User-Centred Energy Systems

UsersTCP 2021 Annual Report

Contents

Chair's Statement

> "
International collaboration lies at the heart our work. It enables us to learn lessons from each other's experiences, pool resources and foster the acceleration of our energy transitions.

"Ambition requires permission!" This quote from Kristian Ruby, Secretary General of Eurelectric, neatly captures an important part of the rationale for the Users TCP.

Democratic governments can't decarbonise our energy infrastructure without *public engagement* to establish and maintain the democratic mandate of their electorate. Likewise, energy companies can't deliver that decarbonised energy system without a *social licence to automate* dispatchable demand to balance intermittent generation. These are two areas of future research interest to the Users TCP and ones in which we have Tasks under development.

Of course, maintaining the democratic mandate requires an equitable distribution of the costs and benefits of decarbonisation. Supporting our understanding of this is our work on *hard-to-reach energy users* and our work on *gender and energy.* It is increasingly clear that we will face acute pressure on both fuel and food prices in the coming years in many parts of the world. This will, unfortunately, make our work on energy equity of increasing importance for policy makers and regulators world-wide.

Gaining the public's permission to decarbonise is not sufficient on its own. For the demand side to play its needed active role in a far more distributed and dynamic energy system, users must also purchase assets such as heat-pumps, electric vehicles, smart home devices and energy management systems – as well as allow those assets to participate in the energy system. Here the understanding and application of *behavioural insights,* the *usability of smart home technologies,* and the aggregation of such technologies through new models such as *peer-to-peer energy trading, community self-consumption and transactive energy* are key to realising the value of such technologies both for users and society as a whole.

While the Users TCP is active in all these areas, with many of these Tasks well established, it is clear that

we must expand our portfolio if we are to service the growing needs of our policy maker community. As I write it is becoming clear that we are facing the biggest energy crisis since the oil shocks of the early 1970s. The trilemma of energy security, affordability and sustainability is at the top of governments' agendas and all solutions will require the trust, consent and engagement of users. The Users TCP will continue to provide the international comparative evidence our members need to inform their decision making at this challenging time.

This year saw the publication of the IEA's landmark 'Net Zero by 2050' report that set out the milestones that the world will need to meet over the next 30 years. Most of the technologies needed are already available. What we need are increases in the uptake of low carbon technologies, use patterns aligned with carbon goals and public acceptance of the adoption of the policies and infrastructure developments required for net zero. Socio-technical analysis will be vital in ensuring that these problems are solved, making our research programme a critical element to support our member country governments.

International collaboration is at the heart of our work and I am pleased to say that the last year has seen the Users TCP work closely with both the International Energy Agency (IEA) Secretariat on their Digital, Demand-Driven Electricity Networks Initiative (**3DEN**) project and the Organisation for Economic Cooperation and Development (OECD) in the development of the **EPIC** household behaviours survey. Our work with other TCPs has also grown, most notably with the Energy Efficient End-use Equipment TCP (4E) on the **role of usability in smart devices** and with the Buildings Coordination Group in the development of a forthcoming joint IEA / TCP publication on how to meet net zero milestones. I'm excited to see this level of collaboration amongst TCPs and look forward to further fruitful joint working.

Of course, the heartbeat of the Users TCP is the hundreds of researchers, policy makers and industry experts working on our Tasks. Among the significant achievements over the last year, I would like to point you to our first **Users TCP policy brief** produced by our Behavioural Insights

Platform, the launch of the **Fit to Serve Platform**, bringing together outputs from Energy Service Business Models Task and the publication of state-of-the-art reports from our **Social License to Automate, Hard-to-Reach Energy Users** and **Global Observatory on Peer-to-Peer Energy Trading, Community Self-Consumption and Transactive Energy (GO-P2P)** Tasks.

Another highlight was our first workshop in Latin America, organised by GO-P2P alongside the IEA, the United Nations Environment Programme and EIA University in Colombia. The event focused on user-centred energy models and was an excellent example of how to engage hundreds of participants in a hybrid meeting environment.

I look ahead to the next 12 months with anticipation as our Task outputs mature and new work begins. Our Behavioural Insights Platform will launch its Policy Toolkit. The collaborative **Taskforce** between GO-P2P and the International Association for Trusted Blockchain Applications (INATBA) will deliver its conclusions. Our **Gender and Energy** Task has been launched jointly with the Clean Energy, Education and Empowerment TCP (C3E). We also have two new Tasks in development, on public engagement and demand-side automation.

I hope that reading this annual report will inspire you to reach out to the Users TCP to collaborate with us in our current and future work programme, whether you are a policy maker, a researcher or working in the industry. International collaboration lies at the heart our work. It enables us to learn lessons from each other's experiences, pool resources and foster the acceleration of our energy transitions. As we face uncertain times, sharing the lessons of each other's experiences in a spirit of collaboration and common purpose has never been more important.

**DAVID SHIPWORTH
CHAIR**
March 2022

Overview & Key Achievements in 2021

The User-Centred Energy Systems mission is to provide evidence from socio-technical research on the design, social acceptance and usability of clean energy technologies to inform policy making for clean, efficient and secure energy transitions.

Main Policy Messages and Key Achievements in 2021

Socio-technical research is needed to maximise social permission for, adoption of, and correct use of low carbon technologies.

Many of the technology solutions already exist but suffer from low uptake and performance gaps by making narrow and simplistic assumptions about users' needs and behaviour. Improving these implicit assumptions leads to more effective policy making, technology design and business models.

Value creation for power systems, consumers and wider society is often misaligned in emerging markets for peer-to-peer energy trading and demand side flexibility services. Aligning these requires rethinking market design and power systems regulation including a clear "social license to automate" DSM.

Local (customer level), short term (minutes to days) predictive models of generation and demand are a key missing technology bundle for both automation and uptake of distributed flexibility assets. Such models increase asset performance, improving service and reducing pay-back periods for customers.

Lessons from behavioural economics, psychology and sociology can be applied to energy policy, driving better outcomes. Many of the available behavioural levers are not being applied to their best extent.

January

BUSINESS MODELS & SYSTEMS
• What can entrepreneurs and their business models contribute to accelerating the energy transition? Concluding Academy session from this Task.

February

EXCO
• World After COVID – how have behavioural changes affected energy demand and what does this mean for the future? Academy event with IEA.

March

EXCO
• 2020 Annual Report published

BI PLATFORM
• First TCP Policy Brief from the Behavioural Insights Platform

April

EXCO
• 3rd UsersTCP ExCo meeting
• Newsletter #4
• Four Users TCP Tasks represented at BEHAVE 2021 conference

BI PLATFORM
• Launch of Fit to Serve platform by Business Models and Systems Task at conclusion of task

May

G&E
• Gender & Energy Task launch event with C3E TCP

July

GO-P2P
• 4th meeting of GO-P2P participants
• GO-P2P Task joint workshop with IEA Secretariat (3DEN) in Colombia on user-centred energy models in Latin America

September

SLA
• Published peer-reviewed report 'Social license to automate: A critical review of emerging approaches to electricity demand management'

October

EXCO
• 4th UsersTCP ExCo meeting
• Joint report with 4E TCP "Are we getting the best out of Smart Home Technologies? The role of usability"plus Academy presentation

SLA
• Conclusion of Phase 1 of the Social License to Automate Task
• Final Task report - Social license to automate: Emerging Approaches to Demand Side Management

HTR
• 7 Case study analyses on HTR energy users in different countries

November

G&E
• Gender & Energy Task first newsletter

SLA
• Webinar presentation of the findings of the Social License to Automate Task

GO-P2P
• GO-P2P was featured in the IEA initiative 'Today in the Lab – Tomorrow in Energy?
• 5 sub-task literature reviews published throughout 2021

December

EXCO
• Academy session with IEA on Energy Efficiency 2021
• Newsletter #5

January 2022

HTR
• Invitation by Chief Editor of Nature Energy to submit comments and a World View

February 2022

BIP
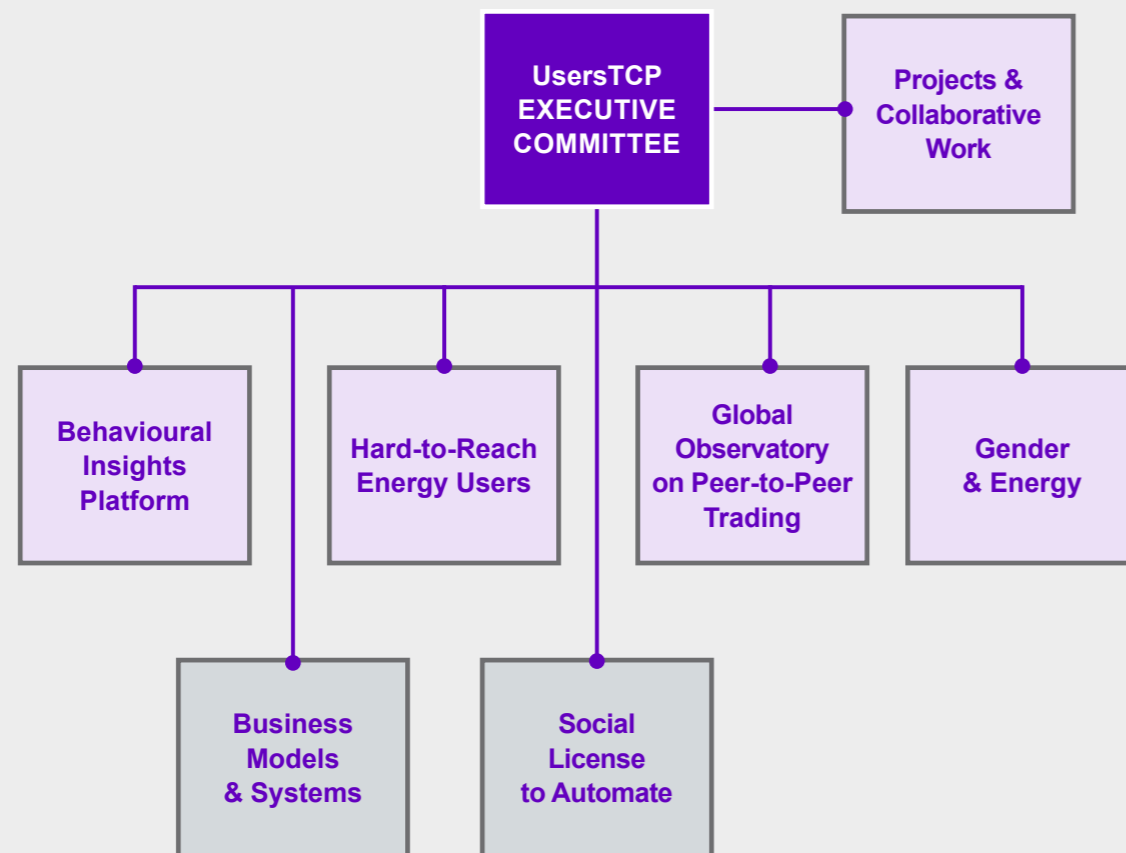• Behavioural Energy Policy toolkit (beta version) launched at Academy session

GO-P2P
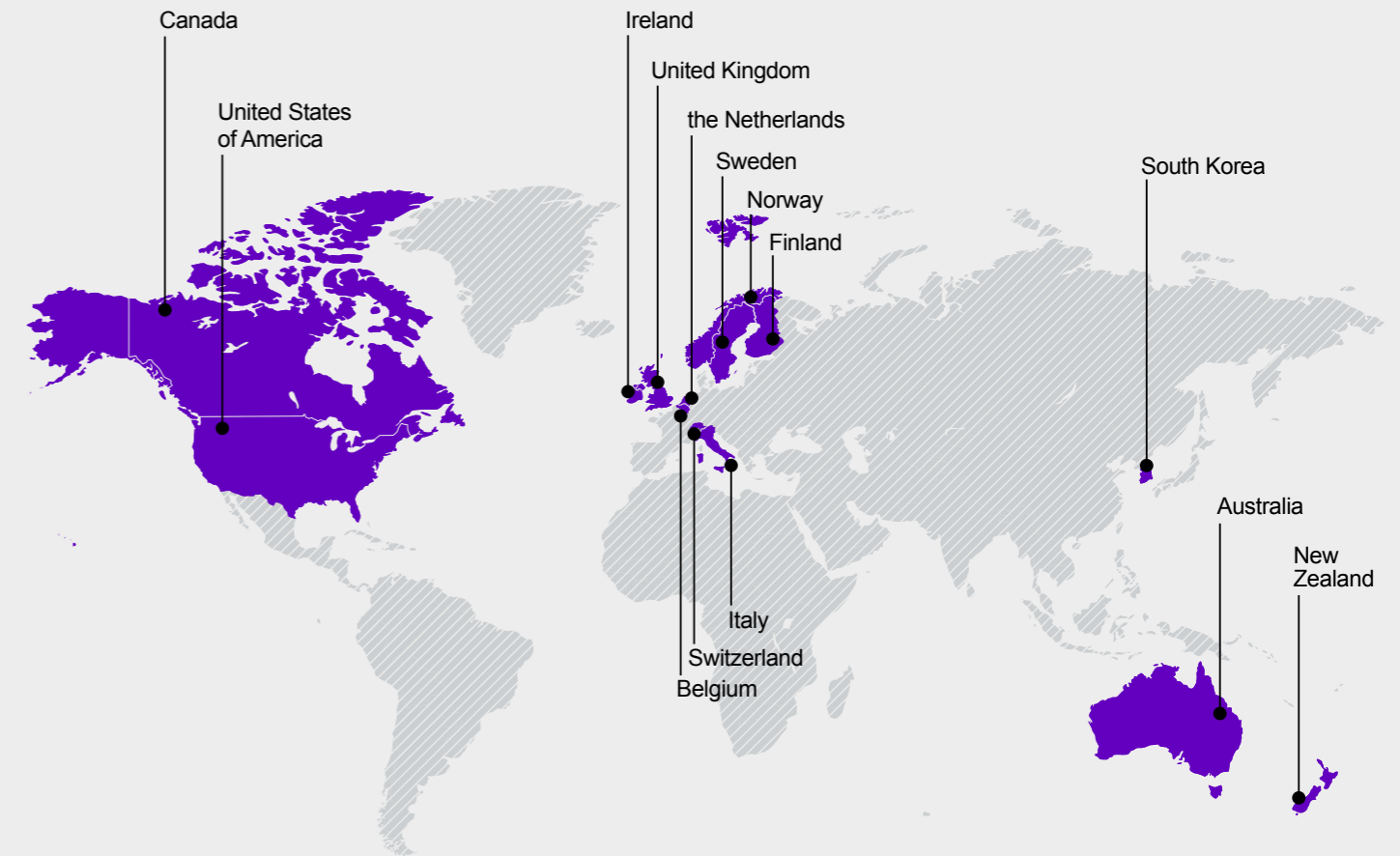• GO-P2P was featured in the IEEE Smart Cities February 2022 newsletter

UsersTCP Structure & Membership

Structure

We now have 15 Member governments positively engaged in this international collaboration, and our Tasks are the delivery mechanisms for our Strategy.


```
UsersTCP
EXECUTIVE
COMMITTEE          Projects &
                   Collaborative
                   Work

Behavioural        Hard-to-Reach      Global            Gender
Insights           Energy Users       Observatory       & Energy
Platform                              on Peer-to-Peer
                                      Trading

        Business                Social
        Models                  License
        & Systems               to Automate
```

* Business Models & Systems and Social License to Automate concluded in 2021/22.

Canada
United States of America
Ireland
United Kingdom
the Netherlands
Sweden
Norway
Finland
South Korea
Australia
New Zealand
Italy
Switzerland
Belgium

Members

Australia	Ireland	Norway
Austria	Italy	Sweden
Belgium	South Korea	Switzerland
Canada	the Netherlands	United Kingdom
Finland	New Zealand	United States

Sponsors

The Copper Alliance partner with the UsersTCP to deliver the User-Centred Energy Systems Academy.

Cu Copper Alliance®

UsersTCP
Tasks

The Users TCP's Tasks are the main international collaborative mechanisms through which we deliver on our strategy.

2021 saw three of our Tasks reach the end of their programmes of work – Business Models and Systems, and Phase 1 of both the Behavioural Insights Platform and the Social License to Automate Task.

> All outputs of the Energy Service supporting business models and systems Task can now be found on the Fit to Serve website **here**, providing an overview of the learnings, methodologies, publications and example cases from the energy sector.

Fit to serve

> The Behavioural Insights Platform has now moved into Phase 2 under the direction of our newest Task Leaders from The Behaviouralist with a workplan running until late 2022.

> The final reports from Phase 1 of the Social License to Automate Task were released in October 2021. The outputs of this Task were extensive and a proposal for expanding into Phase 2 of this Task is already before the Executive Committee, along with a proposal for a new Task on Public Engagement.

> GO-P2P and Hard-to-Reach Energy Users continued their research phases, producing literature reviews and case-study analyses, while the Gender and Energy Task officially launched in Spring 2021, following its development phase.

Following an intensive review of the literature (Rotmann et al, 2020), we estimate that the majority of households and businesses could be regarded as 'hard-to-reach' (HTR) energy users - particularly when following our Task's broad definition of this audience group.

This is based on HTR audience size estimates in our participating countries reviewed from the literature, and taking into account the large percentages of vulnerable populations (e.g. minorities, chronically ill, single parents, elderly, geographically remote), renters (commercial and residential), small and micro businesses and high-income segments. These audiences are critically underserved by targeted policies and programmes, and relatively under-researched in the dominant technology-focused energy efficiency literature.
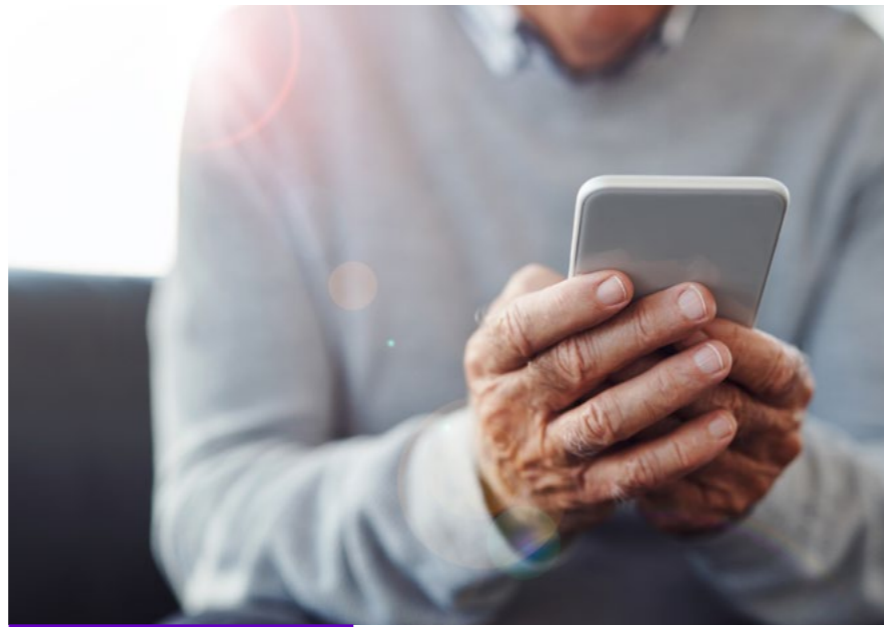
There is also strong evidence that this number has increased due to the COVID-19 pandemic (see Rotmann et al, 2021), which caused extensive vulnerability in many households, but particularly for renters, and for (now, often home-based) small and micro-businesses. These HTR audiences are the people policy-makers, utility programme managers, and research experts often struggle to engage with, for a variety of reasons. One of the biggest issues is the terminology itself, which seems to put the onus of engagement on those energy users and their economic status, rather than the Behaviour Changers (Rotmann, 2016) tasked with engaging them. Another is a lack of understanding of these audiences' characteristics, their (lack of) energy and technology literacy, and other barriers and needs. As we learn from the Task, some HTR audiences may contain user segments that are *more* or *less* HTR. For example, many low-income households may be relatively easier-to-reach, except when they have intersecting or compounding vulnerabilities.

Our Task is examining ways of overcoming these barriers, and to better understand what makes certain energy users HTR, and how to effectively engage them. We do so by following a robust process when designing, implementing and evaluating targeted engagement strategies and programmes aimed at clearly-identified and characterised segments of these audiences. Following case study analyses in 8 countries, and a cross-country case study comparative assessment, we now focus on field research pilots to show that we can build trusted relationships with community providers to engage those who are hard-to-reach.

These audiences are critically underserved by targeted and tailored policies and programmes, and relatively under-researched in the dominant technology-focused energy efficiency literature.

Major achievements during 2021

Case study analyses: We have undertaken case study analyses of engaging low-income HTR households who also suffered additional, compounding vulnerabilities, and small-to-medium enterprises (SMEs). We have published 19 case study analyses from eight countries (New Zealand, Canada, Italy, the Netherlands, Portugal, Sweden, the UK and the US) on the HTR Task website. They are now being analysed as a Cross-Study Case Study Comparison.
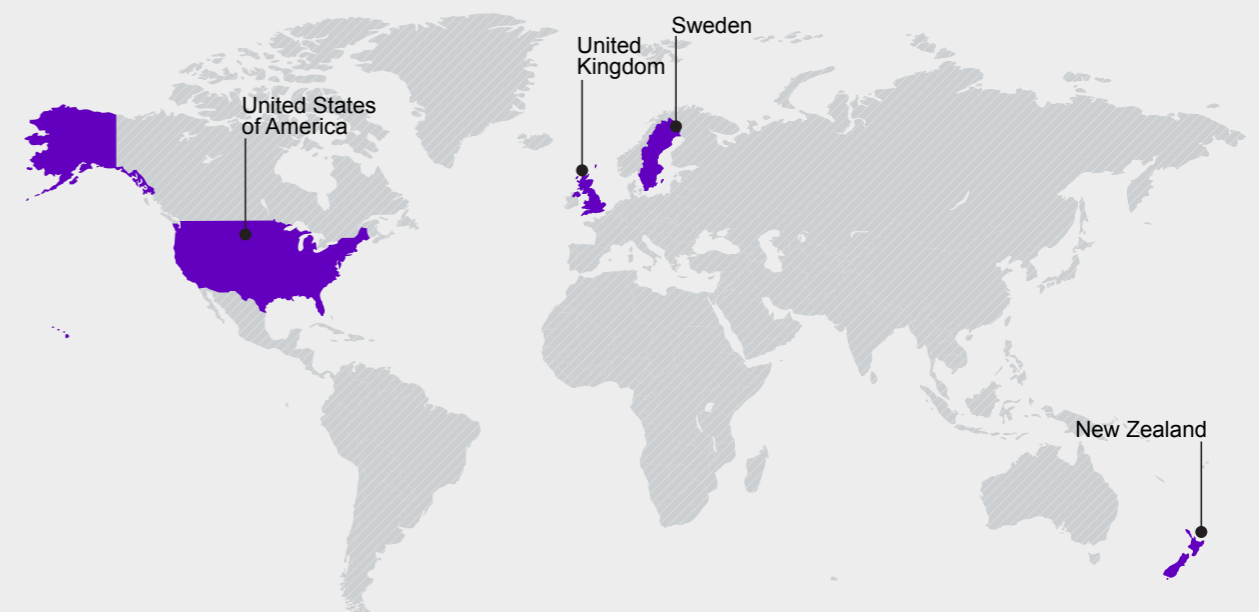
Building Blocks of Behaviour Change Process: We have also published, with our US Project Partners, the See Change Institute, a White Paper on the research process we have co-developed and are now testing in the field. Available **here**.

![seechange INSTITUTE logo]

HEAT kit field research pilot: We have received co-funding from the Support for Energy Education in Communities Programme (SEEC) to undertake a field research pilot in New Zealand. We are using a package of intervention around Home Energy Assessment Toolkits (HEAT kits) targeting some of the most vulnerable and HTR families in the Wellington Region.

Dissemination: The HTR Task was highly represented at the 2021 BEHAVE conference (four presentations, two special sessions, a keynote), the 2021 and 2022 eceee Summer Studies (three papers), and the 2021 Behavior, Energy and Climate Change (BECC) conference with another special session. We have also given another well-received Users Academy webinar in January 2022.

PARTICIPANTS

![World map showing participant countries: United States of America, United Kingdom, Sweden, New Zealand]

United States of America

United Kingdom

Sweden

New Zealand

The Social License to Automate Task has investigated the social dimensions of user engagement with automated technologies in energy systems to understand how end-user trust to automate is built and maintained in different jurisdictions and cultural settings.

The rapid uptake of renewable energy systems will require new automated technologies to balance energy supplies. Some developers are looking to locate these in households where energy is being used. This saves moving the energy from centralised generation sites (remote hydro, solar or wind).

This Task concluded in Q4 2021 and the findings from this two year project with 16 researchers in six countries, 26 Case studies spanning electric vehicles, home and precinct batteries, air conditioners and other heat pumps have been published by the Task Leaders and National Experts involved in a comprehensive report "Social License to Automate: Emerging Approaches to Demand Side Management" and an Executive Summary.

> The rapid uptake of renewable energy systems will require new automated technologies to balance energy supplies.
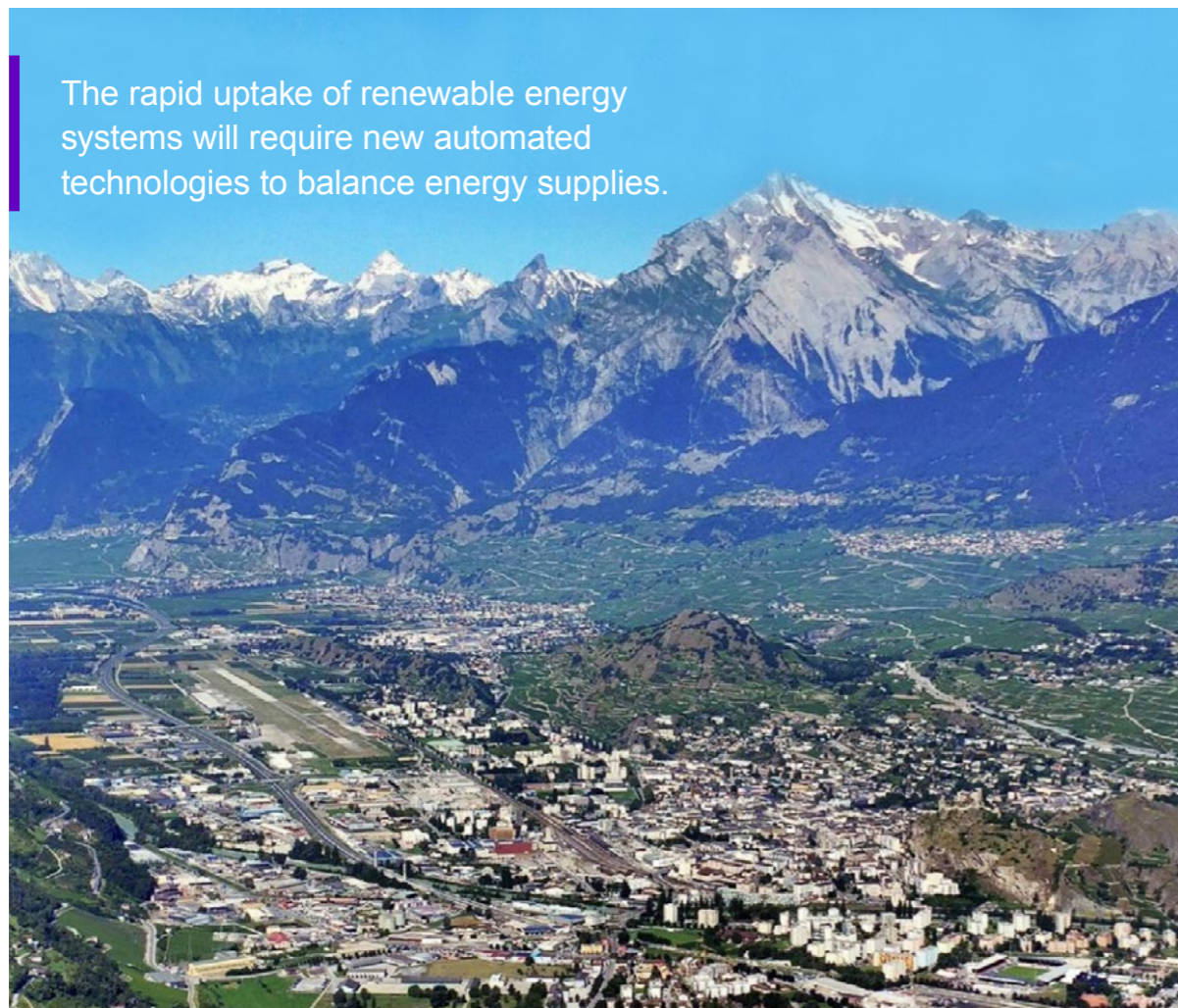
Major achievements during 2021

Published peer-reviewed report "Social license to automate: A critical review of emerging approaches to electricity demand management" – September 2021.

Case study data collection and analysis in our participating countries – Australia, Austria, the Netherlands, Norway, Sweden, Switzerland (no case study research in USA).

The Task concluded in October 2021 with the publication of the final report and presentation of the findings in a webinar.

PARTICIPANTS

Norway
Sweden
Switzerland
the Netherlands
Austria
United States of America
Australia
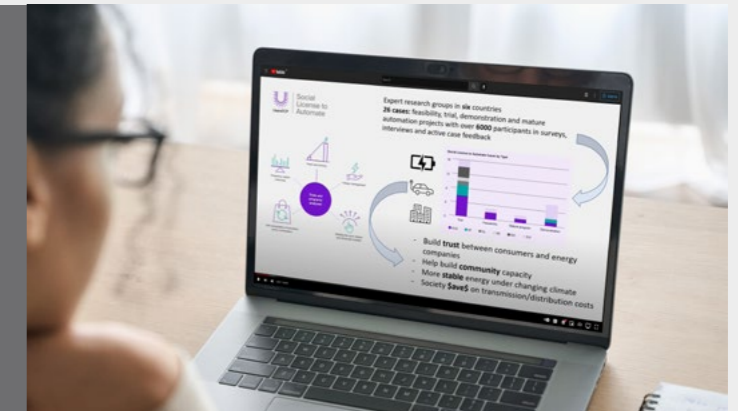
Global Observatory on Peer-to-Peer, Community Self-Consumption and Transactive Energy Models (GO-P2P)

As the GO-P2P Task passes the halfway point of its term, a number of key learnings on peer-to-peer (P2P) energy trading, transactive ene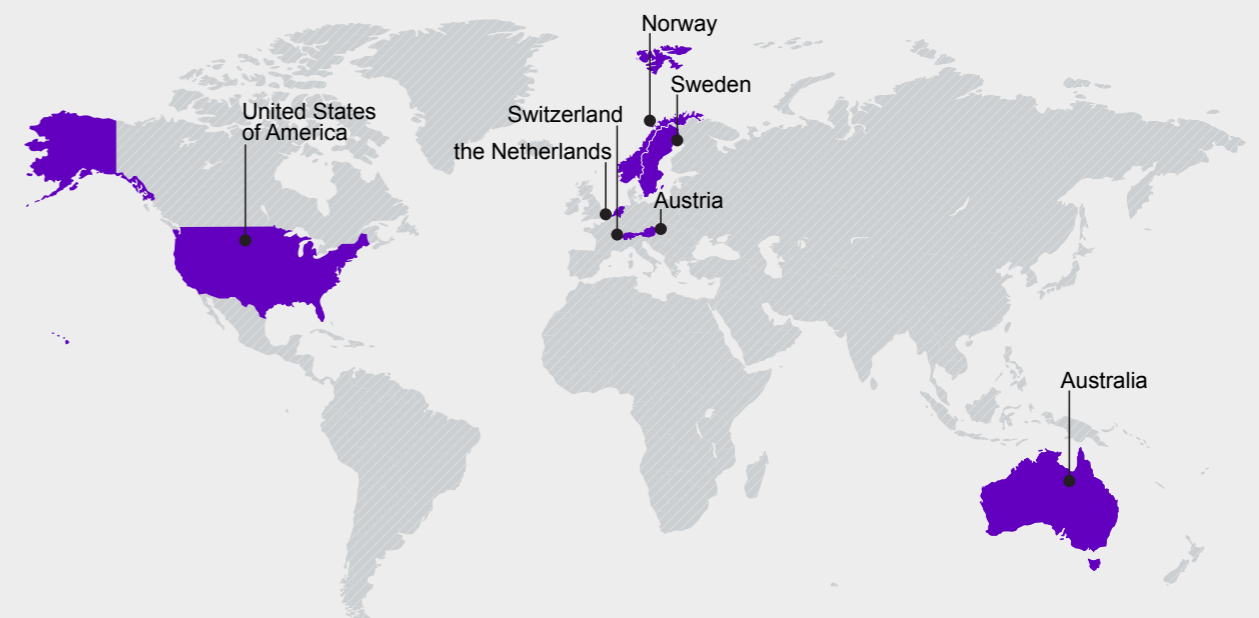rgy (TE) and community self-consumption (CSC) models have emerged from our work so far. The sub-task literature reviews, a necessary step in the preparatory phase helping us assess existing knowledge, have all been completed. These focus on the power systems integration; hardware, software and data; transactions and market; social and economic value; and regulatory/policy aspects of P2P/TE/CSC models.

Most have been published in academic journals, and enabled participants to collaborate with peers from all over the world.

In November 2021 the Users TCP Academy hosted a webinar featuring all the GO-P2P sub-task leaders to discuss with stakeholders policy recommendations around the development of P2P/TE/CSC models, based on their literature review findings. These were discussed in a workshop-style format with around 150 participants from all over the world, including non-member countries such as Nigeria, India, Argentina and Colombia.

The policy conclusions will be included in a forthcoming GO-P2P policy briefing, which will cover topics such as the rights of prosumers trading energy; cost-reflective pricing; and the licensing regime for peer-to-peer energy platform operators.

There has been a high level of collaboration between GO-P2P participants. In addition to the literature reviews, there have been another 43 joint publications so far, of which 22 are peer reviewed journal articles. This is evidence that GO-P2P is becoming a highly valued and efficient networking platform, providing additional opportunities to participants.

Major achievements during 2021

In July 2021, GO-P2P organised in collaboration with the International Energy Agency (IEA) 3DEN Initiative an event on the rollout of peer-to-peer energy models in Latin America. This online event was hosted by EIA University in Medellin (Colombia). More information **here**.

GO-P2P was the feature of "Today in the Lab – Tomorrow in Energy?" in November 2021. This is an IEA initiative that shines a spotlight on research projects under development in the TCPs.

GO-P2P continued its joint Task Force with INATBA, focused on the use of distributed ledger technologies (e.g. blockchain) in energy trading business models. This collaboration is planned to end in March 2022. View **here**.

The Task published five of its sub-task literature review focusing on local energy market integration, hardware, software and data, market models, social and economic value, and future challenges on law and regulation.

New Zealand confirmed that it would join GO-P2P from February 2022, bringing the number of participating countries to nine.

PARTICIPANTS

United States of America

United Kingdom

Ireland

Belgium

the Netherlands

Italy

Switzerland

Australia

New Zealand
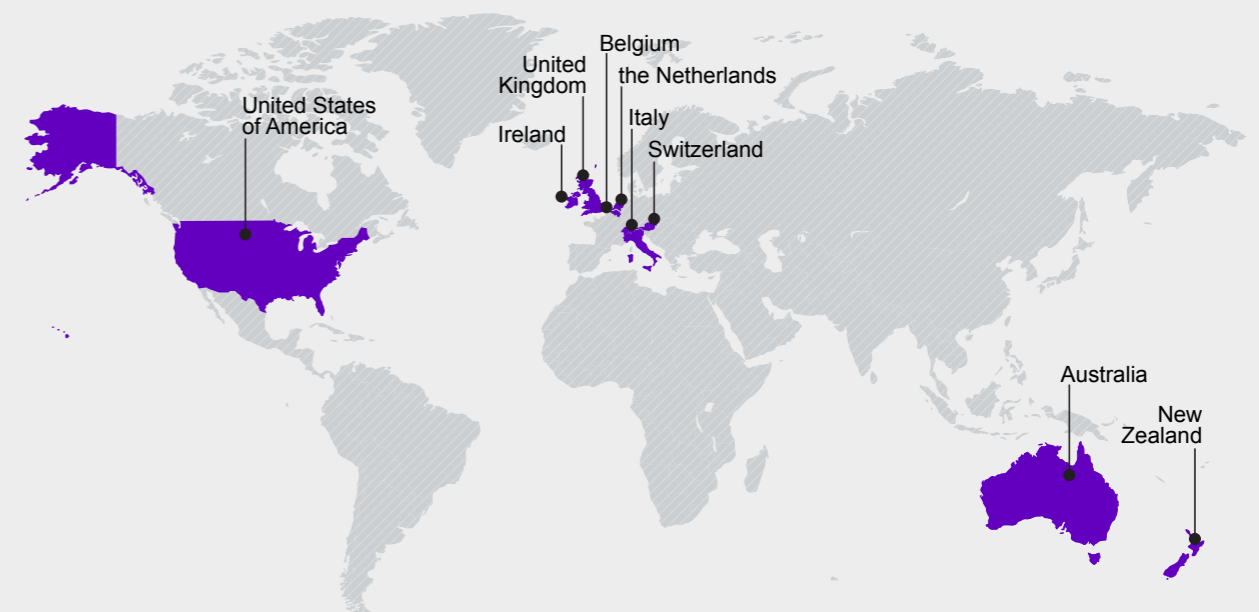
The Energy Sector Behavioural Insights Platform brings together government policymakers and other experts to share knowledge and experiences applying behavioural insights to energy policy.

The aim of the Platform is to improve the efficacy of demand-side energy policies by ensuring that human behaviour is accounted for throughout the policy cycle.

Building on the environment scan developed as part of the first phase, the objective of Phase 2 is to develop resources and activities to help policymakers shift from the sporadic application of behavioural insights to their systematic use in demand-side energy policy.

Key deliverables for Phase 2 (2021-2022) are an online policy toolkit, learning events and training, and network development amongst peers.

The aim of the Platform is to improve the efficacy of demand-side energy policies by ensuring that human behaviour is accounted for throughout the policy cycle.

Major achievements during 2021

Phase 1 of the Platform published the first Users TCP Policy Brief in March 2021, available **here**.

Phase 2 commenced in April 2021 with participants including Canada, Ireland, the Netherlands, Switzerland and the United Kingdom, led by Task Leaders Jesper Akesson and Ondrej Kacha from **The Behaviouralist**.

The first key deliverable from Phase 2 the "Behavioural Energy Policy Toolkit" was presented at a Users TCP webinar in February 2022 and is now available in beta version for use on the Users TCP website **here**.

This online tool is intended for policymakers, civil servants or professionals who design or implement policies or programmes aimed at changing or reducing citizens' energy consumption.

The goal is to help you improve your policy or programme by considering the underlying psychological and behavioural factors that drive citizens' energy consumption.

PARTICIPANTS

Canada

United Kingdom
the Netherlands
Ireland   Switzerland
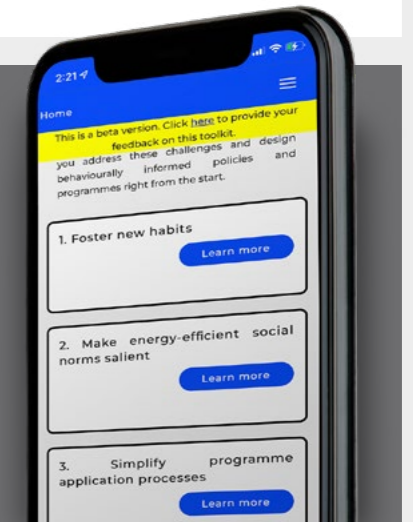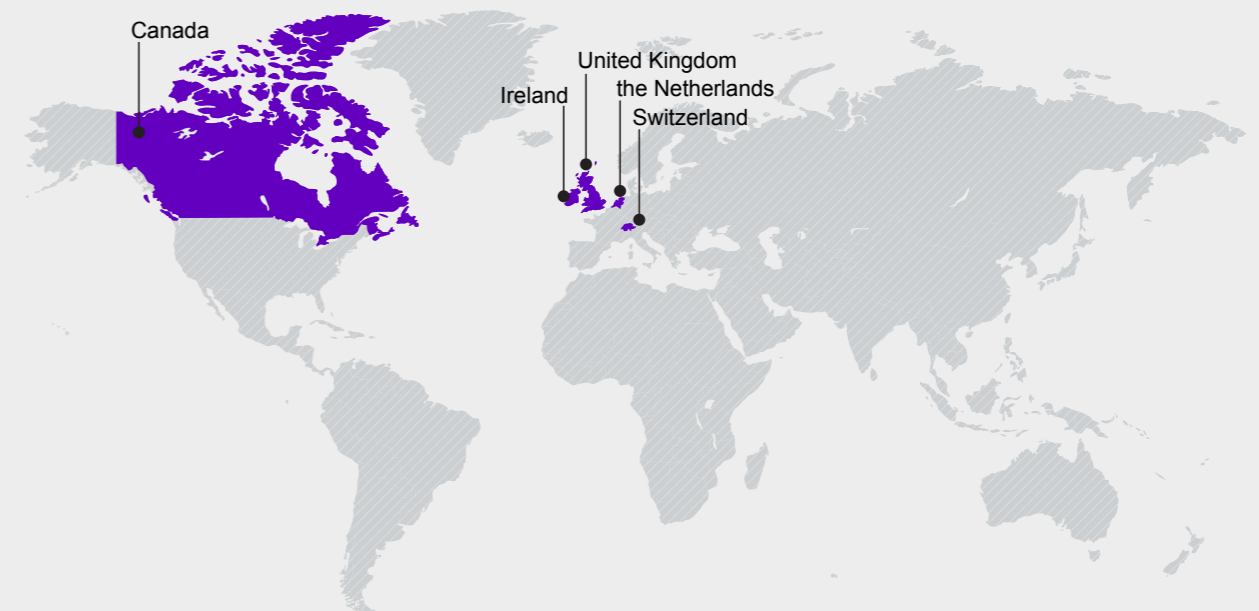
Empowering all: Gender in policy and implementation for achieving transitions to sustainable energy.

2021 saw our newest Task commence its launch and to progress in its research phase, supporting the TCP's input to the OECD-led household behaviour survey and publishing its first dedicated newsletter.

In this Task, we gather the state-of-the-art research of gender and energy use and find best practices while also developing ways to counter organizational and institutional inertias and to design inclusive, just and efficient technologies.

> For **policy makers and regulators**, this will deliver cases and policy briefs outlining and assessing the main inertias hindering the formulation and implementation of gender aware policy and technical interventions in different cultural and institutional contexts. The Task will offer workshops to aid with reformulation and implementation of existing energy policies, as well as tools to counter the cultural inertias within the energy field. We will further provide a database with cases of best practices.

> For **businesses**, we will provide collaborative design work and educational material on how to use gender research to inform the design of more efficient and including technology, including models for engaging users in design, users' templates for gathering data on energy use, and technology interventions to enable broad energy transitions.

> For **researchers**, the Task offers opportunities to fill knowledge gaps as well as contribute to the practical implementation of gender and energy research on a global scale. The Task also offers a collaborative platform with business and government, and a global community of researchers.

Major achievements during 2021

The Task launch event was held online in May 2021 featuring representatives from the **C3E Workstream on Knowledge and Data Collections** and Ghislaine Kieffer from the IEA Global Commission on People-Centred Clean Energy.

First Task participants workshop held in hybrid mode in Nösund close to Gothenburg, Sweden. 15 participants joined in-person and seven online. The workshop resulted in an overview of main themes and literature for the global literature review, as well as a mapping of the expertise and possible contributions from the different participants.

During 2021 (and still ongoing) National Expert Helene Ahlborg (Sweden) has provided considerable input that has helped develop the new OECD EPIC Household Attitudes survey.

In November 2021 the Task published its first newsletter.

Our Australian National Expert Reihana Mohideen is heading a workstream on gender equality and social inclusion for the IEEE Standards Association - "Dignity, Inclusion, Identity, Trust, and Agency" (DIITA) Industry Connections Program. Task Leader Anna Åberg has also joined the workstream.

PARTICIPANTS

United States of America · Ireland · the Netherlands · Austria · Sweden · Australia
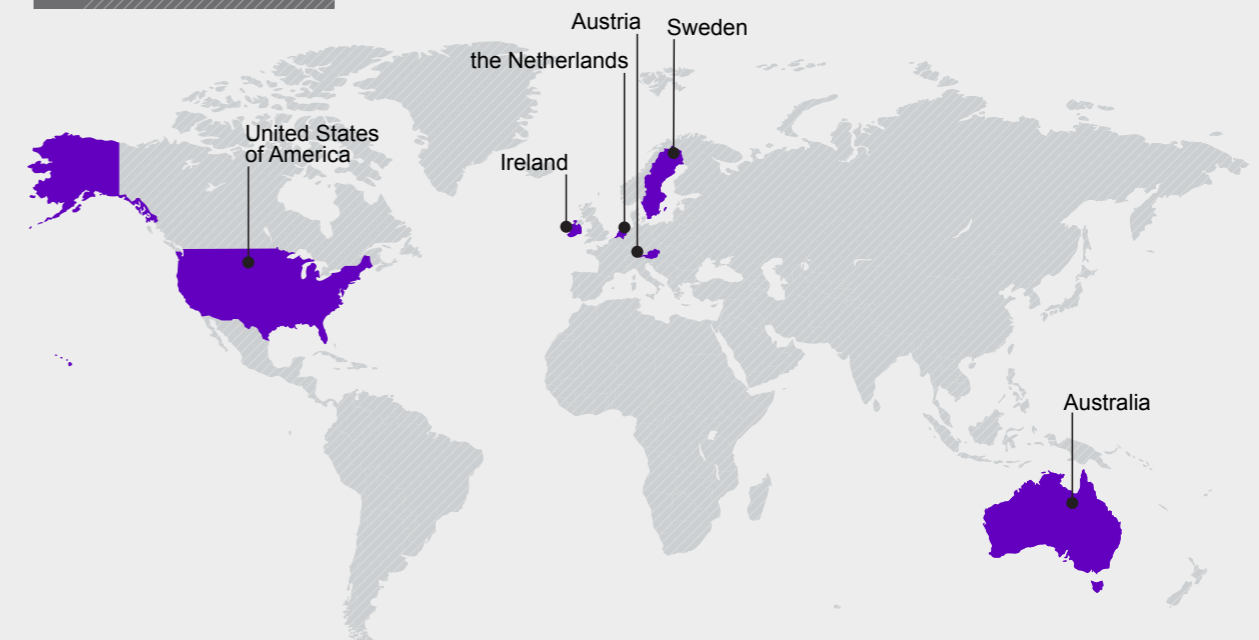
TCP Collaborative Projects In 2021

Are we getting the best out of Smart Home Technologies? The Role of Usability Report

Collaborating with the 4E TCP we published the Smart Devices Usability Report in October 2021. The project concluded that the benefits of smart home technologies are poorly or inaccurately communicated, onboarding experiences often poor, diverse needs are not catered for and automation, while holding significant potential, needs to be deployed well, in order to build trust and engagement. Recommendations include:

> Encourage business to create usable, holistic solutions

> Develop shared infrastructures to help speed up understanding of usability issues in the energy sector

> Governments should design markets that flow the value of increased flexibility to the right place in the system, including the demand side.

> Don't wait for usability issues to emerge, actively seek to uncover them now. The development of shared learning infrastructures can help speed this up.

> Invest in innovation to help the sector understand how to deliver positive and engaging user experiences.

Joint Survey with OECD

The Household Attitudes survey with OECD is progressing well with the selection process for the survey provider having concluded, and work is ongoing to streamline and finalise the survey instrument. Pilot tests will be carried out in two stages in April, and implementation is planned for May-June 2022. Participating countries include TCP members Belgium, Canada, the Netherlands, Sweden, Switzerland, the UK and the US, as well as France and Israel.

Cross-TCP collaboration with the IEA

The UsersTCP Chair (David Shipworth) and Head of Secretariat (Sam Thomas) represented the TCP as part of a cross-TCP collaboration with the IEA Secretariat to produce a paper supporting the achievement of medium-term milestones in the buildings sector, set out in the IEA's Net Zero by 2050 report. The paper is due to be published by the IEA in Q2 2022.

12 webinars were added to the UsersTCP Academy knowledge base from January 2021 to February 2022, hosted by the European Copper Institute on their YouTube channel Leonardo Energy

Links to the video and presentation slides for these webinars can be found on the Academy page of the UsersTCP website: **https://userstcp.org/academy**

Cu Copper Alliance® Leonardo **ENERGY**

2021

January
What can entrepreneurs and their business models contribute to accelerating the energy transition?
PRESENTER(S) Dr Ruth Mourik (DuneWroks B.V.Business Models and Systems Task Leader)

February
The world after Covid – How have behavioural changes affected energy demand and what does this mean for the future?
PRESENTER(S) Jeremy Sung (IEA), David Shipworth (Users TCP Chair/UCL), Linda Steg (University of Groningen)

March
What's the right method to find how much energy smart meters save?
PRESENTER(S) Andrew Schein (BIT), Kevin Gornall (BEIS)

April
Making a social license to automate demand side flexibility
PRESENTER(S) Dr Sophie Adams (UNSW, Australia), Dr Declan Kuch (UNSW, Australia), Social License to Automate Task Leaders)

May
Including gender: policy choices towards a just energy transition
PRESENTER(S) Mariëlle Feenstra (University of Twente), Joy Clancy (University of Twente), Martin Hultman (Chalmers University)

June
Encouraging Heat pump Adoption in Ireland: Insights from Behavioural Economics
PRESENTER(S) Karl Purcell (SEAI)

September
Hard to decarbonise and hard to reach: developing solutions that work for planet and people
PRESENTER(S) Professor Aimee Ambrose (Sheffield Hallam University, Chair of the Fuel Poverty Research Network), Professor Rokia Raslan (Vice Dean for Innovation and Enterprise, UCL)

October
Are we getting the best out of Smart Home Technologies? The role of usability
PRESENTER(S) Tom Furlong (Energy Systems Catapult (UK))

November
Regulating peer-to-peer energy trading and community self-consumption models
PRESENTER(S) Alexandra Schneiders (UCL, GO-P2P Task Leader)

December
Recent IEA Analysis from the Energy Efficiency Market Report 2021
PRESENTER(S) Emi Bertoli and Nicholas Howarth (IEA)

2022

January
How to engage hard-to-reach energy users – case study examples from around the world
PRESENTER(S) Dr Sea Rotmann ((NZ) Task Leader), Dr Danielle Butler (UK)

February
Introducing a new toolkit to apply behavioural insights to energy policy
PRESENTER(S) Jesper Akesson and Ondrej Kacja (Behavioural Insights Platform Task Leaders)

2021 Executive Committee and TCP Changes

Executive Committee

All member countries form the Executive Committee of the UsersTCP with one voting delegate from each country. This voting group is overseen by the Executive Steering Committee (ESC), during 2021 the office bearers were:

> **David Shipworth, UK**
> **CHAIR OF USERSTCP**

> **Gerdien de Wegner, the Netherlands**
> **VICE-CHAIR FINANCE**

> **Tony Fullelove, Australia**
> **VICE-CHAIR** *retired October 2021*

> **Josephine Maguire, Ireland**

In addition the Head of Secretariat, Samuel Thomas, and Secretariat Support, Vikki Searancke make up the members of the ESC.

Delegate changes in 2021

Austria appointed Mr Peter Illich in April 2021 as their primary delegate. Peter replaced Ms Maria Bürgermeister-Mähr.

In August 2021 the U**nited Kingdom** appointed Ms Emma Claydon as their new primary delegate replacing Mr Ben Walker.

Ms Nicole Kerkhof became the new alternate delegate for **the Netherlands** in January 2022 taking over from Mr Harry Vreuls.

Sweden appointed Ms Helena Karresand as their new alternate delegate from February 2022 in place of Mr Mehmet Bulut.

A full list of member delegates at February 2022 is shown in Attachment 1.

2021 ExCo Meetings

2021 saw the continuation of ExCo meetings online. These meetings took place using a combination of written ballot and video conferencing on 26th – 29th April 2021, and 11th – 14th October 2021.

Changes to TCP Membership

As of September 2021, Spain and India formally withdrew as members of the UsersTCP.

"

I am excited to represent Austria as an Executive Committee member of the IEA UsersTCP. I am convinced that the better understanding of users within the energy system plays a key role for a successful, efficient, fair and just energy transition and related developments for energy policy and RTDI initiatives. The UsersTCP framework and its network of experts around the world provides the ideal international environment, dealing with socio-technical and systemic issues in the energy sector.

**PETER ILLICH, PROGRAMME MANAGER
ENERGY & ENVIRONMENT
FFG-AUSTRIAN RESEARCH PROMOTION AGENCY**

Attachments

Attachment 1

User-Centred Energy Systems ExCo Delegates as at February 2022

Australia

Primary
Mr Tony Fullelove
Monash University, VIC

Alternate
Mr Iain McGill
UNSW Sydney, NSW
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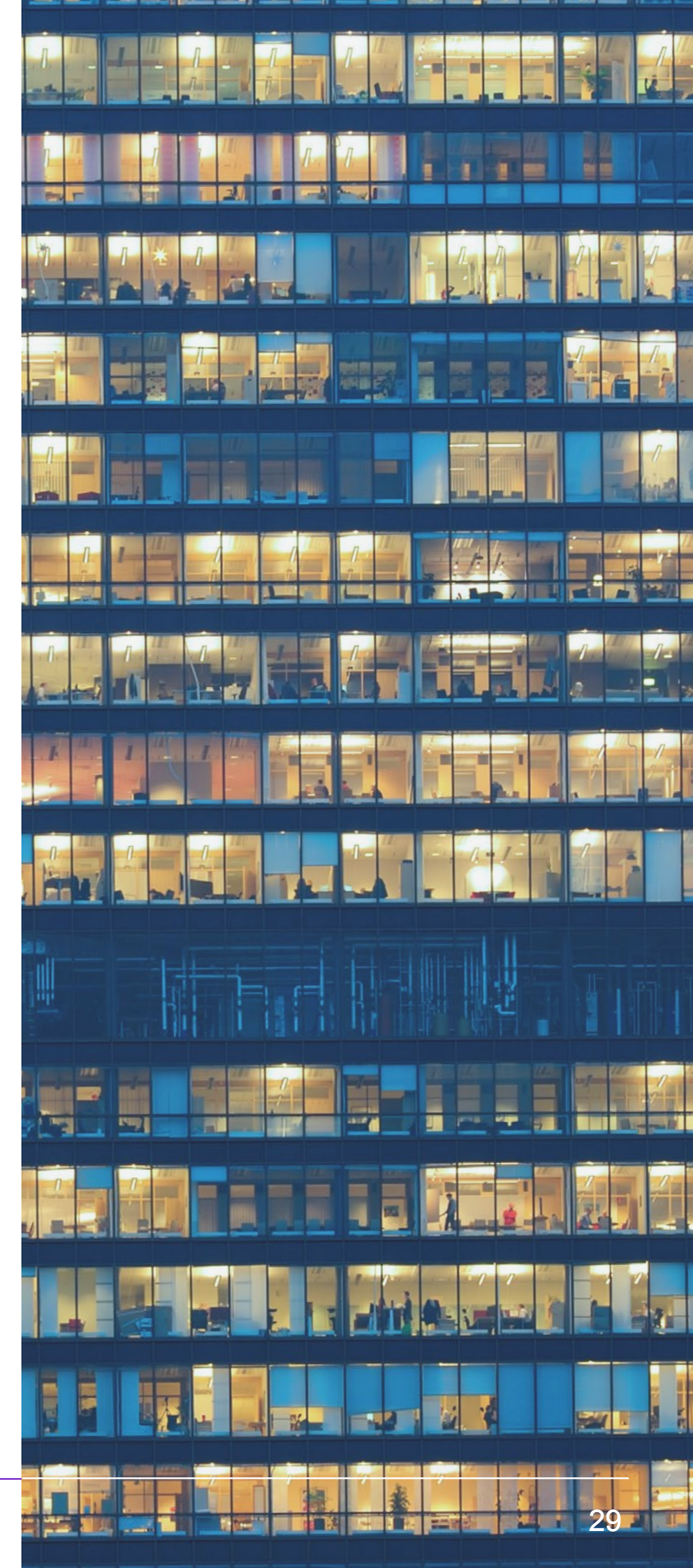Industrial Strategy
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Attachment 2

Hard-to-Reach Energy Users Task
2021/22 Record of Activities & Participants

Publications in 2021/22

Date	Publication	Intended Audience	Authors
April	Paper submitted for BEHAVE conference proceedings: *A collaborative international approach to characterising hard-to-reach energy users*	Public	Online
	Paper submitted for BEHAVE conference proceedings: *A gap analysis of the literature on energy-saving behaviours in the commercial sector*	Public	Online
	Paper submitted for BEHAVE conference proceedings: *To what extent has COVID-19 impacted hard-to-reach energy users?*	Public	Online
	Paper submitted for BEHAVE conference proceedings: *An in-depth review of the literature on hard-to-reach energy users*	Public	Online
June	*eceee Study proceedings - To what extent has COVID-19 impacted hard-to-reach energy users?*	Public	Online
	Subtask 2: Case Study Analysis Methodology Template for National and Contributing Experts.	Public	Online
October	*Case Study Analysis – Aotearoa New Zealand.*	Public	Online
	Case Study Analysis – Sweden	Public	Online
	Case Study Analysis – U.S. and Canada	Public	Online
	Case Study Analysis – United Kingdom	Public	Online
	Case Study Analysis – Portugal	Public	Online
	Case Study Analysis – Italy	Public	Online
December	*Case Study Analysis – the Netherlands*	Public	Online

Workshops & Conferences in 2021/22

Date	Conference	Intended Audience	Location
March 2021	Fuel Poverty Research Network conference (UK)	Public	Online
April 2021	BEHAVE conference (DE)	Public	Online
June 2021	eceee Summer Study (FR)	Public	Online
June 2021	Sustainable Energy Agency Ireland public sector conference (IE)	Public	Online
September 2021	Centre for Energy Advancement through Technological Innovation (CEATI) panel (CA)	Public	Online
November 2021	Behaviour, Energy & Climate Change conference (US)	Public	Online
January 2022	Users Academy webinar (online)	Public	Online

Management/Experts Meetings in 2021/22

Date	Conference	Intended Audience	Location
March, July, October	National Expert Meetings (quarterly)	Members only	Online
Every month except January 2022	CEE meetings (US experts, monthly)	Members only	Online
April, October 2021	Users TCP ExCo (biannual)	Members only	Online
June, December	US sponsors (biannual)	Members only	Online
January (2x), July	Task Leader Meetings (biannual)	Members only	Online
July, October	Stakeholder meeting (NZ, biannual)	Members only	Online
November	Energy Hardship Reference Panel meeting (NZ, quarterly)	Members only	Online

Other Achievements in 2021

Date	Activity	Intended Audience	Location
January 2022	Invited to submit several comments and a World View by Chief Editor of Nature Energy as a result of our webinar	Public	
February 2022	US National Expert and Funders, the Consortium for Energy Efficiency created a Centre for Equity and Behaviour, inspired by this Task's work	Members only	

Collaborations with IEA Secretariat, Other TCP's or International Organisations

Date	Activity	Intended Audience	Location
	See Change Institute (US)		
	Uplight (US and Canada)		
	FPRN (UK)		
	Lawrence Berkeley National Lab (US)		
	NEA (UK)		
	EU Energy Poverty Advisory HUB (EPAH)		
	H2020 Project Fundamental Decarbonisation Through Sufficiency By Lifestyle Changes (FULFILL)		
	GBPN (global)		

Activities Planned for 2022

Date	Activity	Intended Audience	Location
June	eceee Summer Study (FR)	Public	
June	Task workshop (FR)	Experts	
Ends November	Participatory Field Research Pilot (NZ and Canada)	Vulnerable Households	
Ends May	Uplight research on SMBs (US and Canada)	SMBs	
July	Cross-Country Case Study Comparison (peer-reviewed article)	Public	
May-November	Nature Energy articles	Public	
December	Palgrave Pivot	Public	

Participation

Countries participating in this Annex are New Zealand, Sweden, USA and UK.

The Task Leader is **Dr Sea Rotmann:** drsearotmann@gmail.com from Sustainable Energy Advice Ltd, New Zealand.

🌐 Visit the Hard-to-Reach Energy Users Task website **here**.

Attachment 2

Social License to Automate Task
2021/22 Record of Activities & Participants

Publications in 2021

Date	Publication	Intended Audience	Location
September	*Social License to Automate: A critical review of emerging approaches to electricity demand side management*	Public	Read **here**
October	*Social License to Automate Final Report and Executive Summary*	Public	Read **here**

Workshops & Conferences in 2021

Date	Conference	Intended Audience	Location
March	Australian industry workshop	Workshop attendees	Online
April	UsersTCP Academy webinar	Public	Online
July	Australian Institute of Geographers conference session "Uses of Electric Vehicles"	Conference attendees	Online
October	All Energy Conference 'Does the Australian Electricity Industry have a Social License to Automate?'	Conference attendees	Online
November	Australian Energy Social Science Workshop	Conference attendees	Online

Management/Experts Meetings in 2021

Date	Conference	Intended Audience	Location
April	National Experts workshop		Online

Other Achievements in 2021

Date	Activity	Intended Audience	Location
	Completion of country case studies for final report	Australia, Austria, the Netherlands, Norway, Sweden, Switzerland	

Participation

Countries participating in this Task are Austria, Australia, the Netherlands, Norway, Sweden, Switzerland, and USA.

Phase 1 of this Task concluded in October 2021.

🌐 Visit the Social License to Automate Task website **here**.

Global Observatory on Peer-to-Peer Trading
2021/22 Record of Activities & Participants

Publications in 2021

Date	Publication	Intended Audience	Location
April	*Peer-to-Peer Trading and Energy Community in the Electricity Market : Analysing the Literature on Law and Regulation and Looking Ahead to Future Challenges - Cadmus (EUI research repository) Working Paper 2021/35*	GO-P2P sub-task 5 literature review. This article's chief contribution is to provide an overview of the various legal issues that could or will arise in the wake of peer-to-peer energy trading and energy communities.	Read **here**
June	*P2P, CSC and TE: A Survey on Hardware, Software and Data - Energies 14(13), 3851*	GO-P2P sub-task 2 literature review. This paper sets out to gather information regarding the hardware, software and data from the several archetypes of P2P/TE/CSC available, focusing on existing projects and trials in these areas to see what the most-common hardware, software and data components are.	Read **here**
November	*Impact of local energy markets integration in power systems layer: A comprehensive review- Applied Energy, vol. 301*	GO-P2P sub-task 1 literature review. The publication presents a comprehensive review of existing research on the impact of Local Energy Market integration in the power systems layer.	Read **here**
November	*A Systematic Literature Review of Peer-to-Peer, Community Self-Consumption, and Transactive Energy Market Models*	GO-P2P sub-task 3 literature review. Pre-print (paper currently being submitted for publication). This paper identifies six archetypal market designs and three archetypal auction mechanisms used in markets presented in the reviewed literature. It classifies the types of commodities being traded, the benefits of the markets and other features such as the types of grid models.	Read **here**
November	*Social and Economic Value in Emerging Decentralized Energy Business Models: A Critical Review - Energies 2021, 14(23), 7864*	GO-P2P sub-task 4 literature review. Few studies have focused specifically on the economic and social value associated with three emerging models: peer-to-peer energy trading (P2P), community self-consumption (CSC) and transactive energy (TE). This article presents the findings of a systematic literature review to address this gap.	Read **here**

Workshops & Conferences in 2021 (including webinars)

Date	Conference	Intended Audience	Location
November	Users TCP Academy webinar "Regulating peer-to-peer energy trading and community self-consumption models"	Public	Online

Management/Experts Meetings in 2021

Date	Conference	Intended Audience	Location
July	Fourth meeting of GO-P2P	Day 1 was for public, day 2 only for GO-P2P participants	Online

Collaborations with IEA Secretariat, Other TCP's or International Organisations

Date	Conference/Publication	Intended Audience	Location
July	Joint workshop with IEA Secretariat in Colombia on user-centred energy models in Latin America		Online **here**
November	Today in the Lab – Tomorrow in Energy? feature on GO-P2P		Read **here**
2021/2022	Joint task force with INATBA focused on distributed ledger technologies in energy trading business models		Online **here**

Activities Planned for 2022

Date	Activity	Intended Audience	Location
Summer 2022	Fifth GO-P2P meeting	GO-P2P participants	Hybrid

Participation

Countries participating in this Task are Australia, Belgium, Ireland, the Netherlands, Switzerland, UK, USA.

The Task Leader is **Alexandra Schneiders:** a.schneiders@ucl.ac.uk from the University College London.

🌐 Visit the Global Observatory on Peer-to-Peer Trading website **here**.

Attachment 2

Energy Sector Behavioural Insights Platform
2021/22 Record of Activities & Participants

Publications in 2021/22

Date	Publication	Intended Audience	Location
February 2022	*Behavioural Energy Policy Toolkit*	Public	Online **here**

Workshops & Conferences in 2021/22

Date	Conference	Intended Audience	Location
February 2022	Users TCP Academy (webinar): Applying behavioural insights to demand side energy policies and programmes	Public	Online

Management/Experts Meetings in 2021

Date	Conference	Intended Audience	Location
January - July	12 separate meetings with individual national experts	Members only	Online
August	Users TCP BI platform - experts group meeting	Members only	Online
September	Information exchange on behaviour change: European Energy Network / Users TCP	Members only	Online
November	Users TCP BI Platform / EnR Behaviour Change meeting	Members only	Online

Collaborations with IEA Secretariat, Other TCP's or International Organisations

Date	Publication	Intended Audience	Location
March 2021	Policy Brief on Behavioural Insights with IEA Secretariat (Task Coordinator in Phase 1)	Members only	Read **here**

Activities Planned for 2022/23

Date	Activity	Intended Audience	Location
Feb 2022	Toolkit user testing		
March	Users TCP BI platform - experts group meeting		
April	Development of Massive Online Open Course (MOOC) to be hosted on the toolkit website		
May-December	Outreach events promoting the toolkit and MOOC - organising at least 2 workshops/webinars and presenting at least 1 conference		
November - December	Work plan development for the 3rd phase of the BI Platform		

Participation

Countries participating in this Task are Canada, Ireland, the Netherlands, United Kingdom and Switzerland.

The Task Leaders are **Jesper Akesson:** jesper@thebehaviouralist.com and **Ondrej Kacha:** ondrej@thebehaviouralist.com from The Behaviouralist.

🌐 Visit the Energy Sector Behavioral Insights Platform website **here**.

Gender & Energy Task
2021/22 Record of Activities & Participants

Workshops & Conferences in 2021/22

Date	Conference	Intended Audience	Location
February 2021	Conference presentation Energy & Society Conference (Trento/online) "integrating gender into energy policy design: the Rwandan approach" Marielle Feenstra (presenting), Joy Clancy, Helene Ahlborg, Sumuel John Unsworth, Sylvere Hategekimana	Conference audience	Online
April 2021	Webinar "social Innovation in the Energy Transition, arranged by SSCALE. Participation highlighting UsersTCP work by Marielle Feenstra and Joy Clancy	Public	Online
May 2021	UsersTCP Academy Webinar with Marielle Feenstra	Public	Online
June 2021	Technology workshop arranged by ÖGUT testing a developed fact sheet (a deliverable)	Stakeholders, energy companies	Online
August 2021	Workshop for RVO "The Energy Transition in the built environment", Marielle Feenstra and Joy Clancy	RVO	Online
August 2021	Conference: European Consortium for Political Research General Conference. Marielle Feenstra presented joint case study for subtask 1 and subtask 2	Conference audience	Online
September 2021	Conference: "Gender in Green New Deal". Conference participation highlighting UsersTCP work by Joy Clancy	Conference audience	Online
October 2021	Second ÖGUT technology workshop for refining fact sheet	Tech developers from energy companies	Online
November 2021	Boid arranged a design workshop with the working group "Sun for everyone" at RISE (Research Institutes of Sweden, umbrella organisation for industrial research)	Industry researchers	Online
November 2021	Presentation in on-line lecture series organised by the UK's Royal Geographic Society's Energy Geographies and Gender Group, Joy Clancy	Public	Online
November 2021	Participation by Marielle Feenstra and Joy Clancy in the SIET conference organised by TU Delft, the Netherlands. Presentation of executive game and the gender just energy policy framework.	Conference audience	
January 2022	Nordic Information on Gender. Swedish Secretariat for Gender Research. Sustainability, lifestyle and consumption from a gender perspective: Expert Dialogue. Martin Hultman participated from the Task.	Need to check if this was public or only for experts/ policy makers	Online
January 2022	Webinar By Dr Olufolahan Osunmuyiwa and Dr Helene Ahlborg at the EnGRG webinar series on Energy, Gender and Space.	Public	Online
January 2022	Contribution to SECAD Sustainable Communities Training Programme (webinar), 'Energy Poverty – a growing social issue' by Dr Niall Dunphy	Public	Online
February 2022	Contribution to SECAD Sustainable Communities Training Programme (webinar), 'Overview of energy behaviour change initiatives' by Dr Alexandra Revez	Public	Online
February 2022	Marielle Feenstra presented the gender just policy framework at the 75inQ community's masterclass.	Women working in the Dutch energy transition in management positions	
February 2022	On-line briefing workshop for RVO including Dutch Topsector Energy and MVI with Joy Clancy, Marielle Feenstra and Sylvia Breukers	Industry, RVO	Online
March 2022	Seminar entitled 'Public Engagement with Energy Transitions in an era of Climate Crisis' marking the launch of new UCC partnership with EirGrid, which is the state body who operates and develops the national high voltage electricity grid in Ireland.	EirGrid, UCC	Cork

Attachment 2

Gender & Energy Task

2021/22 Record of Activities & Participants contd.

Management/Experts Meetings in 2021

Date	Conference	Intended Audience	Location
January	Internal workshop 2 on Rwandan Energy Policy	Task members only	Online
February	Internal workshop 3 on Rwandan Energy Policy	Task members only	Online
February	Task Management Meeting	Task members only	Online
April	Subtask 3 meeting	Task members only	Online
June	Subtask 1 meeting	Task members only	Online
June	Subtask 3 meeting	Task members only	Online
June	Internal workshop with Boid on co-design	Task members only	Chalmers
September	Internal workshop with Boid on co-design	Task members only	Chalmers
September	Task workshop (hybrid) arranged by Chalmers University of Technology	Task members only	Hybrid Online/ Gothenburg, Sweden
December	Subtask 2 meeting	Task members only	Online
December	Subtask 3 meeting	Task members only	Online

Other Achievements in 2021

Date	Publication	Intended Audience	Location
2021 and cont.	Helped develop the new OECD EPIC survey	Public	Online
July	PhD defense for Marielle Feenstra's thesis, where she presented the development of The gender just energy policy framework which is one of the Task deliverables	Public	Twente, Sweden
December	Boid received permission to test the prototype developed in subtask 3 at the HSB living Lab in Gothenburg	Residents of Living Labs	Gothenburg, Sweden
November - December	Fact sheet developed by ÖGUT has been tested by Duneworks at Smart grid test site in Netherlands	Tech developers	Netherlands

Collaborations with IEA Secretariat, Other TCP's or International Organisations in 2021

Date	Publication	Intended Audience	Location
May	Launch event with C3E TCP	Public	Online
September	ÖGUT presentation about the TCP at an IEA networking meeting in Vienna	IEA actors	Vienna, Austria
September	SOUNDING BOARD MEETING. "Gender and Climate Change in the Nordic countries" commissioned by the Nordic Council of Ministers. Martin Hultman represented the project in the dialogue.	Need to check if this was public or only for experts/policy makers	Online
From Spring 21 onwards	Participation in the IEEE standards association "Dignity, Inclusion, Identity, Trust, and Agency" (DIITA) Industry Connections Program.	IEEE members/ stakeholders	Online

Activities Planned for 2022/23

Date	Activity	Intended Audience	Location
March	Subtask 3 meeting	Task members	Online
March	Inspirational talk by Dr Osunmuyiwa and Dr Michael at the International Science Program, Uppsala, Sweden, organised international event on research capacity and promotion of gender balance at partner institutions.	Public	Uppsala
March	UsersTCP academy Webinar in collaboration with IEEE	Public	Online
April	Task management meeting	Task members	Online
April	TU Eindhoven Lunch seminar by Duneworks	Public	Eindhoven
Spring	Publication forthcoming by Osunmuyiwa and Ahlborg: *"Stimulating competition, diversification, or re-enforcing entrepreneurial barriers? Exploring small-scale electricity systems and gender-inclusive entrepreneurship"* in the journal Energy Research & Social Science.	Academic audience	
Spring	Joint webinar with C3E International Initiative arranged by ÖGUT	Public	Online
June	Participation in ERSS conference, organising three sessions and holding a task workshop there	Conference audience	Manchester
June	Final draft of Global research overview to be workshopped at the ERSS conference	Task members	Manchester/ online
June	Participation in ECEE conference (Duneworks)	Conference audience	Berlin
June	Session organised by Marielle Feenstra and Joy Clancy at the Eu-spri conference Utrecht	Conference audience	Utrecht
June	Participation by UCC Cork in the Creative Climate Action Workshop 'The Arts and Climate Action: Gender and Visual Culture'.	Artists, Public	Cork
July	Session proposal for the upcoming European Science Engagement Conference 2022 (EUSEA)	Conference audience	Cork
August	Participation in DEVRES (Swedish Development Research) conference	Conference audience	Stockholm
Spring	Publication of a policy brief delineating the subtask 2 policy framework to be used by partners inside and outside the Users TCP subtask 2	Public, stakeholders, internal use	
Fall	UsersTCP academy webinar with Duneworks	Public	Online

Participation

Countries participating in this Task are Australia, Austria, Ireland, the Netherlands, USA and Sweden.

The Task Leader is **Anna Åberg:** anna.aberg@chalmers.se from Chalmers University of Technology.

🌐 Visit the Gender & Energy Task website **here**.

About the International Energy Agency (IEA)

The IEA is at the heart of global dialogue on energy, providing authoritative analysis, data, policy recommendations, and real-world solutions to help countries provide secure and sustainable energy for all.

The IEA was created in 1974 to help co-ordinate a collective response to major disruptions in the supply of oil. While oil security remains a key aspect of their work, the IEA has evolved and expanded significantly since its foundation.

Taking an all-fuels, all-technology approach, the IEA recommends policies that enhance the reliability, affordability and sustainability of energy. It examines the full spectrum issues including renewables, oil, gas and coal supply and demand, energy efficiency, clean energy technologies, electricity systems and markets, access to energy, demand-side management, and much more.

Since 2015, the IEA has opened its doors to major emerging countries to expand its global impact, and deepen cooperation in energy security, data and statistics, energy policy analysis, energy efficiency, and the growing use of clean energy technologies.

IEA Technology Collaboration Programmes

The Technology Collaboration Programme supports the work of independent, international groups of experts that enable governments and industries from around the world to lead programmes and projects on a wide range of energy technologies and related issues. The experts in these collaborations work to advance the research, development and commercialisation of energy technologies. The scope and strategy of each collaboration is in keeping with the IEA Shared Goals of energy security, environmental protection and economic growth, as well as engagement worldwide.

The breadth of the analytical expertise in the Technology Collaboration Programme is a unique asset to the global transition to a cleaner energy future.

These collaborations involve over 6 000 experts worldwide who represent nearly 300 public and private organisations located in 55 countries, including many from IEA Association countries such as China, India and Brazil.