan will help bridge the outcomes of projects with EU-level and national-level R&I priorities.

**The added value of organizing the workshop during the Vaasa Energy Week were:**

- Networking opportunity within the stakeholders attending,
- Hosting an important discussion that will lead to key recommendations for the EU policymakers on R&I priorities in Smart Networks,
- Visibility toward the European Commission as organizer of an event that involve several MSs
- Gather crucial information from other MSs' R&I priorities and funding opportunities at

### 1.3 Structure of this Report

For each of the Workshops a Report including all the proceedings and key recommendations will be produced. The proceedings will gather the following information:

- List of projects presented at the workshop, with a short description of each of them.
- Number of people registered to the workshop and their distribution per country and organisation of origin.
- Minutes of each session and main questions raised during the panel sessions, and results from each session.
- Recommendations for innovation implementation in the business environment.

## 2. ETIP SNET 17th Regional Workshop

The 17th ETIP SNET Regional workshop was held online via Teams on 21 March from 10.00 to 14.15 EEST.

There were 257 registrants, most of which were unable to come to the event in Vaasa due to a historic Finnish train strike, with 5 different panel sessions covering various topics.

Detailed information is included in the next paragraphs.

### 2.1 Programme of the Workshop

The agenda of the 17<sup>th</sup> Regional Workshop held on 21 March from 10.00 to 16.15

#### **17th ETIP SNET Regional Workshop**

**21<sup>st</sup> of March 2023**

**10.00 – 16.15 (CET +1)**

Vaasa Energy Week -  
Senaatinkatu 1 D, 65100 Vaasa, Finland

#### **Agenda**

TIME	TOPIC	SPEAKERS
<b>10.00</b>	<b>Opening Remarks</b>	<b>Suvi Karirinne</b> - Director, VEBIC <b>Maria Laura Trifiletti</b> – ETIP SNET Coordinator
<b>10.05</b>	<b>Keynote Speech</b> on EC approach to Research, Development and Innovation	<b>George Paunescu</b> – Policy Officer, European Commission DG ENER B5





<b>10.15</b>	<b>Introduction to ETIP SNET &amp; BRIDGE</b>	<b>Edoardo Genova</b> , ETIP SNET Communication Manager
<b>10.25</b>	<b>Introduction to ETIP SNET Roadmap 2022-2031 and High Level Use Cases (HLUC)</b>	<b>Nikos Hatziargyriou</b> , ETIP SNET CORE Team
<b>10.35</b>	<b>Panel Session: National/regional representatives</b> <ul style="list-style-type: none"> <li>Emphases and concerns of national funding programmes</li> <li>Recommendations for further development of Implementation Plans and Roadmaps</li> </ul>	<b>Ludwig Karg</b> - Moderator <b>Reijo Munther</b> , Head of EU Initiatives, Business Finland <b>Maria Backman</b> , City of Vaasa, Strategy <b>Ülo Kask</b> , Tartu Regional Energy Agency <b>Fredrik Lundström</b> , Swedish Energy Agency
<b>11.20</b>	<b>COFFEE BREAK</b>	
<b>11.40</b>	<b>Projects Panel Session 1: BRIDGE projects (key findings, open questions, recommendations)</b> <ul style="list-style-type: none"> <li>OneNet</li> <li>Re-Empowered</li> </ul>	<b>Ludwig Karg</b> – Moderator ETIP SNET CORE Team National representatives <b>Kalle Kukk</b> , Elering (virtual) <b>Maria Valliou</b> , National Technical University of Athens
<b>12:25</b>	<b>Research with impact – the Finnish way.</b> <ul style="list-style-type: none"> <li>RDI in companies</li> <li>funding programmes</li> <li>transnational cooperation</li> <li>impact generation programmes</li> </ul>	<b>Ludwig Karg</b> - Moderator <b>Petri Hovila</b> , Programme Manager at ABB <b>Kenneth Widell</b> , Programme Manager at Wärtsilä Smart Technology Hub <b>Pia Salokoski</b> , clic innovation, Senior Advisor for RDI in Finland and Clean Energy Transition Partnership <b>Jan Segerstam</b> , Enerim Oy, expert for transforming technologies
<b>13.25</b>	<b>LUNCH AND NETWORKING BREAK</b>	
<b>14.15</b>	<b>National and transnational RDI for the Nordic and Baltics regions</b> <ul style="list-style-type: none"> <li>The Nordic Council of Ministers</li> <li>Activities of NER</li> <li>Emphases of national funding programs international cooperation (JPP SES, CETP)</li> </ul>	<b>Ludwig Karg</b> - Moderator <b>ETIP SNET CORE Team</b> <b>Lise Nielson</b> , Senior Adviser of <b>Nordic Energy Research (NER)</b>
<b>14.45</b>	<b>Projects Panel Session 2: Transnational, National, Local projects</b> <ul style="list-style-type: none"> <li><a href="#">FlexSUS</a></li> <li><a href="#">NewSETS</a></li> <li><a href="#">DEVISE</a></li> <li><a href="#">Hellesylt Hydrogen HUB (HHH) E-Regio</a></li> </ul>	<b>Ludwig Karg</b> – Moderator <b>ETIP SNET CORE Team</b> <b>National representatives - TBC</b> <b>Claire Bergaentzlé</b> , DTU Denmark <b>Juhani Riikonen</b> , Flexens <b>Rajnish K Calay</b> , UiT Norway's Arctic University <b>Heidi Tuiskula</b> , Norwegian Hydrogen <b>Iliana Ilieva</b> , Smart Innovation Norway
<b>16.00</b>	<b>Wrap Up</b>	<b>Rainer Bacher, ETIP SNET CORE Team</b>
<b>16.10</b>	<b>Closing Remarks</b>	<b>Karita Luokkanen-Rabetino</b> - Programme Research Manager VEBIC
<b>16.15</b>	<b>CLOSING</b>	

Table 1: ETIP SNET 17<sup>th</sup> RW Agenda

## 2.2 List of Attendees

257 people registered for the workshop. Overall, over the 2 days, the workshop was attended by 70 people both in person and online.

At the event that was heavily affected by the Finnish rail strike we received 40 in person attendees and 30 participants online via our Youtube streaming link. Youtube was used as a last-minute solution because of the abrupt strike.

Moreover, the following figure gives an indication of the distribution of participants by their type of organisation. Please see the list below on the industries that the participants worked in as this is how Vaasa Energy Week asked for participants to register.

### List of Attendees

The in-person attendance was smaller in comparison to expected attendance as there was a historic Finnish train strike. On 20 March a nationwide rail strike began in Finland by the Finnish state-owned railway company. This caused significant disruption for long and short distance travel to Vaasa within Finland.

In the future, organisers need to research in advanced publicly announced protesters. Next time, potentially organisers could provide better information to participants about alternative transportation options to be able to make it in person. In addition, the online platform could have been promoted further.

First Name	Last Name	Company
Aaltonen	Mari	Proekspert AS
Aasma	Antti	University of Vaasa
Abeyasinghe	Odara	University of Vaasa
Ahammed	Sajid	-
Ahnger	Anders	Digital Economy - University of Vaasa
Alagirisamy	Rathan Kumar	Citec
Alexandrov	Alexander	VY
Antila	Elina	University of Vaasa
Arafat	Md Yeasin	Onninen Oy
Arnell	Jari	Building information Foundation RTS Sr.
Arola	Tommi	Student
Balan	Constantin Adrian	Unemployment
Bandara	Kanaththe Gedara Niroshan Danushka	ABB
Bengs	Kenneth	Riga Technical University
Bikovska	Jana	Aquila Clean Energy Finland Oy



Bjelic	Suad	Karelia University of Applied Sciences
Blomqvist	Kim	Ventolines
Boersma	Remco	Pondera Consult
Bor	Bastiaan	Nordic Energy Research
Bratli	Astrid	Biosphere Solar
Brinksma	Siemen	Österbottens förbund
Byskata	Karl-Gustav	University of Vaasa
Cisneros Chavira	Pablo	Energimyndigheten
Claesson	Marie	Regional Council of Ostrobothnia
Dahl	Johanna	University of Vaasa
Dan	Gratiela	VAMK
Davidov	Tanja	University of Vaasa
De Silva	Marian	IIT Bombay & Abo Akademi University
Deore	Sujeet	E-Group, a.s.
Dovicovic	Dusan	Kylla Corporate Transactions Limited (HQ:Amsterdam)
Dwivedy	Chandrakant	Hanken School of Economics
Elbarbary	Hagar	University of Vaasa
Enell-Nilsson	Mona	University of Vaasa
Fatemi	Mohammad	VACUUM GRAVITY ENERGY LLC
Filatov	Anton	Biosphere Solar
Fleury	Perine	Borenus Attorneys Ltd
Fogelholm	Christian	Ael-Amiedu Oy
Fränti	Harri	PwC
Fulep	David	Regional Government of Magallanes
Gallardo	Claudia	IDOM Consulting
Gandolfo	Martín	ABB Oy



Ganoo	Prashant	FRV
García	Juan Andrés	Student at Vaasa university of applied sciences
Ghanbari	Leila	Åbo Akademi University
Ghavami	Niloufar	VALOREM SAS
Girard	Camille	University of Vaasa
Girgibo	Nebiyu	RWE Offshore Wind
Godfroij	Per	Vestas Finland Oy
Grahn	Viktoria	3D Wind Service Oy
Gurvits	Feodor	RENERGENC LIMITED
GYAMFI	EVANS	RENERGENC LIMITED
GYAMFI	EVANS	Salama Bike Oy
Haavisto	Jani	University of Vaasa
Hafeez	Shahid	Krogerus
Hailikari	Ville	European Energy Suomi Oy
Halmela	Erik	Resolution Consulting, LLC
Hamilton	Brittany	Suomen Voima Oy
Hannula	Toni	University of Vaasa
Haq	Hafiz	Cleopa GmbH
Harrivaara	Pauliina	University of Vaasa
Hasan	Md. Tarek	Vuorsola Oy
Hassinen	Elina Vuorsola Oy	NTUA
Hatziargyriou	Nikos	University of Vaasa
Haveri	Johanna	Hillforth Development AB / NTR
Hillforth	Christina	VTT
Himanen	Olli	Infraktor Oy
Hoang	Ha	OX2



Hokka	Niklas	Ministry for Foreign Affairs
Horn	Henri	Kvarken Council EGTC
Häggman	Johanna	University of Vaasa
Hällund	Maria	UPM Energy
Hämäläinen	Harri	Sweco Finland Oy
Härö	Erkki	Alexandria Plc
Iivonen	Toni	Senior Citizen
Ilkko	Leo	Ilmatar Energy
Jantunen	Mika	University of Vaasa
Juntunen	Jouni	OX2
Järvelä	Heino	Roschier, Attorneys Ltd.
Järvi	Jonne	Łukasiewicz - Warsaw Institute of Technology
Kalitowski	Jakub	CENER
Kalms	Alicia	Puhuri Oy
Kangas	Jaana	Windly
Kaplas	Antti	B.A.U.M. Consult GmbH
Karg	Ludwig	Wärtsilä
Karimäki	Henri	NeoEco Oy
Karlsson	Toni	Pohjanmaan työ- ja elinkeinotoimisto
Kasula	Sirisha	FRV
Kenida	Anis	Gauteng Provincial Government
Khumalo	Mzikayifane Elias	Arctest Oy
Kinnula	Johan	DNV Finland Oy Ab
Kinnunen	Petri	Proekspert AS
Kinnunen	Mika	Vaasan ammattikorkeakoulu
Kinnunen	Linda	Entrepreneurship Exchange - EEX Oy



Kitunen	Elisa	2549647-9
Kiukas	Tea	Krogerus
Kivenjuuri	Heidi	Windly
Knaapila	Ville	DekaBank
Koehler	Mathias	CLean Contract Oy
Kohonen	Merja	Neoen Renewables Finland Oy
Korpela	Niko	Pohjan Voima Oy
Koski	Anssi	VAMK
Koskinen	ossi	Karelia-amk
Kuittinen	Ville	Rejlers Finland Oy
Kuusisto	Mika	Puhuri Oy
Lahtinen	Jonna	Krogerus
Laine	Sami	Flanders Government
Lambert	Maarten	Åbo Akademi University
Lankoski	Noah	Ilmatar
Lapp	Tuomas	Capalo AI
Lappalainen	Teemu	Corporate Customers and Markets
Laukkanen	Antti	Krogerus
Launonen	Essi	Fortum Renewables Oy
Lehenberg	Marko	Ruutihattu
Lehtonen	Pekka	Gasum Portfolio Services Oy
Leikola	Taavi	VALREA groupe VAROREM
Leroy	Ludovic	Gauteng Provincial Government (SA)
Lesufi	Andrek (Panyaza)	Novia University of Applied Sciences
Lillhonga	Tom	Skyborn Renewables
Lintinen	Otso	Flexens Oy Ab



Ljungberg	Klas	Ørsted
Madsen	Jørgen	Vamk
Mahajan	Anirudh	Gauteng Provincial Government
Mahlobo	Mbali	Roschier, Attorneys Ltd.
Male	Rene	Gauteng Provincial Government
Mangadi	Lebogang Pridesworth	University of Vaasa
Mantere	Timo	Gauteng Provincial Government
Mase	Khululekile	Labkotec Oy
Matikainen	Mika	LU University
Melin	Kristian	OX2
Mendes	Marco	VAMK Vaasan ammattikorkeakoulu
Miettinen-Battistini	Maria	Elenia Verkko Oyj
Minkkinen	Riku	Borenus Attorneys Ltd
Mohamed	Saara	VALOREM SAS France
Molusson	Anne-France	BusinessFinland
Munther	Reijo	Embassy of Ireland in Finland
Murphy	Steven	SUGAR CORPORATION OF UGANDA LIMITED
MWANZI	MARLON	MyNavix OÜ
Mylly	Markku	VEBIC, University of Vaasa
Myllykangas	Aino	Vestas
Mynka	Yahor	Etteplan Finland Oy
Mäkelä	Juha	Vaasan yliopisto
Mäkelä	Maarit	University of Vaasa
Mäkiranta	Anne	Caruna Oy
Möttönen	Ilkka	Enerke Oy
Neuvonen	Markus	University of Vaasa



Ngo	Anh	Nordic Council of Ministers
Nielsen	Lisbeth	VAMK
Nieminen	Juha	Trelleborg
Nieminen	Kari	Nord Audience Studio Productions Oy
Nouchti	Jonas	Łukasiewicz Research Network - WIT
Nowak	Katarzyna	University of Vaasa
Nuortila	Carolin	Atlas Copco Specialty Rental
Nykänen	Anna	NoCer Oy Ab
Nyqvist	Lars	Embassy of the Netherlands
Ojanperä	Miina	Vaasa International Talents - Novia University of Applied Sciences
Okumu-Nisula	Harriet	Energiequelle Oy
Ollila	Hanna Leena	University of Vaasa
Ovaska	Teemu	Bluefors
Ozinga	maris	University of Vaasa
Paalosmaa	Tomi	Will & Must Oy
Parpala	Matti	Prohoc Oy
Pasanen	Antti	EPV
Peltonen	Niina	Business Finland
Petrini	Tobias	YaiYai Oy
Pichkhadze	Tamar	Raahen Teknillinen Seura
Pieskä	Timo	QMG
Pleskä	Mikko	Riga Technical university
Pirta-Dreimane	Ruta	HELEN
Polvilampi	Petri	Åbo Akademi
Portela	Thaysa	ERRIN
Pozzebon	Francesca	Marshal Office of Slaskie Voivodship





Ptak	Monika	Vamk
Pöntinen	Aleksi	Knowledge & Innovation
Quinti	Gabriele	Neova Group
Rajala	Ville-Veikko	Rejlers Finland Oy
Rantala	Timo	Suomen Hyötytuuli Oy
Rantala	Jukka	Wärtsilä Energy
Rim	Terry	Fortum Renewables Oy
Rinne	Suvi	Väre Oy
Rinne	Jari	Seinäjoen kaupunki
Rintakallio	Tero	Clerencon Oy
Rintamaa	Rauno	Riga Technical University
Romanovs	Andrejs	Eolus Finland
Ruiz de Almirón	Cayetana	CloEE
Sabitova	Julia	ZNL Energy AS
Sagmo	Jan Børge	Imatran Seudun Kehitysyhtiö Oy
Saharinen	Janne	Nokia
Salmela	Veli Matti	ST1
Salmi	Mikko	Sofor Oy
Salo	Seppo	Renantis
Sandberg	Michael	Elenia Verkko Oyj
Sarhela	Lasse	Port of Raahe Ltd
Sarpola	Pauli	Jesuit Centre for Theological Reflection
Sauti	John Kunda	Despro Engineering Oy
Savolainen	Antti	Prime Capital AG
Schmid	Andreas	Energiequelle
Schultheis	Karl	Castrén & Snellman Attorneys Ltd



Seppälä	Sanna-Mari	University of Vaasa
Seyedbarhagh	Seyedehsahar	University of Vaasa
Shahbazbegian	Vahid	University of Vaasa
Shahzad	Khuram	Roschier, Attorneys Ltd.
Siimes	Toni	Energiequelle Oy
Sinisaari	Heikki	Fondia Oyj
Skön	Netta	University of Vaasa
Sofroneeva	Ekaterina	Energy Efficiency Agency
Soloviov	Nicolae	University of Vaasa
Sultana	Fatama	Allox Advance Materials Private Limited
Sunkavalli	Anjani Sri Mourya	Green Industry Park Oy
Suutarla	Timo	Analytics Pika Oy
Söchting	Ilona	United Bankers
Söderholm	Staffan	Ilmatar Energy
Söderman	Jenny	University of Vaasa
Tajwar	Md Rakin	Comatec Project Services Oy
Tanila	Niklas	BEPA / CLERENS
Terry	Jesse	EnergyVasek
Testaaja	Kris	Business Finland
Thakur	Puneet	Flanders Investment & Trade
Tuohino	Hanna	Capgemini
Tuominen	Kimmo	Energiequelle Oy
Tuomola	Topias	VAMK
Uyanwatta	Dulani Chamari	St1 Oy / Wind
Vaarala	Outi	Suomen Hyötytuuli Oy
Vahteristo	Simo	OEM



Vainio	sakari	VALOREM SAS France
Walcker	Ingrid	Regional Government of Magallanes
Valdivia	Jorge	Ventolines
van der Pal	Aart	LKAB Minerals
van der Woude	Isla	Novia/AP Hogeschool
van Nistelrooy	Linus	Welado Oy
Vanha	Henri	Gasum Oy
Vehviläinen	Jaakko	Labroc Oy
Vehviläinen	Mika	Will & Must
Vepsäläinen	Mikke	Vaasan ammattikorkeakoulu
Vest	Marja-Riitta	Vaasa insider
Vesterback	Malin	Montel News
Wickström	Carl-Emil	Business Finland
Widd	Ulf-Erik	Direction COMEX JYG/VALOREM SAS
Vignoulle	Thierry	VTT
Viinamäki	Paula	Umeå University
Wikman	Tobias	SEB
Vilén	Kari	VALOREM SAS
Wirth	Kelly	Will & Must Oy
Voipio	Anssi	Regional Council of Ostrobothnia
Voldi	Tero	Consulting-Projektplanung-Gutachten
von Wachholtz	Reimar J. C.	Åbo Akademi University
Wu	Jun	Onninen Oy
Vuollekoski	Valtteri	University of Vaasa
Välisuo	Petri	Hanken School of Economics
Yang	Man	Yrkeshögskolan Novia



Ylitalo	Petra	Vattenfall
Zackrisson	Erik	University of Vaasa
Zandrazavi	Seyed Farhad	Åbo Akademi University
Özdenkci	Karhan	

Table 2 indicating registrations

### 3. Proceedings

In previous Regional Workshops, these proceedings took the form of formal minutes divided by each of the different sessions as portrayed by the prior format. For the purposes of the future proceedings, the ETIP SNET Rapporteur's conclusions of the interaction between the regional/national representatives and the ETIP SNET's CORE Team regarding the ETIP SNET's High Level Use Cases were detailed below.

#### 3.1 Representative Roundtable

Panel Session: National/regional representatives Emphases and concerns of national funding programmes Recommendations for further development of Implementation Plans and Roadmaps

##### 50 shades of EU – from participant to influencer, Reijo Munther, Business Finland

The priority on European sovereignty in strategic technologies and value chains has been highlighted, with a goal of reforming EU markets.

Regarding EU funding, it has been noted that the main benefits of EU projects are:

- Co-creation with top European talents & potential customers, building go-to-market channels already in the RDI phase, accessing European value chains
- Implementing ambitious and high-risk projects, pilots and demos with European partners
- Working with the best in Europe

Still, homework is done at home, which is good for developing technology, competence and overall competitiveness as well as collaboration and networks in Finland. Business Finland encourages their customers in the national projects to build international partnerships and networks to support their internationalization at an early stage

It has been noted that EU provides tools which are fully in line with national strategy. In particular, EU offers a frame and funding for collaboration, innovation and investments in strategic areas, such as European collaborative RDI in Horizon Europe and its industrial partnerships, Pilots and first deployment of green technologies in Innovation Fund, etc.

##### Maria Backman, City of Vaasa, Strategy

Maria Backman presented information on the IRIS smart city project. Solutions have been applied in a number of 'lighthouse' cities with the aim to be replicated in other cities. In this respect the city of Vaasa chose a number of solutions (out of the 16 solutions developed within the project) in order to replicate them. Solutions have been replicated in a broader perspective, taking into account, the relevant political situation, the adaptations needed, etc. The importance of the partnerships developed within the project has also been highlighted, while indicating the importance of being in a group in a larger perspective.

The tight connection between the universities, companies, and city government in Finland has been highlighted, while indicating the engagement and cooperation with citizens as well as all stakeholders. It has also been noted that sustainable development goals have been linked to the city strategy.

##### Ulo Kask: Tartu Regional Energy Agency

Ulo Kask presented the trends and goals of the Estonian energy sector. The preparation of the Energy Economy Development Plan (ENMAK) up to the year 2035 is planned for the end of this year, while next year it will go to the



Parliament. Studies conducted for the preparation of the Estonian energy economy development plan comprise scenarios and action plans for climate-neutral electricity production, for a carbon-neutral heating and cooling economy and for the decarbonization of the gas network. Moreover, the hydrogen roadmap is taken into account for preparing the ENMAK.

The ENMAK comprises three main areas: 1) ensure that Estonia's energy supply security is guaranteed, 2) The share of renewable energy in the final energy consumption will be 65% by 2030 and at least 70% by 2035, 3) Objectives in the field of energy efficiency, setting goals for the primary energy consumption by 2035. In order to achieve the relevant energy efficiency goals, a program for renewing and conservation of building stock and building sector is set, while during the next year 80 million euros will be assigned to renovation of apartments and private houses.

Regarding research and Innovation, it has been noted that hydrogen is taken into account in the industry and transport, while offshore wind parks should also be considered, in addition to the evaluation of plans related to biomass. Horizon provides a number of opportunities for European collaboration in these fields, so it could be worth considering this collaboration in the future.

## **Fredrik Lundström – Swedish Energy Agency**

Fredrik Lundström presented an overview of the policy targets in Sweden, and relevant work on research and innovation. In particular, four pillars are highlighted: 1) fossil free electricity by 2040, 2) efficiency target of a 50% more efficient use of energy in 2030 compared to 2005, 3) Target of no net emissions of green house gases by 2045, 4) 70% less emissions in the transportation sector by 2030 compared to 2010.

Regarding the electricity production in 2022, about 40% was from hydropower and about 30% from nuclear. 20% of electricity production was from wind power, while a small portion was related to PV production, which however is considerably increasing each year. A lot of the electricity was exported, however, considering the transition in the industrial sector, more electricity production will be required by 2030.

Most of the electricity production occurs in the northern part of Sweden, including hydropower, land-based wind power, and connections to Finland and Norway. The nuclear production from Finland helps to maintain a steady supply of electricity at comparably low prices. However, in the southern part of Sweden, a lack of electricity supply is noted (also related to retired nuclear plants). Identifying new sources of supply and strengthening the grid to create a balanced system, are considered as priorities for energy research, innovation, and policy work.

The following challenges are identified: 1) electrification, considering the doubling of the electricity demand in 20 years, 2) expand renewable and nuclear production to meet this demand and 3) energy security and resilience not only in the energy supply but also in all the value chains, considering an industrial perspective. The importance of industrial decarbonization has been highlighted putting a lot of emphasis on green hydrogen production. Regarding research and Innovation funding, it has been noted that it mainly occurs in a local basis. However, collaboration in an international level is important and is achieved with partnerships, like the clean energy transition partnership.

## **Project Panel Session -1**

### **Kalle Kukk – OneNet project**

Kalle Kukk presented the OneNet project which focuses on tackling the flexibility Market issue, while also examining issues related to data management. Deliverables related to the reference architecture are already available, while the project is now entering the demonstration phase. The project includes four demo areas. Regarding the Northern Cluster area, it involves partners from the countries Finland, Estonia, Latvia and Lithuania, comprising market operators, flexibility service providers and research centers.

The demonstration activities are focusing on the following novel aspects:

- Harmonised flexibility products, which are defined so that the same product is used for different purposes (like for balancing and congestion management) and also the same product can be used by different actors (like the TSO or DSO).
- The flexibility register use case: it is a central system to store the information about the flexible resources. This is also where the pre-qualification and the settlement takes place, based on baselines and metering data.
- TSO - DSO coordination, which is a dedicated service/module where the optimization takes place.

The relevance of the project to each HLUC is depicted in the next figure:



project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>OneNet</b> (funded by Horizon 2020)	●	●●●	●●●	●●	●●●	●	●	●	●●	

●●● extremely relevant  
 ●● highly relevant  
 ● relevant to some degree  
 n/a – don't know

Figure 1 OneNet mapping onto HLUC

The project mostly relates to HLUC-2 since it defines the products which can be commonly procured and optimized centrally for different needs and different buyers. Additionally, in relation to HLUC-3, the project develops a market design, looking at it from the consumer centric product definition perspective. The project defines the harmonized products processes, like the pre-qualification, settlement or activation and also the common tools, like the flexibility register. Related to HLUC-5, the project aims to create an integrated platform that will enable the participation of consumers to the flexibility market.

It has also been noted that it is important to evaluate synergies among national (e.g. congestion management) markets with European (balancing) markets. Moreover, it is important to identify how to let demand side flexibility enter the supply side of the day-ahead and intraday wholesale markets. In order to engage small end customers, it is important to understand their needs and behavior to provide them with solutions that are tailored to their preferences. Surveys can be a useful tool to gather information and insights from customers. Additionally, making the energy market more seamless and user-friendly (e.g. through plug-and-play apps) can help to attract more customers and make it easier for them to participate in the market.

## Maria Valliou, RE-EMPOWERED

Maria Valliou introduced the RE-EMPOWERED project, which is a Horizon 2020 project that aims to develop and demonstrate solutions for energy transition in Europe and India. The project has seven European partners and seven Indian partners, and it is funded by the European Commission and the Department of Science and Technology in India. The project's main goal is to develop and demonstrate solutions for energy transition in islands and weakly connected energy systems, based on microgrids and exploiting multiple energy vectors.

One of the European demo sites is on the Burnhome Island in Denmark. The focus is to exploit the synergy between the local district heating network and the production of renewable energy sources (RES) and photovoltaic systems (PV). The excess power produced by PV is stored in the hot water storage tank, enabling higher penetration of RES and reducing the utilization of the straw boiler.

The project has developed several software tools, including Echo Mass, Echo Microgrid, and Echo Planning. These tools enable multi-factor optimization for expansion planning of electrical systems, multi-vector optimization for microgrids of different scales, and predictive control strategies to proactively engage assets and loads for maximum system performance. The project also focuses on digitalization and consumer engagement, sector integration, and power electronics. Overall, the project aims to demonstrate the benefits of using microgrids to improve energy efficiency and increase renewable energy penetration in local and wider systems.

The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>RE-EMPOWERED</b> funded by EC (CINEA) (European partners) and Indian DST (Indian partners)	●●			●●●	●●●	●				

Figure 2: RE-EMPOWERED mapping onto HLUC

## Research with impact – the Finnish way.

### Petri Hovila, Programme Manager at ABB

Petri Hovila presented the ABB Green Electrification 2035 project which aims to optimize the system-level energy efficiency and reliability. The project combines an ecosystem of partner projects and ABB R&D work. The project consists of the development of two main platforms, namely the power conversion platform and the commercialization



and global scaling platform. The platforms are more open and connectable compared to the past, allowing the creation of an ecosystem over these platforms. ABB Business Finland reserved €50 million for this ecosystem project, and there are different application examples that customers and research partners can utilize. The project has involved over 60 companies, research partners, and customers. There are over 80 national new applications and over 50 European-like horizon Europe applications submitted during the project. There are also two new ecosystems where ABB has been a key player, namely the H2 Cluster Finland and the vPAC Alliance. The developed systems are complex and need further research and faster implementation of the research results into the real platforms. One of the challenges the team has encountered is implementing large-scale pilots and demonstrations. The team has tried to match potential new pilot demo sites with the involvement of an innovation project.

The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
ABB Green Electrification 2035 (Business Finland)	●●	●	●●	●●●		●●	●●●			

Figure 3 ABB Green Electrification mapping onto HLUC

### Kenneth Widell, Programme Manager at Wärtsilä Smart Technology Hub

Kenneth Widell's presentation focused on the importance of funding and strategic alignment for private companies. He emphasizes that companies must have stability in their strategic planning and focus on strategic alignment to be successful. It has been noted that funding mechanisms for projects can take years to be approved, and companies must be patient and stick to their strategy. Kenneth emphasized the importance of openness, transparency, and expectation management within the consortium to ensure a win-win outcome for all parties. He suggested that companies should try to influence the calls to get ahead of the competition and identify common interests. Kenneth recommended that companies identify their place in the value chain and be aware of competitors in the consortium. He mentioned that it is important to raise flags with partners immediately when something occurs.

### Pia Salokoski, clic innovation, Senior Advisor for RDI in Finland and Clean Energy Transition Partnership

Pia Salokoski, introduced her organization, Clic Innovation, which is a cluster organization owned by 46 large international companies, universities, and research organizations. The organization aims to increase the impact of RDI projects by preparing, coordinating, and managing them, and by solving systemic challenges. To achieve these goals, Clic mixes industry from different sectors, universities, and other stakeholders to create an ecosystem of ongoing, continuous discussion.

Clic manages an ecosystem called Green Electrification Ecosystem, which brings together different companies, SMEs, startups, large companies, research organizations, and public organizations. Additionally, the organization has a toolbox consisting of four different phases: exploring the ecosystem, building the projects in the ecosystem, accelerating those projects to be more business-oriented, and maximizing the impact of the projects' findings. Clic emphasizes the importance of impact maximisation efforts, which is a topic that needs to be emphasized in EU projects. Therefore, Clic expresses the need for a joint, common discussion framework between different stakeholders. For example, researchers from different countries can provide interesting insights, and companies can bring valuable knowledge to researchers. Communication between researchers and companies is essential, especially for SMEs, which cannot wait years to get the right results for their development.

### Jan Segerstam, Enerim Oy, expert for transforming technologies

Jan Segerstam mentioned the importance of strategic alignment. He emphasized the significance of readiness, which means preparing for any unexpected event and understanding the impact it could have. To achieve actual impact, the right people need to be involved, a plan needs to be in place, and execution should be prompt. Segerstam believes that this is the Finnish way of collaborating and creating new things in the energy sector. Segerstam introduced his company called Anarim, which provides services and software for the energy sector. Segerstam discussed the important changes happening in the energy sector, driven by renewable production, which is expected to be larger than it is today. He commented on how all different industries need to work together to find





out what works best where. He mentioned that there is a big change happening and that ways should be found to build Readiness and make things happen in a good way. Segerstam also emphasized the importance of collaboration with the industry and the customers to innovate in the energy sector.

### **Panel Discussion**

Revisiting Technical Readiness Level (TRL) vs Market Readiness Level (MRL)

Ludwig Karg opened the discussion by mentioning the importance of readiness levels, specifically TRLs, in funding programs. He then raised the question of whether MRLs are discussed in the ETP network. Jan Segerstam agreed and suggested that the focus should be on achieving market readiness to create impact. He also suggested revisiting the scale, as the TRL scale has a history and background that might not be suitable for measuring market readiness. Kenneth Widell emphasized the importance of involving end-users and stakeholders early in the development process. He mentioned that the entire value chain should be involved, as it is not enough to have a product or a solution that can be used or burned in engines.

The panelists then discussed the possibility of combining national and European projects and stakeholders for joint impact. Jan Segerstam mentioned that national efforts might have limitations that do not allow working on certain levels. However, combining efforts in the European Union can be used to change the game across Europe, which can then be followed by national efforts.

The discussion concluded with the agreement that involving end-users and stakeholders early in the development process is crucial for achieving market readiness and creating impact. The panelists also agreed on the importance of revisiting the readiness scale and combining national and European efforts for joint impact.

### **National and transnational RDI for the Nordic and Baltics regions**

#### **Lise Nielson, Senior Adviser of Nordic Energy Research (NER)**

Lise Nielsom introduced Nordic Energy Research which is funded by the Nordic countries and allocates funding for energy research projects through a common pool and national funding instruments. The cooperation within the NER has existed for more than 40 years and covers the Nordics and Scotland. To be eligible for funding, at least three Nordic countries have to participate in a proposal. Nordic Energy Research has active programs such as the Joint Nordic Hydrogen Programme, Nordic Grand Solutions, Nordic Maritime Transport and Energy Research Programme, Nordic-Baltic PhD network and researcher mobility, Nordic Energy Challenge, NordGrid, Nordic Energy Equality Network Discussion.

Following the presentation, the discussion focused on the importance of including diverse perspectives and considering the needs of people while implementing renewable energy. It also highlighted the need for educating the existing workforce to handle renewable energy technologies. The discussion emphasized the connection between sustainable development and energy transition.

### **Projects Panel Session 2: Transnational, National, Local projects**

#### **Juhani Riikonen, Flexens**

Juhani Riikonen, presented the Project NewSets, which focuses on energy storage and sector coupling, emphasizing on thermal energy storage and underground pumped hydro storage. The project involves in-depth market analysis, feasibility studies, and demonstrations, with LUT University and Flexens Oy Ab. The project will last until May 2024, and will result in a wide range of publications.

Riikonen noted that the project is relevant to the HLUCs, particularly in the areas of grid storage and sector coupling. The key findings of the project were discussed, highlighting the “cannibalization” of energy storage as one such finding. Simulations showed that introducing different energy storage types into a high-RES system affected the energy flows and earnings. If energy flows were reduced by 10%, earnings of storage types were reduced by 20%. Riikonen noted that these finding raised questions about how to minimize “cannibalization” while maximizing the benefits of storage.

The discussion focused on the concept of “cannibalization” in the energy storage market. The participants discussed the reasons behind this phenomenon, which is essentially the competition between different types of energy storage, leading to a decrease in earnings for the original storage system. They talked about how the introduction of a new storage system affects the earnings of the existing one, and how this phenomenon is case-specific and can depend on factors such as the amount of storage and market conditions. They also discussed how the capital cost of storage can influence the decision to implement storage systems, and the potential impact on the growth of renewable energy if storage is not implemented.

The relevance of the project to each HLUC is depicted in the next figure:





project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>NewSETS</b> (ERA-Net SET Joint Call 2019 MlCall19)	•••		••	•••						

Figure 4: NewSETS mapping onto HLUC

## Rajnish K Calay, UiT Norway's Arctic University

Rajnish K Calay presented the project called "Different Energy Vector Integration for Storage of Energy" (DEVISE) which is a project coordinated by the Indian Institute of Technology in Roorkee, with partners from India, Norway, Italy, and Sweden. The objective of the project is to create a comprehensive storage system that can efficiently and rationally utilize all forms of energy. The project aims to integrate different energy vectors for ease of storage and facilitate the conversion from one form to another. This will be achieved by creating a heterogeneous storage facility for diverse forms of energy and facilitating their conversion from one form to another to optimally cater to different loads. Currently, energy from various renewable sources is primarily converted into electrical energy for ease of transportability, but the predominant electrical storage prevents the efficient and rational end-use of other forms of energy, especially heat. A holistic approach is needed to integrate and transform different forms of energy for rational end-use and storage of all forms of renewable energy, enabling optimal interchange. The project is mainly relevant to HLUC1, HLUC8 and HLUC9. The presentation concluded by highlighting that the project's findings, so far, indicate that thermal storage and hydrogen storage are viable options for industrial processes.

The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>DEVISE</b> (MI Call 19...)	••							••	•••	

Figure 5: DEVISE mapping onto HLUC

## Heidi Tuiskula, Norwegian Hydrogen

Heidi Tuiskula from Norwegian Hydrogen presented their work in three major business segments related to hydrogen: on-site production, industrial applications, and refueling. Their project, the Hellesylt Hydrogen Hub, aims to leverage the abundant renewable energy in the Hellesylt location and address transportation challenges through hydrogen-based mobility solutions. The project also intends to explore sector coupling.

The presenter noted some key challenges slowing down the development, including a complex permitting process and community engagement, due to the relative scarcity of such projects. Additional technical issues include the need for increased overall energy efficiency by fully utilizing the heat from the hydrogen production process and addressing the difficulties of liquifying the oxygen produced during electrolysis due to small volumes. The representative also noted the importance of optimizing production and fueling sites to minimize safety risks associated with hydrogen. The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
<b>Hellesylt Hydrogen HUB</b> (Research Council of Norway/Innovation Norway)	••		••	••	•			•••	•	

Figure 6: HHHub mapping onto HLUC

The discussion focused on the potential of hydrogen as storage and its transportation. Heidi Tuiskula pointed out the practicality of producing hydrogen where it's needed, which reduces the logistical complexities. Hydrogen's potential is also emphasized as a local storage medium. However, for larger scale production, the use of pipelines or vessels for transportation needs to be considered. The key areas of focus for Norwegian Hydrogen's application of hydrogen solutions were identified as maritime solutions and heavy transport. The discussion concluded with the acknowledgement that, while there are unresolved issues in the field, there is an urgent need for implementing available solutions as some areas already require hydrogen-based solutions.

## Iliana Ilieva, Smart Innovation Norway

Iliana Ilieva presented the work conducted by Smart Innovation Norway, a research organization established in 2003 based in the Southeast corner of Norway. The organization's research focus is sustainable energy, artificial intelligence, digital entrepreneurship, smart cities, and social and behavioral innovation. Ilieva presented the E-REGIO project, which focuses on local energy markets, analyzing, testing, and validating new ways to implement them, with two pilots in Norway and Sweden.

The project concentrated on three high-level use cases: local markets, digital technologies to facilitate consumer participation in these markets, and the provision of flexibility services. It further investigated additional topics related to peak shaving, surplus storage, shortage, and peer-to-peer trading. In Norway, the project utilized local production of photovoltaic energy and local storage, combined with local demand, to establish a local market. This was facilitated by multi-energy trading algorithms that could locally optimize bids and ask for flexibility and energy. The Swedish pilot focused on vehicle-to-grid and vehicle-to-building energy, aiming to provide balancing services to the market.

The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1 Local market platform for flexibility trading	HLUC 2 Community storage	HLUC 3 Distributed PV generation	HLUC 4 V2G	HLUC 5 V2B	HLUC 6 Battery control room	HLUC 7 E-mobility services
E-REGIO (ERA-Net Smart Gris Plus)	●●●	●●●	●●	●●●	●●	●●	●●

Figure 7: E-REGIO mapping onto HLUC

The discussion focused on the topic of local versus global marketplaces. The necessity of local marketplaces for trading local products was questioned, suggesting the possibility of trading local products on global marketplaces. Ilieva responded by stating the benefit of having isolated cases for trading, particularly when connectivity to the central market is not feasible.

## Claire Bergaentzlé, DTU Denmark

Claire Bergaentzlé presented the Flexibility for Smart Urban Systems project (Flexus). The goal of the project is to support city representatives, planners, and energy planners in their efforts to drive sustainability. The project develops user-friendly interfaces and tools to help municipalities understand and implement sustainable practices. Three models are developed to help municipalities understand how to expand district heating and individual heating resources and technologies. The project revealed some important findings and discrepancies, including a gap in the cost of investing in a decarbonized heating system and the misallocation of subsidies due to discrepancies in heat estimates.

The relevance of the project to each HLUC is depicted in the next figure:

project / program	HLUC 1	HLUC 2	HLUC 3	HLUC 4	HLUC 5	HLUC 6	HLUC 7	HLUC 8	HLUC 9	other
FlexSUS (ERA-Net RegSys)	●●●		●	●●				●	●●●	

Figure 8: FlexSUS mapping onto HLUC

The discussion focused on the topic of volumetric tariffs against low-income citizens. Claire Bergaentzlé clarified that while volumetric tariffs can protect low-income consumers, it may also hinder investment into electric cars and heat pumps.

## Conclusions

Rainer Bacher presented the concluding remarks of the workshop. He mentioned the importance of the collaboration between ETIP-SNET and BRIDGE. During the workshops, ETIP-SNET's Roadmap and Implementation Plan have been presented, focusing on the High-Level Use Cases. Summarizing the workshop, Rainer highlighted the importance of such events to broadening the knowledge and understanding the energy sector, both its technical and sociopolitical.

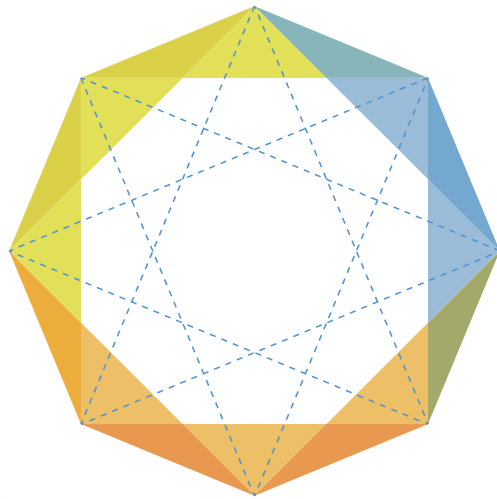


He commented on the term “business R&D” that was mentioned during the sessions and highlighted the difference between what the projects are doing and what the industry is heading. He also underscored the importance of balancing national and regional projects. Developing and using common platforms is useful since it increases the interaction between the projects. The projects and the research results should increase the interactions between scientists, policy makers and business entities, since there is an increasing need to integrate the business side to the projects. From a more technical aspect, he highlighted the important research question of decentralized against centralized solutions, the strategic reflections of cannibalization of storage, the role of disruptive, non-conformist solutions and the increasing research interest on green hydrogen.



## 4. Feedback from Participants

Participating representatives of the 17<sup>th</sup> ETIP SNET Regional Workshop received after the event an evaluation form, where they could express their appreciation for the event. In total, for this event we received no feedback. The event hosts sent out a questionnaire after the event as well, which could have had an effect on the lack of feedback on our form.



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