User-Centred Energy Systems

UsersTCP 2020 Annual Report

Contents

Chair's Statement

2020 has been challenging, but if it has proved anything, it is that social and behavioural change are important and achievable in the face of a crisis.

It was also the year in which the IEA launched its **Global Commission on People-Centred Clean Energy** and the **World Energy Council** declared the 2020s to be the decade of the customer. It was also the end of the first full year of the UsersTCP. A year characterised by consolidation, resilience and growth despite the challenges. We enter 2021 looking forward to growing our membership, portfolio of projects and impact from our maturing Tasks.

Early in 2020 we were hit hard by the sudden passing of **Anne Bengtson**. Anne was the rock upon which the UsersTCP was built, as well as a much-loved pillar of the energy efficiency community through her work for the European Council for an Energy Efficient Europe (eceee). She had been the TCP's secretary since its foundation as IEA Demand Side Management (DSM) in 1993 and played a key role in the relaunch of the UsersTCP in 2019. She was a great friend to many of us in the UsersTCP, as well as a tireless and professional administrator to the organisation.

Not long afterwards, COVID struck, and like many other organisations, we have had to rapidly adapt the way we worked. Through the efforts of our Secretariat and Task leaders the bulk of our work has been able to move online. Our Task leaders have adapted their work plans, delaying some research efforts and bringing forward others. Our Executive Committee (ExCo) meetings and Task events have all taken place online and will continue in this way through at least the first half of 2021. This new way of working has forced us to innovate, creating opportunities to be more efficient, inclusive and less carbon-intensive post-pandemic.

Despite these setbacks, the UsersTCP continued to grow. We were delighted to welcome Canada into the TCP in March, represented by Natural Resources Canada (NRCan), the federal government ministry covering energy and climate issues. They bring a wealth of expertise in design and delivering energy policy and programmes. We had planned to hold our October 2020 ExCo meeting in Canada and look forward to being able to meet as a group there at our next physical meeting.

The four Tasks we launched in 2019 have successfully established themselves and are moving into production of outputs. This is the exciting phase of the work where policy impact rewards the hard work of the teams. Our **Hard-to-Reach Energy Users** Task has identified vulnerable households and small businesses as key segments, but this varies by country – with some regarding affluent households as being hard to reach. Our **Global Observatory on Peer-to-Peer Energy Trading** has identified that misalignment of value between power systems, consumers and society as a significant barrier to uptake. Our **Social License to Automate** Task has likewise identified value misalignment as a barrier to consumers participating in battery virtual powerplants in Australia. Our **Energy Sector Behavioural Insights Platform** has informed the findings of the IEA Global Commission on Urgent Action for Energy Efficiency, contributing one of the Commission's ten central recommendations, namely leveraging behavioural insights for more effective policy. Our **Business Models and Systems** Task is developing a training programme that draws on learnings from studying 'institutional entrepreneurs' for upskilling the wider energy start-up community.

Our ability to make an impact through our work was significantly boosted by a host of new collaborations during 2020. In April, we gave the green light to a new Task on **Gender and Energy**, led by Chalmers University, Sweden. In October, we joined with the OECD and IEA in the development of a new round of the Environmental Policy and Individual Behaviour Change (EPIC) survey. In December, we launched a request for proposals for a joint project with the 4E TCP on barriers to the effective use of smart devices. Throughout the year, we worked closely with the IEA, not least with IEA Legal to develop and adopt our new legal text. These developments make us well placed to push on in 2021 as we continue to build the UsersTCP.

The UsersTCP has grown from having one active Task in 2019 to having six active Tasks and two ExCo projects. We are seeing our choice to focus on pivotal role of users in the energy system being reflected in both in the new commission of the IEA and other bodies

> We enter 2021 looking forward to growing our membership, portfolio of projects and impact from our maturing Tasks.

including the new US Administration's focus on people-centred energy systems. We know that for Net Zero to be achieved, society must license energy technologies, and users must adopt them and adapt then to meet their needs. This cannot be achieved without collaboration – between nations sharing best practice, between experts in people and experts in technology, and between technologies and their users. Technology collaboration, in all these senses, has never been more important. The UsersTCP will continue to grow and seek collaborations with all those who see users as integral to delivering a sustainable, secure, affordable and inclusive energy future.

DAVID SHIPWORTH
CHAIR
February 2021

Overview & Key Achievements in 2020

The UsersTCP's 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.

Decarbonisation, decentralisation and digitalisation are embedding energy technologies in the heart of our communities. Communities' responses to these changes and use of energy technologies will determine the success of our energy systems. Poorly designed energy policies, and technologies that do not satisfy users' needs, lead to 'performance gaps' that are both energy and economically inefficient. User-centred energy systems are therefore critical for delivering socially and politically acceptable energy transitions.

Main Policy Messages and Key Achievements in 2020

> 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. Taking account of user needs and behaviour and broader societal issues leads to more effective policy making, technology design and business models.

> Currently, value creation for power systems, individual 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 generating a clear "social license to automate" DSR and DERs.

> Local (customer level), short term (hours to days) predictive models of generation and demand are a key missing technology bundle for automation of distributed flexibility assets.

> 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

TCP
Webinar with IEA WEO, EE and RE teams on future behind the meter energy trends

February

GO-P2P
1st meeting of GO-P2P at European University Institute, Florence, Italy

SLA
'Towards a Social License to Automate' paper presented at Symposium Energieinnovation conference, Graz, Austria

March

EXCO
Canada joins the UsersTCP

April

EXCO
1st UsersTCP meeting

GENDER & ENERGY
New Gender & Energy Task approved by ExCo

May

BI PLATFORM
Energy Sector Behavioural Insights Platform launches international survey

EXCO
Newsletter #2

June

SLA
Submission on Australia's Technology Investment Roadmap

July

HTR
HTR Characterisation report

September

GO-P2P
GO-P2P announces joint task force with INATBA

October

EXCO
2nd UsersTCP meeting

BI PLATFORM
Webinar with IEA on Behavioural Insights report

BUSINESS MODELS & SYSTEMS
Panel leader and presenter Sustainable Places conference

HTR
HTR Literature Review

November

ExCo
Newsletter #3

GO-P2P
First meeting of the Joint GO-P2P/ INATBA Task Force

December

BI PLATFORM
Behavioural insights for demand -side energy policy and programmes report published

GO-P2P
Sub-task 5 literature review

EXCO
Seat on advisory committee to the IEA's new commission – Our Inclusive Energy Future: The Global Commission on People-Centred Clean Energy Transitions – launched in January 2021

UsersTCP Structure & Membership

Structure

We now have 17 Member governments positively engaged in this international collaboration, and our 6 Tasks are the delivery mechanisms for our Strategy.
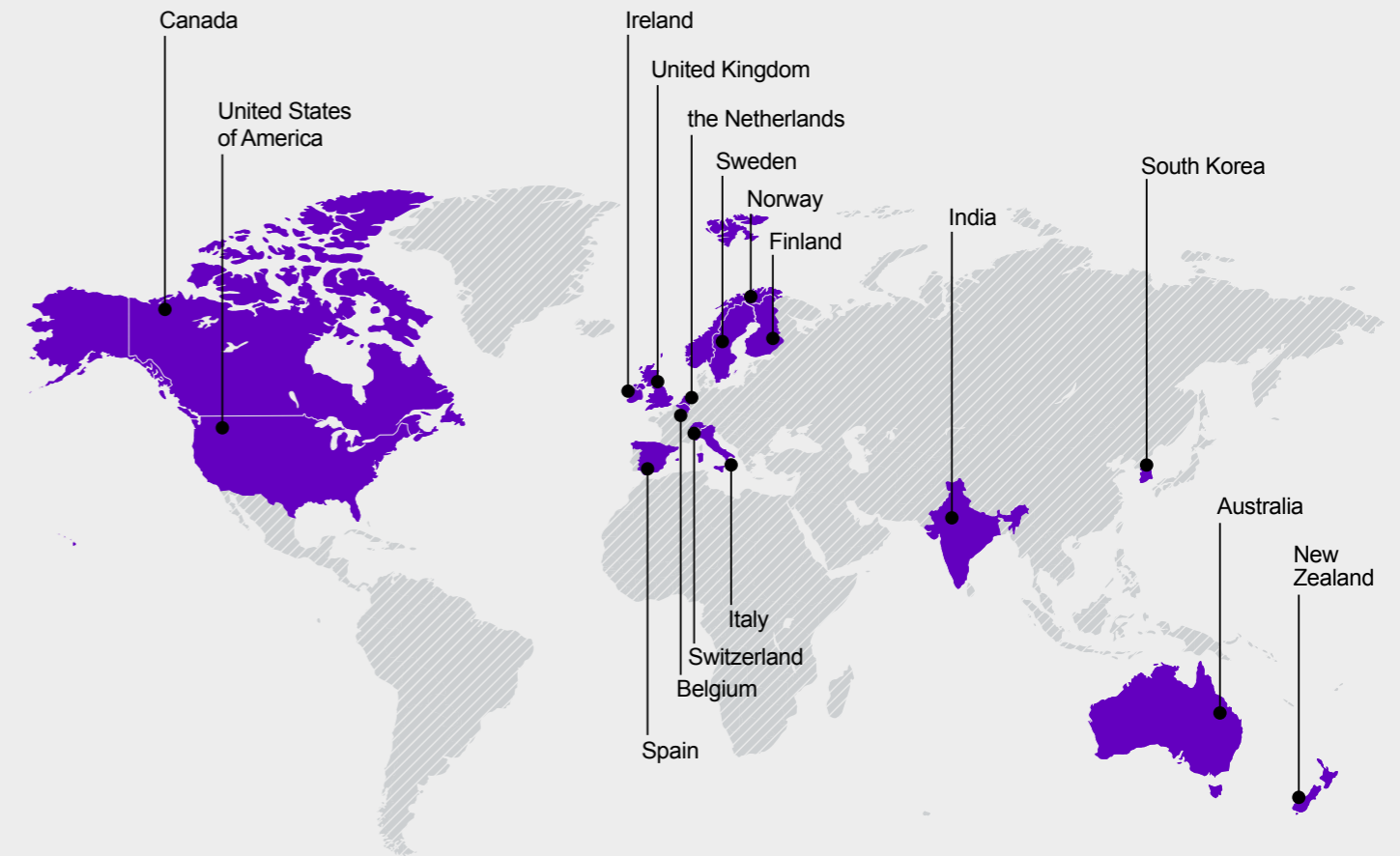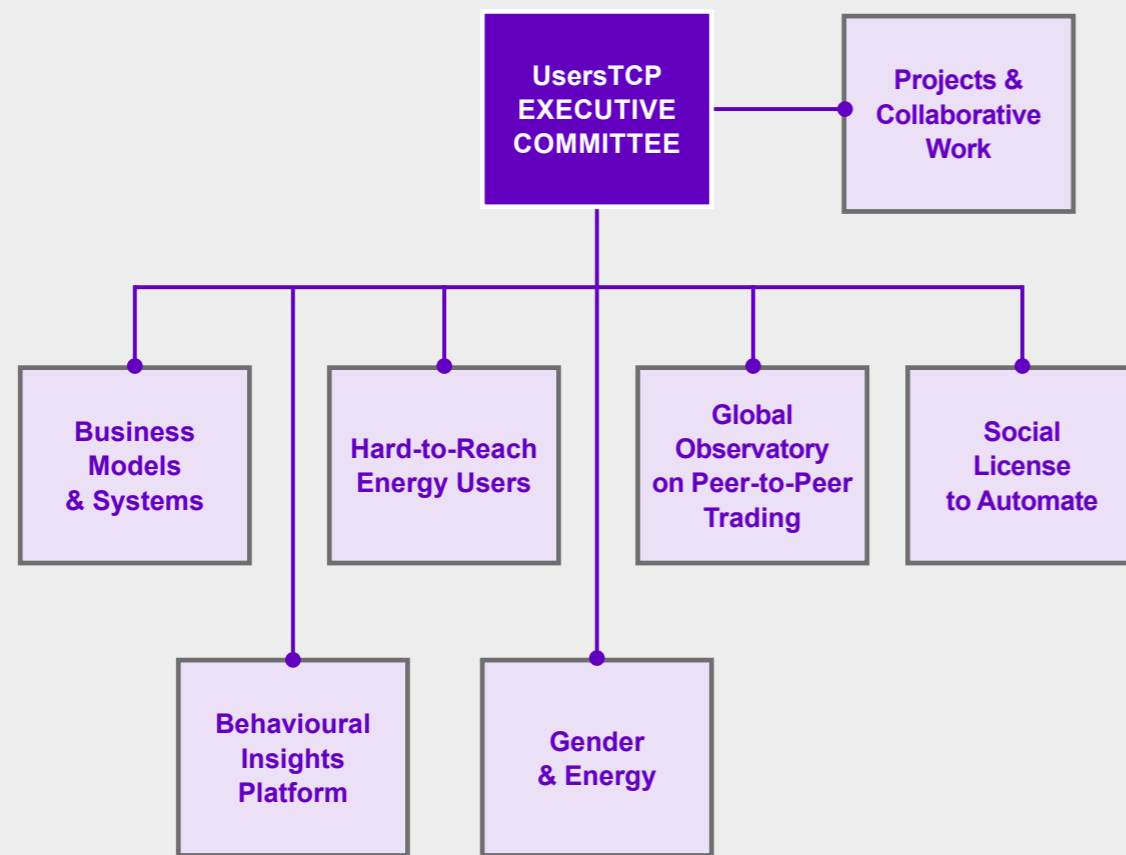
Members

Australia	Ireland	Spain
Austria	Italy	Sweden
Belgium	South Korea	Switzerland
Canada *— new in 2020*	the Netherlands	United Kingdom
Finland	New Zealand	United States
India	Norway	

Sponsors

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

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UsersTCP Tasks

The UsersTCP's Tasks are the delivery mechanisms of our Strategy. This section provides an overview of the achievements of the following Tasks in 2020 and their future work plans, including our newest Task in the field of **'Gender and Energy'**.

Information provision: The role of digitalisation in socio-technical systems change

> Developing a common framework for creating the social licence to operate in automated consumer-centred flexibility markets through the **Social Licence to Automate Task**

> Leading global knowledge sharing through the **Global Observatory on Community Self-Consumption and Peer-to-Peer Energy Trading**

Behaviour change: The users' response to the changing energy system

> Applying the TCP's Behaviour Changer framework in hard to reach sectors of the community, for example within fuel poor households and small businesses through the **Hard-to-Reach Energy Consumers Task**

> Enabling the sharing of expertise between government behavioural insights practitioners through the **Energy Sector Behavioural Insights Platform**

Systems change: The systems' response to the changing expectations of the user

> Fostering the uptake of energy services through comparative analysis and training on successful business models through the **Energy Service supporting Business Models and Systems Task**

Business Models and Systems
UsersTCP

Fit to Serve? The story about energy service supporting business models and systems.

Thanks to the Paris agreements, Al Gore, Greta Thunberg, and the relentless flow of numbers and figures that provide proof of global warming, the sense of urgency to reduce energy consumption and stimulate the use of renewable energy has increased enormously in recent years. With all the attention the energy transition attracts nowadays, one could easily imagine that doing business in this market is an easy ticket to success. Sadly, this is not the case.

In reality, only a relatively small group of entrepreneurs is able to take advantage of this sense of urgency. Many different organisations, from municipalities, policy makers and politicians to trade associations and climate activists, state that the market uptake around the energy transition is indeed going too slow. Of course, there are many explanations for this. The complexity of climate change can hardly be underestimated, nor can the struggle to create solutions to solve the problem of market uptake. One thing is certain, entrepreneurs play a key role in the energy transition.

In this Task we therefore wanted to learn:

> How these innovative energy services fare in terms of successful uptake and or scaling up?

> How their business models and entrepreneurial journeys are shaped by the institutional context and other system factors, especially by the specific characteristics of the energy transition context they operate in, and vice versa?

> How these enterprising stakeholders deal with the system around them, and how are specific capabilities impacting on their journey in the context of the energy transition and add to their agency?

> And finally, what system conditions are that either limit or facilitate the flourishing of energy services, especially those that are potentially important for the energy transition; and what instruments or other means are available to meet these needs, or need adjusting or need to be developed?

We analysed multiple case studies on innovative energy service business models in Sweden, the Netherlands, Australia and Ireland. The services we focused on range from microgrids, community virtual power plants, community sustainable districts, light as a service, PV as a service, demand response and flexibility services, to heat as a service type of business models.

Our research found that only a few radical services and business models are successful.

Major achievements during 2020

In 2020 the Business Models and Systems Task released 4 publications aimed at academia and policy makers interested in business models and transitions.

The Task was a panel leader and presenter at the Sustainable Places 2020 conference (online) in October 2020 presenting 'Energy Service Business Models and Entrepreneurial Skills: Identifying Models and Patterns'.

View presentation at:
https://vimeo.com/500353032

Energy service supporting business models and systems

Two workshops were held in Sweden in November and December for institutional stakeholders.

Development started on the 'Fit to Serve' website, launching in April 2021. This website will provide an overview of methodologies and example cases from the energy sector.

PARTICIPANTS

Sweden

the Netherlands
Ireland

Australia

This research collaboration provides country participants with the opportunity to learn and share successful approaches on how to identify and better engage hard-to-reach (HTR) energy users in the residential and non-residential sectors.

The primary aim of the research is to enable participating countries to improve policy, industry, research and community outcomes focusing on HTR energy users, by applying insights learned from collaboration with other countries and global experts. Our U.S. Project Partners See Change Institute have developed a social science- and design thinking-based framework for co-designing and assessing policies and programmes that are better tailored to specific HTR audiences and energy-using behaviours.

Using this framework (see Fig 1) we identify, analyse and test individual programme variables ("building blocks of behaviour change") to guide "Behaviour Changers" in industry, government, research and the community sectors how to co-design, implement, and evaluate behavioural interventions targeting HTR energy users. This framework, which we will utilise for cross-country case study comparisons and field research pilots, contains the following elements: ABCDE (Audience, Behaviour, Content, Delivery & Evaluation) *building blocks* for successful behaviour change interventions; plus four phases (Discover, Define, Design, Deploy) based on *Design Thinking* that have distinctive stage-gates after each Phase. Each phase includes qualitative and quantitative research to marry inductive and deductive learning strategies.
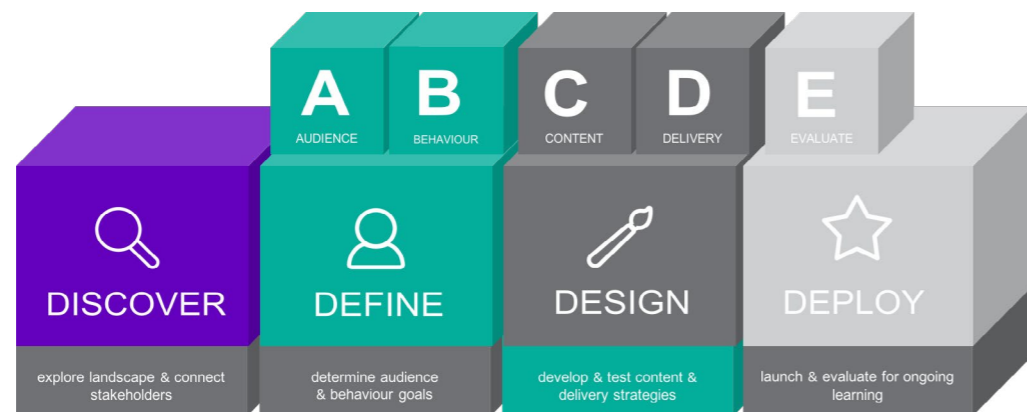

Figure 1: "The Building Blocks of Behaviour Change" by See Change Institute

The focus of this work is to undertake empirical research and field pilots to provide country participants with:

> Engagement with and dissemination to a global HTR expert network **(Subtask 1)**;

> In-depth characterisation of HTR energy users in the residential and non-residential sectors, and cross-country case study comparisons on how to better engage this user group **(Subtask 2)**;

> Research framework and tools based on the *ABCDE Building Blocks of Behaviour Change* to co-develop better behavioural interventions geared at the HTR energy users identified in Subtask 2 **(Subtask 3)**;

> Identify and develop field research pilots (provided co-funding is available) to take these theoretical learnings into practice **(Subtask 4)**.
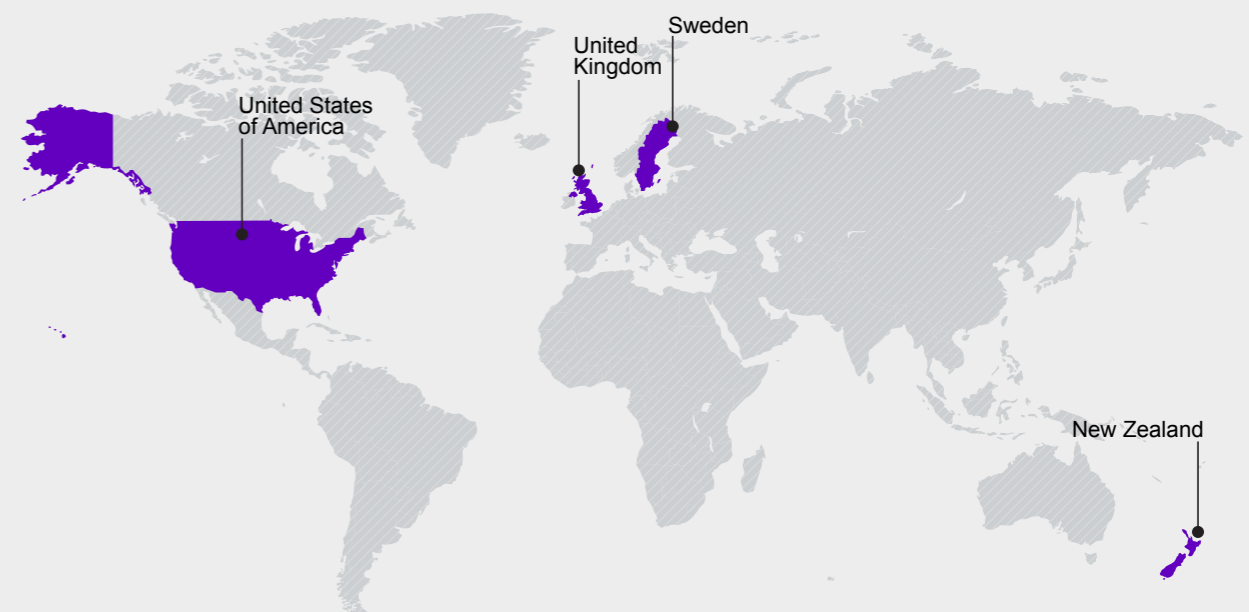
Major achievements during 2020

The HTR Task has gone from strength-to-strength, despite travel and other restrictions related to COVID-19. A major focus of Year 1 (finished in September 2020) was to develop a detailed stakeholder analysis (Discover Phase: see Ashby et al, 2020a and b) based on interviews and surveys; and a highly detailed (250+ pages and >1000 publications) review of the HTR literature to characterise target HTR audiences and behaviours (Define Phase: see Rotmann et al, forthcoming). Due to the global pandemic impacting particularly on households and small businesses already in vulnerable circumstances - and creating newly-vulnerable and HTR energy users, many of our participating experts' focus pivoted to these audiences.
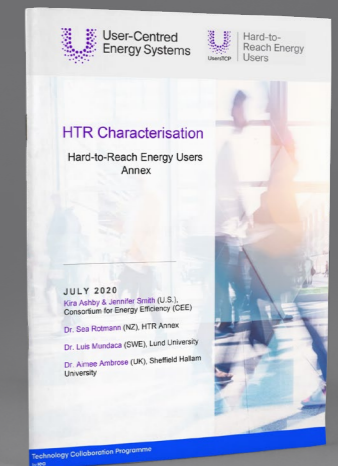
The HTR Task is disseminating its work in the largest behaviour change and energy efficiency conferences and proceedings, including BECC (including a whole HTR Task panel), ACEEE summer study (2 papers published), BEHAVE (4 extended abstracts accepted and special HTR Task session) and eceee summer study (aiming to get 2-3 papers published). Year 2 of this Task is focusing on collecting highly-relevant case studies in participating and contributing countries (Design Phase) and Year 3 will focus on participatory field pilots (Deploy Phase). New member countries are welcome to join the Year 2 Cross-Country Case Study Comparison.

If you are interested in joining us in this effort, or to find out more about our work, please contact our Task Leader Dr Sea Rotmann at drsearotmann@gmail.com.

PARTICIPANTS

Sweden

United Kingdom

United States of America

New Zealand

![Social License to Automate — UsersTCP logo]

The Social License to Automate Task aims to understand the non-technical obstacles to user engagement with automation technologies in demand side management (DSM), which hold considerable potential to support the management of an increasingly distributed and renewable electricity grid.

Automated control of loads such as air conditioners or batteries through home energy management systems, demand response, direct load control, and virtual power plants can ease pressure on supply and distribution resources as well as generate value for users.

By looking at these forms of automation from the perspective of households and other end users, the Task investigates the factors that can facilitate and impede user acceptance and trust and seeks to identify what is required to build and maintain the 'social license' essential to the success of these technologies.

The Task employs research methods and theoretical frameworks from the social sciences to shed light on the contextual factors pivotal to trust in new technologies in the diverse national contexts represented in the research collaboration. One of the main tasks of 2020 was to develop a common framework for data collection and analysis that is now being applied to multiple case studies.

With the ultimate goal of informing the better design of DSM programs, this Task will continue in 2021 to develop and share lessons on the key social determinants of user trust with stakeholders, including governments and industry, within and across the participating countries.
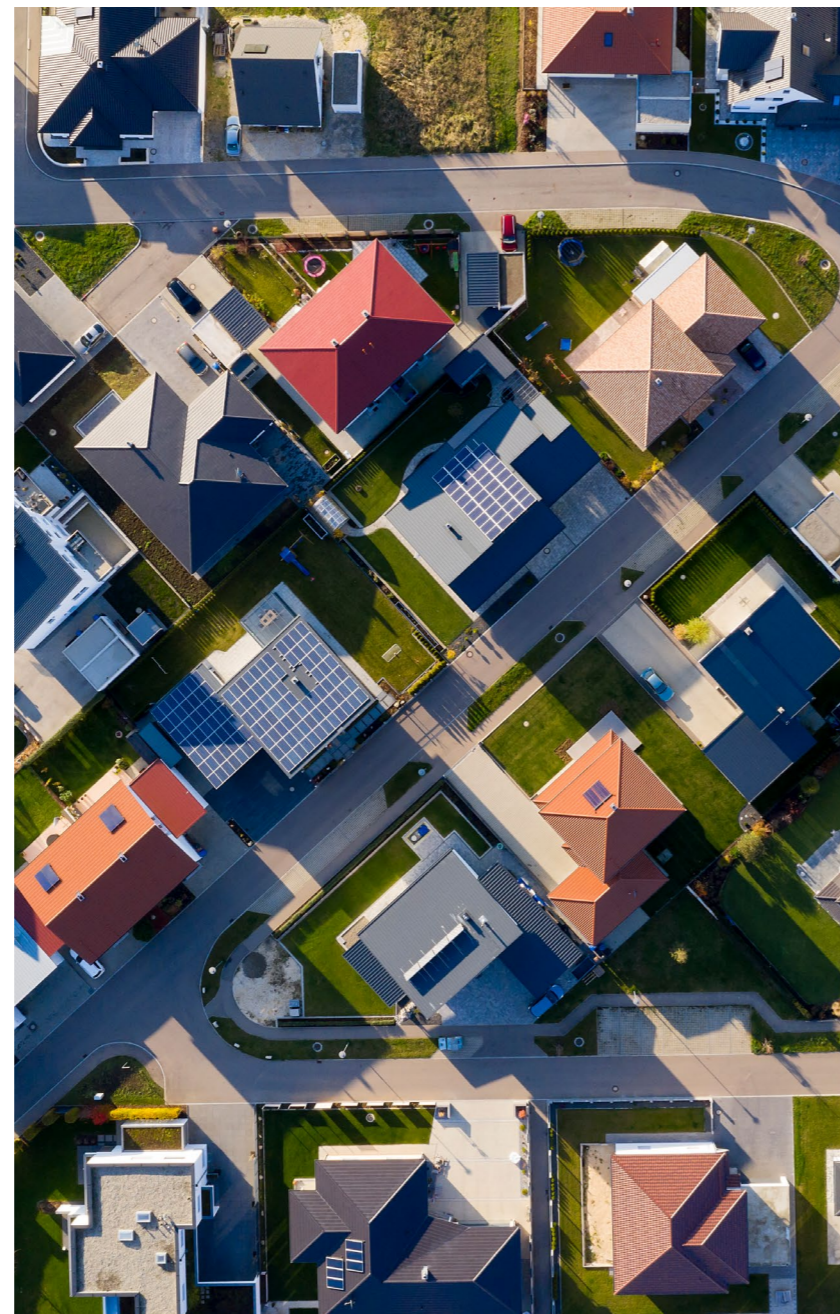
Major achievements during 2020

Task national experts together engaged in conferences, first setting out a research agenda in a presentation 'Towards a Social License to Automate Demand Side Management: Challenges, Perspectives and Regional Aspects', at the Symposium Energieinnovation in Graz, Austria, in February, and then co-organising a session 'Socialising the automation of flexible residential energy use' at the EASST/4S conference in August.
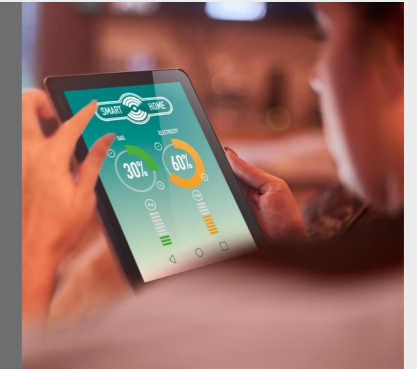
The first case study of the Task, a study of user perspectives on a PV and battery Virtual Power Plant, was completed in Australia in collaboration with PV monitoring company Solar Analytics and the findings presented at the industry conference All Energy.

The first national industry workshop was held in Switzerland to bring together local energy providers and distribution system operators and gather insights from their experiences establishing automated DSM programs.

PARTICIPANTS
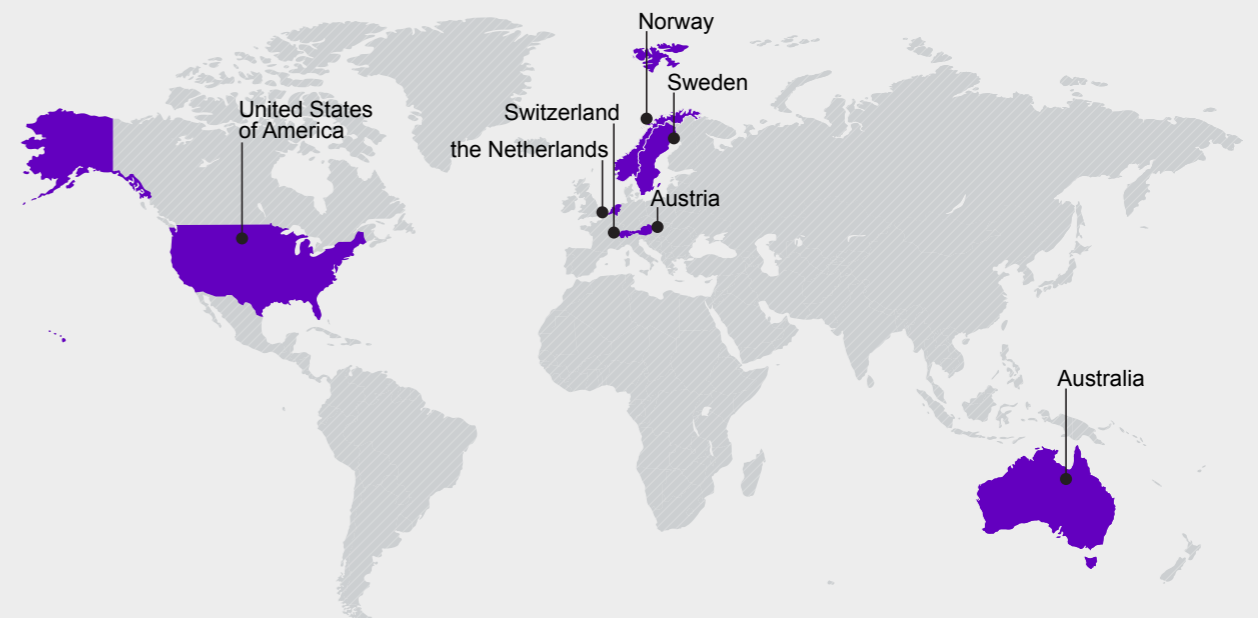
Norway

Sweden

United States of America

Switzerland

the Netherlands

Austria

Australia

The Global Observatory on Peer-to-Peer, Community Self-Consumption and Transactive Energy Models (GO-P2P) is a forum for international collaboration to understand the policy, regulatory, social and technological conditions necessary to support the wider deployment of peer-to-peer energy trading (P2P), community self-consumption (CSC) and transactive energy (TE) models.

These new collaborative economy models have the potential to bring a range of economic and social benefits to energy grid users. They also present fundamental challenges to policymakers and regulators, due to their potential to create cybersecurity and grid reliance risks, as well as widen social inequalities. Policy and regulatory frameworks will need to be adapted to protect energy consumers from such risks.

GO-P2P aims to provide policymakers, businesses and non-profits with an assessment of the key factors enabling the rollout of P2P/TE/CSC models in countries including Australia, Belgium, Ireland, Italy, the Netherlands, Switzerland, the United Kingdom and United States. It will do so by studying P2P/TE/CSC pilots taking place in these countries. International comparative analyses will lead to the formulating of a Readiness Index, helping stakeholders assess a country's readiness for P2P/TE/CSC model deployment.

On 17 and 18 February 2020, the Florence School of Regulation (FSR) hosted the second meeting of the GO-P2P. About 60 people from all over the world, both from academia and the world of practice, joined the two-day event, enabling a meaningful exchange of experiences, early reflections and research proposals.

The work of GO-P2P is led by leading research organisations in the field, including University College London (UK), Carnegie Mellon University (USA) and the European University Institute (Italy). GO-P2P has over 160 participating experts from all over the world, representing a range of sectors including academia, industry and non-profits. It provides an international platform for these stakeholders to exchange insights and best practices at this current pre-competitive stage.

For more information on GO-P2P, please visit our website or contact its Task Leader, Alexandra Schneiders (a.schneiders@ucl.ac.uk).

Major achievements during 2020

Presentations (online) were made at three workshops or conferences along with a webinar hosted on the UsersTCP Academy platform.

Sub-task 5 (policy and regulation) literature review was published in December 2020

In September 2020, a new Joint Task Force between GO-P2P and the International Association for Trusted Blockchain Applications (INATBA) was launched. INATBA is an initiative by (amongst others) the European Commission, aiming to foster dialogue between policymakers and developers/users of distributed ledger technologies (DLTs), such as blockchain. This is the largest global policy focused initiative on the application of DLTs across all economic sectors – including energy.

Many of the current peer-to-peer energy trading pilots across the world are using DLTs to allow households to sell excess energy to other consumers. Furthermore, governmental actors are assessing whether to use DLTs for regulated monopoly use cases enabling P2P energy trading, such as the balancing and settlement of energy. The use of DLTs carries several risks, due to the difficulty of removing information on distributed ledgers and the irreversibility of transactions. In light of these and the fast-moving nature of the technology, standards are currently being developed at international level.

The Task Force aims to study and compare international pilots of DLT-enabled P2P energy trading, as well as provide a forum for discussion and development of new standardisation recommendations. It will also promote collaboration between experts from GO-P2P and INATBA working in industry, academia, policy and non-profits. For more information please visit the Task Force website here.

PARTICIPANTS

United States of America

United Kingdom
Ireland

Belgium
the Netherlands
Italy
Switzerland

Australia

Behavioural Insights Platform
UsersTCP
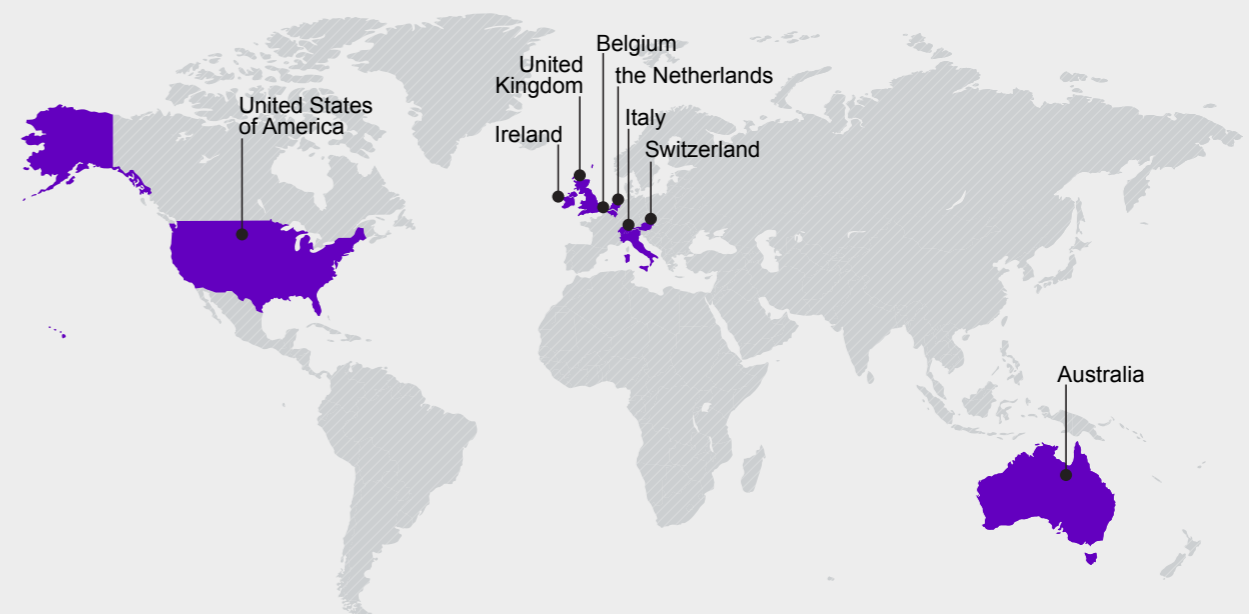
The Energy Sector Behavioural Insights Platform brings together government policy makers and other experts to share knowledge and experiences applying Behavioural Insights to energy policy.

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

At home, in the office or in public spaces, virtually all our habits and decisions affect energy consumption: behavioural insights (BIs) gleaned through research in the behavioural sciences can shed light on the catalysts of habits and choices, disentangling the role of personal, social and structural factors. This can help identify barriers to efficient and flexible energy use, and consequently choose appropriate levers to encourage it through behavioural interventions both in policy and utility programmes.

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

During 2020, the Platform's work has focused on developing an **environment scan of behavioural insights applications** to demand-side energy policy and programmes, to map the extent to which BIs are integrated in the policy process and the impacts of behavioural interventions.

The Platform's planned work for 2021 and beyond involves the development of **guidelines for policy-makers** to concretely integrate behavioural insights in the design and implementation of people-centred energy policies and programmes, as well as high-level strategies.

Major achievements during 2020

The Behavioural Insights Platform kicked off its work with the support of founding members Australia, Canada, Ireland, the Netherlands, Switzerland and the United Kingdom. Canada joined the Platform in March 2020.

The Platform published its first report "Behavioural insights for demand-side energy policy and programmes". The report discusses the behavioural factors acting as barriers to energy saving behaviours, to the uptake of energy efficient, clean energy technologies and of sustainable mobility options. Analysing over 40 case studies, it provides a snapshot of how energy ministries, regulatory agencies and utilities can leverage behavioural insights to design and implement more effective energy policies and programmes.

In October 2020, the Platform contributed to the UsersTCP Academy webinar series by presenting key insights from the environment scan.

In December 2020, Platform members contributed to discussions involving behavioural insights practitioners, energy policy makers and utility professionals through a panel session titled "Applying Behavioural Insights to Energy Efficiency Policies and Programs: Where Do We Stand?" at the Behaviour, Energy and Climate Change conference.

PARTICIPANTS
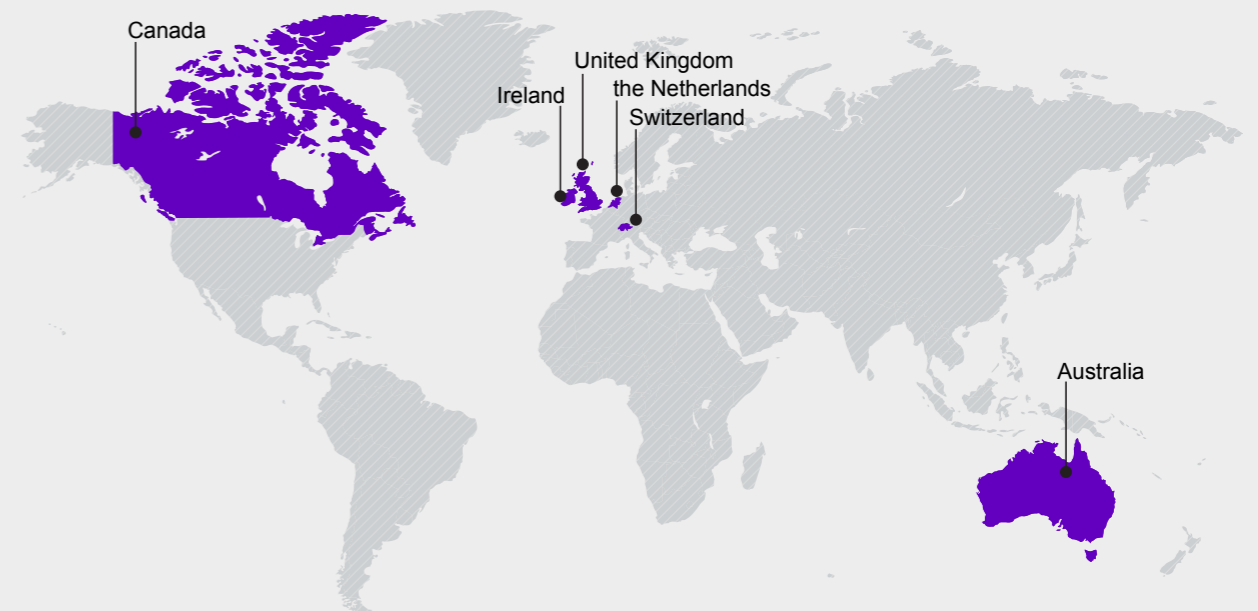
Canada

Ireland

United Kingdom
the Netherlands
Switzerland

Australia

Empowering all: Gender in policy and implementation for achieving transitions to sustainable energy.

During 2020, a new UsersTCP Task was developed: *Empowering all: Gender in policy and implementation for achieving transitions to sustainable energy.* The new UsersTCP Task gathers researchers from the fields of gender and energy in a global network to analyse energy policy and technologies from gender perspectives and provide recommendations for policy design and implementation.

The role of gender in energy systems has been undervalued in the past. Yet, research has shown that norms and practices linked to gender have an impact on the development of policies, user systems and energy technologies, and that this can lead to the implementation of inefficient and excluding energy solutions. One central issue is that, often energy policies and technologies are assumed to be gender neutral when, in fact, they are gender blind. This means that they neglect the differential impacts on genders as well as socio-economic and cultural groups. Consequently, policies and technologies are less effective and may have unintended effects, hindering transitions to more sustainable energy systems.

However, although the assumed gender neutrality of energy policy and energy institutions has been questioned by researchers over several decades, the problems of gender-blind energy policies persist. In addition, social science research on user adaption of energy technologies, including gender research, is often ignored when designing new energy interventions. This new international collaboration sets out to bridge this gap between research and practice.

One central issue is that, often energy policies and technologies are assumed to be gender neutral when, in fact, they are gender blind.

We will do this by carrying out comparative studies between the participating countries starting from three main questions:

> What "best practices" can we learn from earlier work on gender aware policy and technology interventions?

> What cultural and material barriers exist within today's energy institutions that hinder the formulation and implementation of inclusive and gender-aware policies and technologies?

> How can we use gender perspectives when designing energy technologies and user solutions to ensure they are inclusive and effective?

In addition to case studies and research overviews, we will publish educational materials, design new evaluation methods, and develop models and proto-types for new technology and user support. We will also work with data gathering, in order to fill the data gaps that exists concerning gender. Through stakeholder workshops with the energy policy and industry communities, we aim to find ways to solve the problems that are identified during the course of the project.

In conclusion, the aim of this international collaboration is to make sure that relevant gender research is also implemented in practice. By focusing on interventions and implementations, we will ensure that gender perspectives are applied to support the participating countries in their work to design a more efficient and inclusive energy system, and through this also support ongoing efforts to foster energy transitions. This is particularly pressing now, as countries develop measures to mitigate the social and economic costs of the current COVID-19 crisis.

The work is being led by Sweden, who initiated the Task and will be supporting the role as Task Leader. The Netherlands, Austria and the UK have already started their work in the task, and Ireland has held a tender for participation. Australia and the USA will also be participating in the task.

CONTACT: Anna Åberg, Task Leader
userstcp.gender@chalmers.se
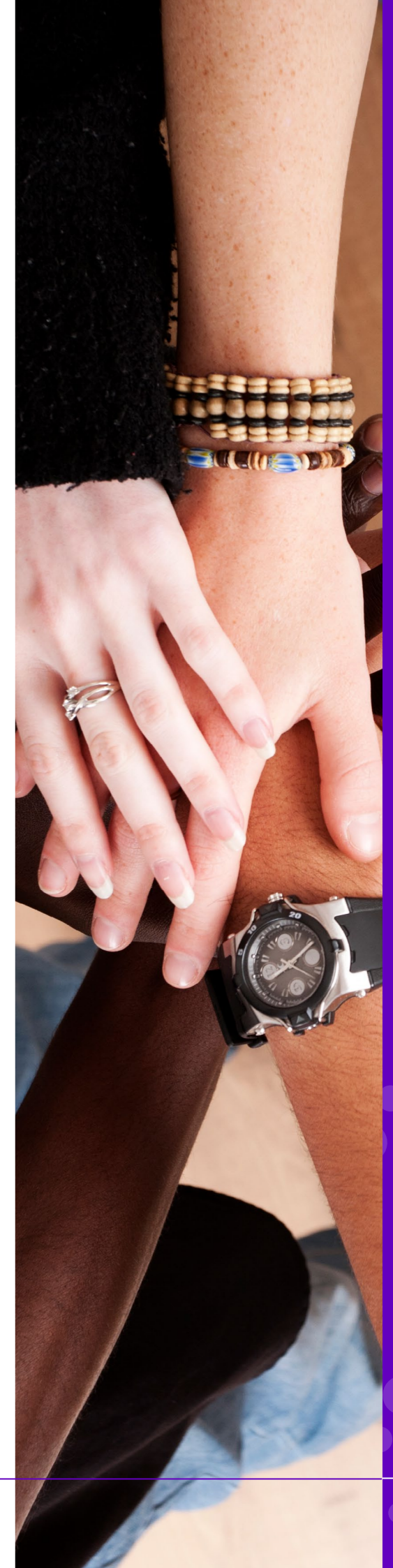
TCP Collaborative Projects In 2021

Plug and Play Devices – a joint initiative of the UsersTCP and the Electronic Devices and Networks Annex (EDNA) of the Energy Efficient End-use Equipment (4E) TCP

The objective of the project is to investigate the extent to which energy efficiency and demand flexibility services are not being realised because a proportion of smart-energy devices are not user-friendly with respect to setup and continuing operation. The smart devices of interest are those found in a residential environment and include smart appliances, smart space and water heating controls and other smart devices with the ability to significantly reduce energy consumption (e.g. lighting).

The project begins in February 2021 and will report in October 2021.

Environmental Policy and Individual Behaviour Change (EPIC) Survey – a joint initiative with the OECD

During 2021 and 2022 we will collaborate with the OECD on the development and implementation of a new round of their Environmental Policy and Individual Behaviour Change survey. The survey, last run in 2011, proposes to pursue a data-driven understanding of demand-side conditions by exploring the extent to which socio-economic, geographical and policy-related factors affect environmental behaviour and responses to environmental policies. The UsersTCP will be collaborating with the OECD to develop the energy module of the survey, as well as participating in the working group for the survey as a whole.

Survey development will take place in 2021 and survey analysis will be undertaken in 2022.

User-Centred Energy Systems Academy

The UsersTCP Academy has built on its knowledge base in 2020 with 10 webinars presented, hosted by the Copper Alliance on their YouTube channel Leonardo Energy.

January — **Recent IEA Analyses on behind-the-meter energy system trends**
PRESENTER(S) Jeremy Sung and Tim Goodson, IEA

February — **How do countries legislate to support renewables to meet the needs of domestic consumers and renewables producers**
PRESENTER(S) Professor Penelope Crossley, (University of Sydney, Australia)

March — **Using human-centred design to improve energy efficiency policy**
PRESENTER(S) David Pryor, (New South Wales Government, Australia)

April — **How to reach the hard-to-reach (energy users)?**
PRESENTER(S) Dr Sea Rotmann (Sustainable Energy Advice), Task Leader, Hard-to-Reach Energy Users, UsersTCP

May — **Smart, Energy-Saving Homes: What's Stopping Us?**
PRESENTER(S) Steven Beletich, Operating Agent, 4E TCP Electronic Devices and Networks Task

June — **Households are happy to join together and provide power flexibility for climate action**
PRESENTER(S) Pierre Bivas (Voltalis)

September — **Power to the people: shifting control over electricity to citizens and consumers**
PRESENTER(S) David Robinson (Oxford Institute for Energy Studies)

October — **Applying behavioural insights to demand side energy policies and programmes: where do we stand?**
PRESENTER(S) Elisabetta Cornago (IEA), -UsersTCP Behavioural Insights Platform coordinator

November — **Introducing the Global Observatory on Peer-to-Peer, Community Self-Consumption and Transactive Energy Models (GO-P2P)**
PRESENTER(S) Alexandra Schneiders, UCL, GO-P2P Task Leader, UsersTCP

December — **Time to step up performance-based energy efficiency measurement and verification efforts in Europe**
PRESENTER(S) Claudia Canevari (EU Commission), Samuel Thomas (Regulatory Assistance Project) and Mark Lister (Efficiency Valuation Organization)

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

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Providing access to the knowledge developed through our research programme and the wider work of our partners

2020 Executive Committee and Delegate 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 2020 the office bearers were:

David Shipworth
UNITED KING-
DOM
CHAIR

Tony Fullelove
AUSTRALIA
VICE-CHAIR
appointed Nov 2020

Gerdien de Wegner
THE NETHERLANDS
VICE-CHAIR FINANCE
appointed Nov 2020

Samuel Thomas
HEAD OF SECRETARIAT

Vikki Searancke
SECRETARIAT SUPPORT

Even Bjornstad
NORWAY
VICE-CHAIR FINANCE
retired Nov 2020

Delegate changes in 2020

Korea has been represented by Mr Kwangon Kim (Kevin) of the Korea Energy Agency, since February 2020.

Canada joined the UsersTCP in March 2020 represented by their new delegate Ms Abla Hanna, Senior Director of the Office of Energy Efficiency, Natural Resources Canada.

New Zealand appointed Ms Nina Campbell of the Energy Efficiency and Conservation Authority (EECA) as their primary delegate in November 2020, replacing Mr Marcos Pelenur (EECA) who was appointed as the alternate delegate replacing Mr Murray Bell.

Changes to Contracting Parties in 2020

Effective 16 December 2020, The Government of Austria (Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology) took the place of Grazer Energieagentur as the Contracting Party for **Austria**.

A full list of member delegates at December 2020 is shown in Attachment 1.

2020 ExCo Meetings

2020 saw the first ExCo meetings of the newly launched UsersTCP, however both meetings took place online due to the ongoing restrictions imposed by the Covid-19 pandemic.

Meetings took place using a combination of written ballot and video conference on 2-3 April 2020, and 26-29 October 2020.

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> I am pleased to represent Canada as an Executive Committee member of the UsersTCP. Our team at Natural Resources Canada is excited to work together with international counterparts to explore and better understand the role of users within energy systems to drive energy efficiency and accelerate the energy transition. To advance these objectives, Canada has joined the new Energy Sector Behavioural Insights Platform Task. We look forward to learning about ways in which various jurisdictions across the world are applying behavioural insights to energy policy and incorporating this new knowledge and best practices to energy efficiency policy-making here in Canada.
>
> **ABLA HANNA, SENIOR DIRECTOR OF THE OFFICE OF ENERGY EFFICIENCY, NATURAL RESOURCES CANADA**

Attachments

Attachment 1

User-Centred Energy Systems ExCo Delegates as at December 2020

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Primary

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Belgium

Primary

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Finland

Primary

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India

Primary

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Italy

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the Netherlands

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New Zealand

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Norway

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Alternate

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Republic of Korea

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Spain

Primary

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Sweden

Primary

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Switzerland

Primary

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Alternate

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United Kingdom

Primary

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United States

Primary

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Attachment 2

Energy Service Supporting Business Models and Systems Task
2020 Record of Activities & Participants

Publications in 2020

Date	Publication	Intended Audience	Authors
January	*The impact of the institutional context on the potential contribution of new business models to democratising the energy system*	Academia and policy makers interested in business models and transitions	Mourik, Breukers, Van Summeren and Wieczorek
	Institutional Entrepreneurship and (dynamic) capabilities within the energy transition: a merged concept	Academia and policy makers interested in business models and transitions	Den Hartog
November	*Agency by institutional entrepreneurs in the energy transition*	Academia and policy makers interested in business models and transitions	Den Hartog
Forthcoming 2021	*Business models for energy efficiency services: Four archetypes based on user-centeredness and dynamic capabilities*	Academia and policy makers interested in business models and transitions	Mourik, Castaldi, Huijben

Workshops & Conferences in 2020

Date	Conference	Intended Audience	Location
March to November	Contribution to skills session entrepreneurs Netherlands	Entrepreneurs	Online
June	Presentation poster at New Business Model Conference	Academia and policy makers interested in business models and transitions	Online
October	Panel leader and presenter Sustainable Places conference	Academia and policy makers interested in business models and transitions	Online
November	Workshop Sweden 1	Institutional stakeholders	Online
December	Workshop Sweden 2	Institutional stakeholders	Online

Management/Experts Meetings in 2020

Several individual meetings with Irish, Swedish, Dutch national experts and/or ExCo members.

Activities Planned for 2021

Date	Activity	Intended Audience	Location
March to November	Irish workshop February 22nd	Institutional stakeholders	Online
June	Final report ready on task work including recommendations	Mixed	fittoserve.nl
October	fittoserve platform to be ready, including all case studies and reports	Mixed	fittoserve.nl
November	5 webinars to be featured on Fittoserve.nl platform	Mixed	fittoserve.nl

Participation

Countries participating in this Task are Australia, Ireland, the Netherlands and Sweden, represented by the following National Experts:

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Sweden
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Hard-to-reach Energy Users Task
2020 Record of Activities & Participants

Publications in 2020

Date	Publication	Intended Audience	Authors
May	*Commercial Energy Behaviour Opportunities Assessment*	US funders	Per request
October	*HTR Literature Review*	Members only	To be updated and published as eBook in 2021
	Behaviour Changer Framework 2.0	Members only	To be published with "Building Blocks of Behaviour Change" white paper in 2021
December	*HTR Literature Review Cliff Notes*	Members only	To be published as academic paper in 2021
	Draft: *Case Study Analysis Methodology and Template*	Members only	To be published as eceee Summer Study paper

Workshops & Conferences in 2020

Date	Conference	Intended Audience	Location
April	Users Academy HTR Task webinar	Public	Online
August	ACEEE summer study (US)	Attendees	Online
October	Otago Energy Research Conference (NZ)	Attendees	Online
November	Young Energy Professionals Conference (UK)	Attendees	Online
December	BECC conference (US)	Attendees	Online

Management/Experts Meetings in 2020

Date	Meeting
Monthly	US NE and Project Partner meetings
Quarterly	Online NE meetings
	US CEE stakeholder meetings
January	CEE Stakeholder meeting, Longbeach
February	Stockholm Swedish stakeholder meeting
March	NZ stakeholder meeting
May	NZ government stakeholders
August	NZ stakeholder meeting
October	NZ stakeholder meeting

Activities Planned for 2021

Date	Meeting
2021	BEHAVE Special Issue paper on COVID-19 impact on HTR
	Literature Review published x2 (eBook and paper)
Quarterly	4x online NE meetings
March	Research process published in 2x white papers
	2x major funding proposal for Year 3 field research pilots submitted
April	BEHAVE special workshop on HTR Task
	BEHAVE conference with 4 extended abstract presentations
July	Case Study Analyses and Cross-Country Case Study Comparison for 7+ countries
June	Uplight (US) focus group and survey results published
	eceee Summer Study 2-3 papers accepted
October	Start field research pilot/s in NZ
November	BECC conference

Participation

Countries participating in this Task are New Zealand, Sweden, USA and UK represented by the following National Experts:

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Attachment 2

Global Observatory on Peer-to-Peer Trading Task
2020 Record of Activities & Participants

Publications in 2020

Date	Publication	Intended Audience	Authors
December	*Sub-task 5 literature review*	Policymakers, lawyers	

Workshops & Conferences in 2020

Date	Conference	Intended Audience	Location
5 March	Presentation by A Schneiders at Workshop on Energy and Sustainability by the EU Blockchain	Policymakers, industry	Online
30 October	Presentation by A Schneiders at 'Introduction to Blockchain in Energy Projects' webinar, hosted by IEEE UK & Ireland	Academics, industry	Online
12 November	Presentation by A Schneiders in the panel session 'Market Design for Peer-to-Peer Energy Trading and Distribution System Flexibility' at INFORMS 2020 conference	Academics, industry	Online
18 November	Users TCP Academy webinar by A Schneiders on 'Introducing the Global Observatory on Peer-to-Peer, Community Self-Consumption and Transactive Energy Models (GO-P2P)'	Industry, academics, policymakers	Online

Management/Experts Meetings in 2020

Date	Conference	Intended Audience	Location
17-18 February	Second meeting of GO-P2P	Industry, academics, policymakers (day 1) & members only (day 2)	Florence, Italy
March, May	Sub-task leads meetings	Academics	Online
15-16 September	Third meeting of GO-P2P	Industry, academics, policymakers (day 1) & members only (day 2)	Online
26 November	First meeting of the Joint GO-P2P/INATBA Task Force	Members only	Online
	Sub-task participant meetings (ST leads organise regular meetings with participants)	Members only	Online

Activities Planned for 2021

Date	Activity	Intended Audience	Location
Spring 2021	Fourth meeting of GO-P2P	External stakeholders (Day 1) & members only (day 2)	Online
Spring 2021	GO-P2P/INATBA Task Force event on government energy use case of distributed ledger technologies (e.g. balancing and settlement of energy)	Industry, academics, policymakers	Online

Participation

Countries participating in this Task are Australia, Belgium, Ireland, Italy, the Netherlands, Switzerland, UK, USA represented by the following National Experts:

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Social License to Automate Task
2020 Record of Activities & Participants

Publications in 2020

Date	Publication	Intended Audience	Location
February	*Towards a Social License to Automate* (conference paper)	Public	Users TCP website
June	*Submission on Australia's Technology Investment Roadmap*	Public	Users TCP website
August	*Socialising the automation of flexible residential energy use* (conference report)	Public	Users TCP website

Workshops & Conferences in 2020

Date	Conference	Intended Audience	Location
February	Towards a Social License to Automate	Conference participants	Symposium Energieinnovation conference, Graz, Austria
April	Inter-TCP meeting on Integrated Energy Systems	Public	Online
August	Session at EASST/4S conference	Conference participants	Online
September	Swiss national workshop, hosted by BFE	Invited industry, government, academic participants	Online
October	'All Energy' Australia conference session on VPPs	Public	Online
November	Monash University's Net Zero Initiative webinar	Public	Online
December	Australian National University's Battery Storage and Grid Integration Program webinar	Public	Online
	Australian energy social scientists' workshop	Invited academic and industry participants	Online

Management/Experts Meetings in 2020

Date	Conference	Intended Audience	Location
March-April	National Experts' meeting	Task participants	Online

Activities Planned for 2021

Date	Activity	Intended Audience	Location
March	National Experts' meeting	Task participants	Online

Participation

Countries participating in this Task are Austria, Australia, the Netherlands, Norway, Sweden, Switzerland, and USA represented by the following National Experts:

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Attachment 2

Energy Sector Behavioural Insights Platform

2020 Record of Activities & Participants

Publications in 2020

Date	Publication	Intended Audience	Authors
December	*Behavioural insights for demand-side energy policy and programmes. An environment scan*	Public	IEA and UsersTCP

Workshops & Conferences in 2020

Date	Conference	Intended Audience	Location
October	Users TCP Academy (webinar): Applying behavioural insights to demand side energy policies and programmes	Public	Online
December	Panel session at Behaviour, Energy and Climate Change Conference	Registered conference participants	Online

Management/Experts Meetings in 2020

Date	Conference	Intended Audience	Location
January	Teleconference with Expert Group 1	Members only	Online
March	Teleconference with Expert Group 2	Members only	Online
October	Teleconference with Expert Group 3	Members only	Online
December	Teleconference with Expert Group 4	Members only	Online

Activities Planned for 2021

Date	Activity	Intended Audience	Location
Q1 2021	Policy brief on behavioural insights	Public	Online
Q4 2021	Development of guidelines for the integration of behavioural insights in energy policy making	Public	Online
Q3 2021	Outreach event	Public/conference attendees	TBD

Participation

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The UsersTCP will continue to grow and seek collaborations with all those who see users as integral to delivering a sustainable, secure, affordable and inclusive energy future

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.