newTRENDs

D8.3 - Website and Logo Documentation

Description of website structure and content

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Reviewer(s)	newTrends Steering Committee			
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Executive Summary

For the achievement of the 2-degree goal set out 2015 in the Paris Agreement, two central strategies have to be implemented in all countries: i) enhancing energy efficiency (EE) and (ii) decarbonizing remaining energy supply and demand. Scenarios with different focusses and assumptions have been developed to map this development until 2050. While these scenarios present a major step forward beyond previous modelling approaches by integrating societal trends, much more progress is necessary to enhance the empirical basis for such trends and their representation in models. In this context, the project newTRENDs is developing the analytical basis for a "2050 Energy Efficiency Vision" taking into account New Societal Trends in energy demand modelling.

The aim of this document is to present the outline, structure and content of the project's website.

The project website is the main external communication tool, giving access to all project's information and outcomes. This includes an event calendar, embedded social media accounts, and making all kind of publications, such as policy briefs, reports and research papers available. Later in the project it will further provide the links to accessing the project data which will be made publicly available. The website was created in the first months of the project. The website was built following the new General Data Protection Rules (GDPR) and according to a proper cookie policy. Furthermore, it holds counters for visits, downloads, total number of hits and for unique users for monitoring purposes. Social network accounts were created and used on a regular basis to engage with all stakeholders. Partners' existing social media accounts will be leveraged in order to reach a broader and more consolidated audience.

Table of content

1. Project website

1.1 Structure

Below we present the structure of the project's website:

1. Home – main page
2. The project
    a. About
    b. Models
    c. Work packages
    d. Related H2020 projects
3. Partners
4. News and Events
5. Newsletter
6. Publications
7. Medias

1.2 Project logo

A number of logos were designed by the web designer. Based on the initial suggestions some adaptations were made and the final version was chosen by the whole consortium through voting.

The shapes of the logotype are modern, soft, exactly in the same style as companies dealing with new technologies and trends - futuristic. It is a bunch of the letters N and T, like newTRENDs. The colors (green and blue shades) reflect the spirit of what is the center of the project, i.e. the climate.

Below we present different options of the official logo.

Figure 1 Logo with newTRENDs text

Figure 2 Logo without newTRENDs text

Figure 3 Black version of the logo

Figure 4 White version of the logo

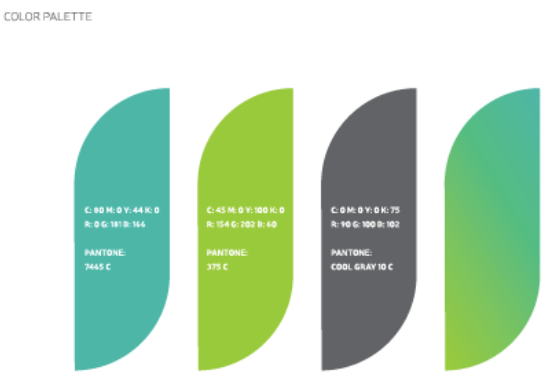

Figure 5 Color palette

1.3 Website design

The design of the project's website is simple, clear, and easy to navigate. It is in the colours of the logo palette. Below we present some screenshot from the website.

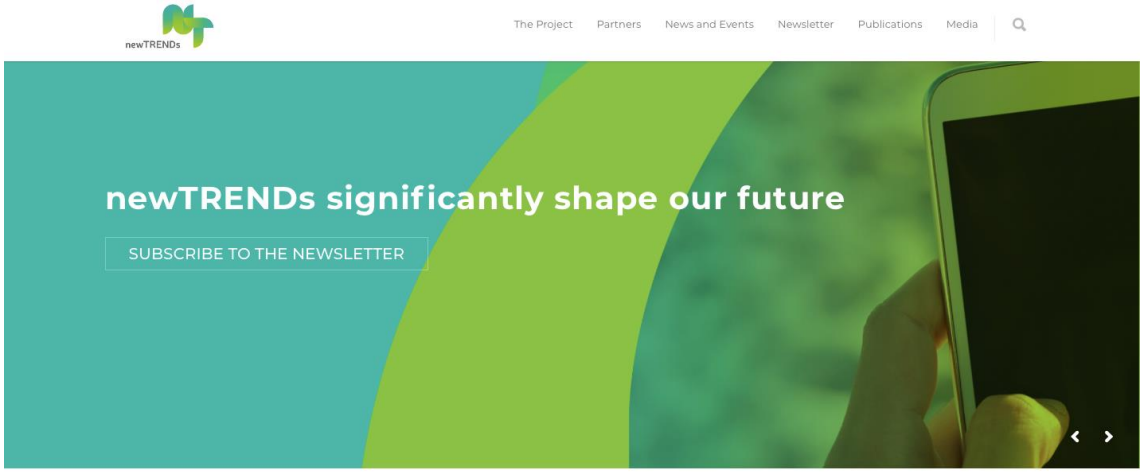

Figure 6 Main page of the newTRENDs website

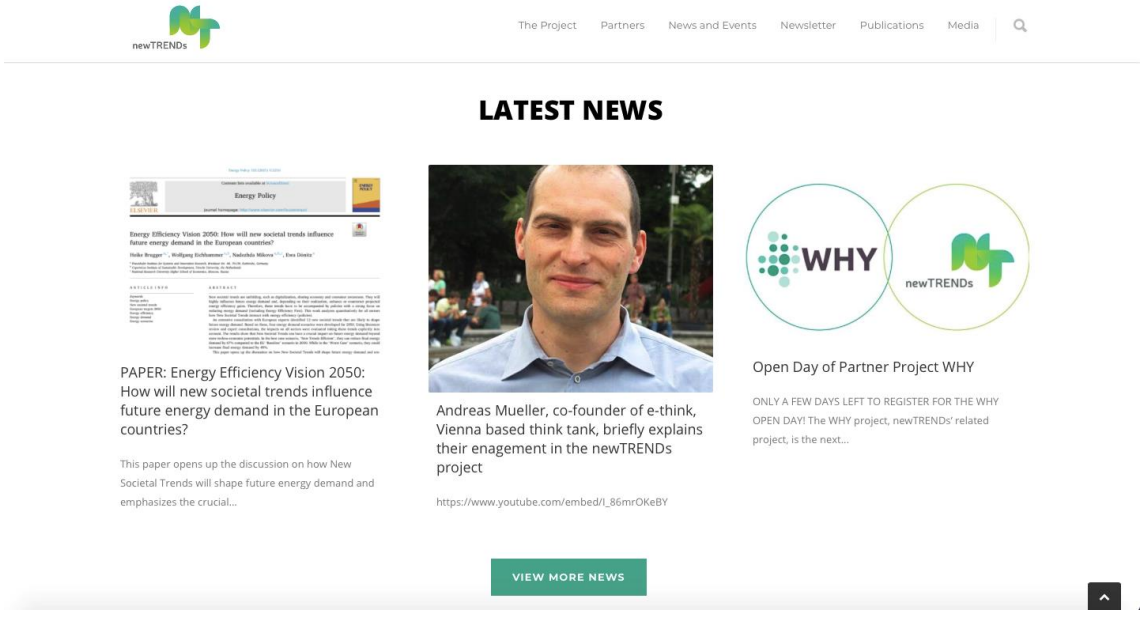

Figure 7 News slider on main page

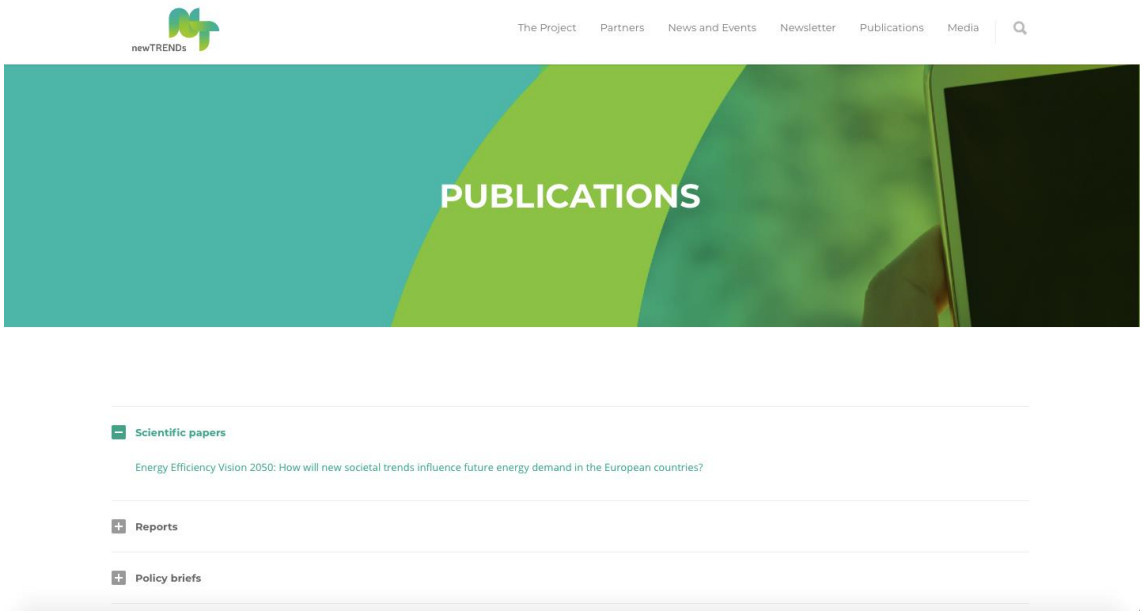

Figure 8 Publications page of the newTRENDs website

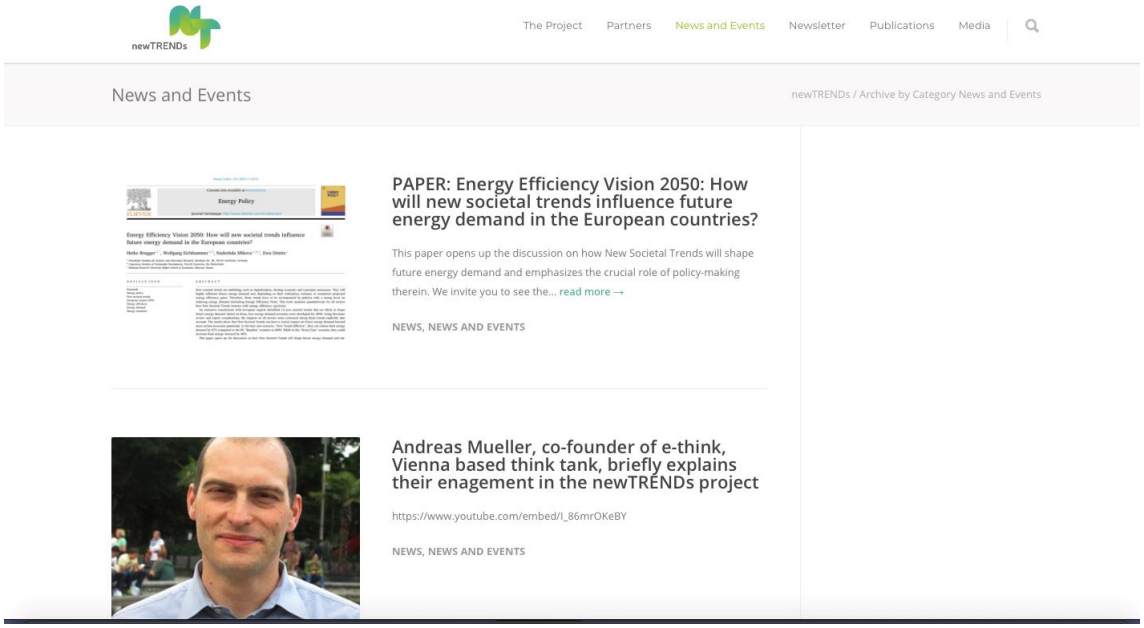

Figure 9 News and Events page of the newTRENDs website

2. Communication statement

A communication statement has been developed after consultations with the consortium members:

Figure 10 newTRENDs communication statement

The communication statement underlines the importance of new societal trends influencing the future generations. The communication statement will remain on the main page for the duration of the project and will act as an anchoring statement for the reader.

3. Website content

This chapter provides the content of the website, which was added to the website during its launch. Necessarily, the content of the website will be evolving throughout the project with parts of the current content being updated or replaced as the project processes.

3.1 Home - main page

There are four areas on the main page: Moving sliders; Latest news; Partners' logos and various redirections; each of them will be explained below.

MOVING SLIDERS

Each slider will represent the newest information on the webpage. The content will be published ad hoc during the project. There will be one permanent slider with redirection to “about the project”.

LATEST NEWS

Three boxes will show three latest news from the project.

PARTNERS’ LOGOS

The partners' logos with the redirection to the partners’ subpages.

VARIOUS REDIRECTIONS

- Subscribe to the newTRENDs newsletter
- Publications – redirection to subpage
- Scientific papers – redirection to subpage
- Reports – redirection to subpage
- Policy– redirection to subpage
- Webinars – redirection to subpage
- Media – redirection to subpage
- Social media links
- Press releases– redirection to subpage
- Media appearances – redirection to subpage
- Printables – redirection to subpage
- Contact us - footnote

3.2 The project

This sections is dedicated to the project’s characterization, it presents its overview as well as detailed descriptions of all work packages, models and related projects. It consists of the following sections: About-Models-Work Packages-Related H2020 projects.

Below we presents texts published on the website which are fixed content.

3.2.1 About

For the achievement of the 2-degree goal set out 2015 in the Paris Agreement, two central strategies have to be implemented in all countries:

- enhancing energy efficiency (EE) and
- decarbonizing remaining energy supply and demand, in particular by large penetration of renewable energy sources (RES).

Scenarios with different focusses and assumptions have been developed to map this development until 2050. While these scenarios present a major step forward beyond previous modelling approaches by integrating societal trends as increasing climate awareness or circular economy, much more progress is necessary to enhance the empirical basis for such New Societal Trends and their representation in models.

New Societal Trends are understood as societal developments arising from general Megatrends, which can have potentially large (increasing or decreasing) impacts on energy consumption as well as cross-sectoral demand shifts.

Those New Societal Trends are not simply the extrapolation of already presently observed trends ("continuous or linear trends") but may take up speed when they are embraced by larger parts of the society ("disruptive or non-linear trends"). Such trends include:

- Transition of Consumers to Prosumagers,
- Move towards a Circular Economy and a Low-carbon industry,
- Digitalisation of the Economy and of private lives,
- Trends towards a Shared Economy

and will be the main focus of the present project. In this context, newTRENDs is developing the analytical basis for a "2050 Energy Efficiency Vision" taking into account New Societal Trends in energy demand modelling.

OBJECTIVES

The aim of newTRENDs (New trends in energy demand modeling) is to increase the qualitative and quantitative understanding of impacts of New Societal Trends on energy consumption and to improve the modelling of energy demand, energy efficiency and policy instruments. Through this, the ability of policy makers to guide those trends in the light of the Paris Agreement and the long-term climate and energy targets of the European Union can be increased.

Derived from this overall objective, the project newTRENDs has the three detailed sub goals. The first goal aims at identifying and quantifying how New Societal Trends affect energy demand (its structure and patterns, including cross-sectoral interdependencies). The subsequent goal aims to investigate how energy demand models are to be improved to represent New Societal Trends and to represent policies that can influence such trends in the light of the Energy

Efficiency First Principle in energy demand models. The final goal aims for integrating recent empirical findings on the impacts of New Societal Trends as well as information from detailed data sources such as smart meter data available from recent technical advances into energy demand models, in order to improve the empirical basis for such investigations. Special care is given to uncertainties that are inherent when assessing New Societal Trends.

METHODS

From a methodological perspective, three major aspects characterize the newTRENDs project. Firstly, the combination of foresight methods with quantitative model runs is implemented to select appropriate trends and work out, how such trends can be quantified. For this purpose, relevant trends are selected and their relevance for the energy system is assessed during a deep dive analysis. A condensation of those trends in clusters as well as the translation to model parameters and modelling gaps is carried out.

Secondly, it is investigated how existing, well-known energy demand models are to be improved to represent New Societal Trends, e.g. through agent-based and cross-sectoral approaches and how policies are represented in the demand models. For this, an initial scenario run of the existing demand models is carried out. Based on this a gap analysis of modelling structure as well as empirical data and an analysis of necessary model adaption is implemented. After realizing the model adaptions, a second scenario run is carried out for the comparison with the initial results.

The third methodological aspects focusses on the data perspective and aims to integrate recent empirical findings on consumption patterns and policy impacts. Those data will be analysed statistically and integrated in the models focussing on prosumager behaviour. In addition, the data can be used for policy analysis.

SUMMARY

The goal of newTRENDs is to recognize and model measure the influence of new social trends on energy needs demand, and hence to develop scenarios of their future development. The digitization of the economy and private life (including new and smarter ways for private households to consume, produce and manage their own energy), investments in autonomous electric cars and other transport reforms, the circular economy, creation of a low-carbon industry, and the sharing economy particular in transport and the tertiary sector – these five trends are expected to have a significant will have the greatest impact on increasing or reducing energy demand in the European Union in the coming years.

New social trends may affect not only the amount of energy consumed, but also its preferred form by consumers, or the time of the greatest burden on the energy grid. The larger the sections of society that succumb to these changes, the greater the evolution will take place throughout the energy system.

Researchers will use the qualitative (foresight) methods with quantitative cross-sectoral modelling. This combination is not widely applied so far and a great strength of the newTRENDs project. However, the quantitative models that will be enhanced in this project these are tools that are quite frequently often u used

for the long-term forecasting of the by the EU for long-term forecasting. To make the analysis as accurate as possible, researchers will also use modern sources of data on social trends and energy consumption.

3.2.2 Models

This section presents all models that will be used within the project. These well-established models build the core of the project. All of them have been used extensively in the EU context for long-term projections and will be enhanced in this project.

FORECAST

The FORECAST model is part of a larger energy systems model family operated by Fraunhofer ISI29 is designed as a tool that can be used to support strategic decision making. Its main objective is to support the scenario design and analysis for the long-term development of energy demand and greenhouse gas emissions for the industry, residential and tertiary sectors on EU MS level. FORECAST considers a broad range of mitigation options to reduce CO2 emissions (e.g. incremental energy efficiency improvements, fuel switch to RES, innovative process technologies, CCS), combined with a high level of technological detail (e.g. FORECAST Industry models more than 200 saving options for more than 70 industrial processes). It is based on a bottom-up modelling approach considering the dynamics of technologies and socio-economic drivers. Technology diffusion and stock turnover are explicitly considered to allow insights into transition pathways. The model further aims to integrate different energy efficiency and decarbonisation policy options. The model allows to address research questions related to energy demand including the analysis of scenarios for the future demand of individual energy carriers like electricity or natural gas, calculating energy saving potentials and the impact on greenhouse gas (GHG) emissions as well as abatement cost curves, ex-ante policy impact assessments and the investigation of long-term sustainable energy transition scenarios (www.forecast- model.eu, Jakob et al. 2013, Fleiter et al. 2018, Herbst et al. 2017).

Recent projects carried out with the FORECAST model are, amongst others:

- Industrial Innovation: Pathways to deep decarbonisation of industry [DG CLIMATE ACTION] (Fleiter et al. 2019)
- Set-NAV Navigating the Roadmap for Clean, Secure and Efficient Energy Innovation [H2020] (Herbst et al. 2018, Hartner et al. 2019)
- REFLEX – Analysis of the European energy system under the aspects of flexibility and technological progress [H2020] (www.reflex-project.eu)
- Service contract on market testing for low-carbon innovation support to energy intensive industry and to power generation [DG CLIMATE ACTION] (Eichhammer et al. 2018)

Within the project, the FORECAST model will be used in WP3, WP5, WP6 and WP7 to calculate the decarbonisation pathways for the tertiary and the industrial

sector, as well as for electric appliances considering new trends in prosumaging, digitalization and circular economy.

INVERT/EE-LAB

Invert/EE-Lab is a dynamic bottom-up techno-socio-economic discrete choice simulation tool that evaluates the effects of different policy packages on the total energy demand, energy carrier mix, CO2 reductions and costs for space heating, cooling, hot water preparation and lighting in buildings. The model is based on highly disaggregated data of the building stock. Each building segment is described by geometry data, U-values of building components, construction period, age and type of installed heating and hot water system etc.

The core of the tool is a nested logit approach, which optimizes objectives of agents under imperfect information conditions and by that represents the decisions maker concerning building related decisions.

In over 40 projects and studies for more than 30 countries, the model has been extended and applied to different regions within Europe, see e.g. (Kranzl et al., 2012), (Kranzl et al., 2013), (Biermayr et al., 2007), (Haas et al., 2009), (Kranzl et al., 2006), (Kranzl et al., 2007), (Nast et al., 2006), (Müller, 2010), (Müller, 2015).

Relevant recent projects carried out with the INVERT model are, amongst others:

- SET-Nav (Navigating the Roadmap for Clean, Secure and Efficient Energy Innovation), completed 2019, [H2020]
- Mapping and analysis of the current and future (2020 – 2030) heating/cooling fuel deployment (fossil/renewables), completed 2015, [Service contract for the European Commission (DG ENER)]
- progRESsHEAT (Fostering the use of renewable energy for heating and cooling), completed 2017, [H2020]
- ENTRANZE (Policies to ENforce the TRAnsition to Nearly Zero Energy Buildings in the EU-27), completed 2014, [IEE]

Within the project, the Invert/EE-Lab model will be used in WP3 and WP5 to analyse decarbonisation pathways for the building sector, considering new trends in prosumaging.

PRIMES MODEL

The PRIMES (Price-Induced Market Equilibrium System) is a large-scale applied energy system model providing detailed projections of energy demand, supply, prices and investment to the future, covering the entire energy system including emissions. The distinctive feature of PRIMES is the combination of behavioural modelling (following a micro-economic foundation) with engineering aspects, covering all energy sectors and markets. The model has a detailed representation of policy instruments related to energy markets and climate, including market drivers, standards, and targets by sector or overall (over the entire system). It handles multiple policy objectives, such as GHG emission reductions, energy efficiency and renewable energy targets, and also provides a pan-European simulation of internal markets for electricity and gas.

PRIMES offers the possibility of handling market distortions, barriers to rational decisions, behaviours, as well as and market coordination issues and includes a complete accounting of costs (CAPEX and OPEX) and investment expenditure on infrastructure needs. PRIMES is designed to analyse complex interactions within the energy system in a multiple agent – multiple markets framework. Decisions by agents are formulated based on a microeconomic foundation (utility maximization, cost minimization and market equilibrium) embedding engineering constraints, behavioural elements and an explicit representation of technologies and vintages and optionally perfect or imperfect foresight for the modelling of investments in all sectors. PRIMES is well placed to simulate medium and long- term transformations of the energy system (rather than short-term ones) and includes non-linear formulation of potentials by type (resources, sites, acceptability etc.) and technology learning.

The PRIMES model runs in 5-year time steps from 2020 to 2070; the years 1990 to 2015 are calibrated to statistics. Yearly resolution can be made available upon request. The PRIMES model covers all 28 EU Member States individually with country specific models; the model is further available for 10 other European countries.

Specifically, the following parts of the model30 will be improved in the course of the planned project notably in WP3, WP5 and WP7:

- PRIMES-TREMOVE transport model: recently enhanced to include linkage to synthetic fuels and hydrogen and to detailed spatial projections of transport activity and route assignment by the forthcoming TRIMODE model31 (used notably in WP7); recent publications include (Siskos et al. 201932, Siskos et al. 201833)
- PRIMES BuiMo residential and services model: new model with high resolution representation of the housing and office building stock, embedded in an economic-engineering model of multi-agent choice of building renovation, heating system and equipment/appliances by energy use (used in WP5); recent publications include (Fotiou et al. 201934)
- PRIMES Electricity and Heat/Steam supply and market model: fully new model version which includes the hourly unit commitment model – with a pan-European market simulation over the grid constraints and detailed technical operation restrictions – the long-term power system expansion model, the costing and pricing electricity and grid model, the integration of heat supply and industrial steam supply with synchronised hourly operation. This part of the PRIMES model allows analysing impacts of Prosumagers on the supply sector in WP5.

Recent projects carried out with the PRIMES model are, amongst others:

- EU Reference scenario 2016, Energy, Transport and GHG Emission Trends to 2050 (last version published in 2016; presently ongoing)
- INNOPATHS: Innovation Pathways, Strategies and Policies for the Low-Carbon Transition in Europe, ongoing, [H2020]
- ASSET: Sectoral integration – long-term perspective in the EU Energy System, ongoing: several studies completed, [DG ENERGY]

GEM-E3-FIT

GEM-E3-FIT is an advanced and detailed CGE model version of the standard GEM-E3 model, and improves it in the following ways:

- it represents the financial sector explicitly
- it represents policy-induced technical change and innovation-induced growth by two-factor learning curves (learning by doing and learning by research)
- it represents household decisions on education affecting the human capital
- it links the human capital with the creation of knowledge
- it links the human capital with the ability to absorb knowledge spill-overs
- it has an explicit representation of infrastructure
- it provides built-in options for Monte Carlo simulations to perform sensitivity analysis
- it includes a detailed representation of transport (freight and passenger by mode)
- it includes a discrete representation of sectors producing clean energy technologies (wind, PV, CCS, electric vehicles, biofuels, batteries, insulating materials)
- it is calibrated to the most recent version of GTAP 9 and the years 2004, 2007 and 2011
- it has detailed inter-institutional transactions precisely determining the surplus/deficit position of each agent
- it has a high degree of sectoral (economy is disaggregated into 53 productive sectors) and regional resolution (46 countries/regions are represented) it has a new calibration of energy volumes that combine in a consistent way data from energy balances and IO tables
- it has detailed data on energy subsidies globally based on IEA dataset
- it includes learning by doing and learning by research associated with knowledge spill-over matrices based on patent citations data
- accounts for the number of firms by economic activity and calculates profitability rates of each activity

A new modelling feature that allows households to endogenously decide upon the optimal schooling-education years is introduced. Skills representation is extended to five skill levels based on the GTAP classification and linked to decisions of households regarding education, which then influenced the labour productivity of skills.

The GEM-E3-FIT model runs in 5-year time steps from 2020 to 2070 ; the years 1990 to 2015 are calibrated to statistics. The GEM-E3-FIT is a global model with detailed country resolution for several countries including all EU28 Member States.

The GEM-E3-FIT model will be used to study macro-economic impacts of New Societal Trends, while also investigating the needs for model adaptations to follow adequately their impacts on the overall economy.

Recent projects carried out with the PRIMES model are, amongst others:

- Employment effects of a transition towards a low-carbon and climate-resilient economy, 2017-2019, (DG CLIMA)
- Study on the Macroeconomics of the Energy Union, 2019-2021 [DG ENER]COMMIT: Climate pOlicy assessment and Mitigation Modeling to Integrate national and global Transition, 2017-2020, [DG CLIMA]
- MONROE – Modelling and evaluating the socio-economic impacts of research and innovation with the suite of macro- and regional-economic models, 2017-2019, [H2020]

3.2.3 Work packages

This section presents the detailed descriptions of all work packages.

WP1

This work package encompasses the general management activities conducted to guarantee that the project meets its time plan, budget and quality requirements. Its objectives involve the following:

Ensure efficient management and co-ordination of all project activities;

- Stimulate and support communication among project partners and between different work packages;
- Ensure good communication to key stakeholders, especially with the Experts Advisory Board (EAB), whose aim will be to guide the progress of the project;
- Secure the realisation of project goals on time and a timely management of the project budget;
- Quality control and progress monitoring;
- Risk management;
- Financial and administrative management of the project;
- Ensure compliance with all ethics requirements
- Communication with and reporting to the Executive Agency for Small and Medium-Sized Enterprises (EASME) and to the European Commission (EC)

WP2

Selection of New Societal Trends and Quantification of Impacts on Energy Demand

This work package encompasses a process of selecting clusters of New Societal Trends which are in further work packages integrated into the relevant demand side models for quantitative analysis. Its objectives involve the following tasks:

- Selection of (energy-relevant) trend clusters and detailed trends and establish their relevance for energy demand
- Quantification of empirical data on New Societal Trends and their impacts on energy consumption

WP3

Transition Pathways for New Societal Trends and Methodological Improvement in Modelling such Trends

This work package develops quantitative transition pathways for the New Societal Trends, including their macro- economic impacts, based on the existing demand-side models in the project team (run 1). From this, we derive a gap analysis, which will then guide further model developments and the focus analysis in WP5-7. In a second round, the quantitative transition pathways are refined and macro-economic implications evaluated (run 2). The objectives of this WP involve the following tasks:

- Definition of transition pathways and scenarios for energy-relevant New Societal Trends, covering the building sector, industry and transport.
- Gap analysis for the quantitative modelling of New Societal Trends (methodological limitations, data limitations and short/long-term model improvements).
- Macro-economic impacts of New Societal Trends and policies to encounter energy demand increasing drivers in those trends.

WP4

Policy needs and policy analysis for Influencing Energy Demand Arising from New Societal Trends

This work package analyses policies which can enhance the demand decreasing trends of New Societal Trends ("linking New Societal Trends and the Energy Efficiency First Principle") and strengthen the ability to model relevant policies in demand-side models. The objectives of this WP involve the following tasks:

- to provide an assessment of energy demand-side policies and instruments at European level with major impacts on New Societal Trends as well as of policies policy instruments targeting large-scale behavioural changes
- to carry out an in-depth assessment of demand-side models in how far they are able to quantify energy demand-side policies impacting on New Societal Trends
- to provide recommendations for better design of energy-demand modelling to appropriately represent such New Societal Trends

WP5

Focus Study: Prosumagers and big data (new data sources) in energy demand models related to the built environment

While WP2/3 were striving to develop a comprehensive view on New Societal Trends through a quantitative modelling approach, WP5 deals with the first of three Focus Studies which dive deeper into the quantitative modelling aspects. The objective of this work package is to substantially enhance energy demand modelling in the context of the built environment regarding the transition of consumers to prosumagers [We use the yet less common word "prosumager" in contrast to "prosumer". A prosumager is a "prosumer" who consumes and produces energy (notably from PV) and who has made additional investments in

distributed storage, usually in the form of batteries. It further includes connotations of "manager", which includes also notions of managing demand response, participation in electricity trading etc. For the sake of simplicity, we use the term prosumager and prosumers as synonyms in the text or the proposal.] and to integrate for that purpose new data sources (such as data obtained from smart meters in residential buildings). In this way, energy demand models will be better capable in responding to policy needs. The objectives of this WP involve the following tasks:

- New empirical and statistical basis for prosumager modelling
- Modelling prosumagers and Energy Communities: prosumager behaviour in bottom-up demand models
- From consumers to prosumagers: modelling household choices and their active participation in the energy market
- Demonstrate the new methods and model developments by modelling policy cases

WP6

Focus Study: Circular economy and digitalisation in energy demand models related to the sectors industry and tertiary

This work package deals with the impact of a circular low-carbon industry and tertiary digitalisation on energy demand and CO2 emissions and how these trends can be represented in demand models. The objectives of this WP involve the following tasks:

- Modelling the impact of circular economy (CE) for deep decarbonisation of the industry sector
- Modelling the impact of digitalisation and new market trends in the tertiary sector on energy demand and energy- efficiency potentials
- Improving the modelling of selected CE-action and digitalisation policies in the tertiary and industry sector

WP7

Focus Study: New Societal Trends in Transport and Tertiary Sector – The Impact of the Shared Economy

This work package is the third of three focus studies related to New Societal Trends and analyses the impact of the shared economy in transport and in the tertiary sector on energy demand in the EU. More specifically we will:

- improve the understanding of the relationship between new trends in transport and in the tertiary sector -most notably the sharing economy- and energy consumption/energy efficiency
- deepen the empirical basis for modelling the Shared Economy
- enhance current modelling techniques of travel demand and exploring new ways to deal with the modelling of New Societal Trends of the transport sector and the tertiary sector

WP8

Dissemination and Communication

This work package covers dissemination and communication activities, which aim to ensure the broad uptake of the project results by the stakeholders (in particular policymakers, expert community, civil society), as well as provide evidence-based contribution to the EU-wide and national public debates on the energy efficiency policies. More specifically, the objectives of this work package include:

- Ensuring stakeholder engagement and two-way communication throughout the project
- Contributing to policy discussions with the key insights emerging from the enhanced modelling approaches to energy efficiency
- Informing the scientific and expert community about the methodological advances and resulting novel results in the area of energy efficiency modelling and energy policy assessment
- Building online and media presence of the project

3.2.4 Related H2020 projects

This section describes H2020 projects related to newTRENDs and with which the active cooperation can be developed. The regular exchange will allow to seek common opportunities for further dissemination activities of the project's results.

WHY

ABOUT THE WHY PROJECT

Energy System Models (ESMs) are tools that help energy experts and policy makers to rationally describe energy systems and systematically evaluate the impacts of long-term energy scenarios. Current ESMs lack accuracy required for proper capture of the use of energy in households. WHY develops a new Causal Model combined with an innovative profiling approach to analyse human decision making in energy consumption and human reactions to energy policy changes. WHY will therefore create innovative methodologies for short and long term load forecasting. The WHY toolkit will be used to assess several scenarios simulating different policy measures. All results will be open-sourced to maximize uptake, and be widely disseminated to diverse target audiences.

THE PROBLEMS

In order to mitigate climate change effects, urgent action is required in all sectors of the economy to significantly reduce greenhouse gases (GHG) emission. Energy System Models (ESM) are tools that help energy analysts, planners and policy makers to rationally de- scribe energy systems and systematically evaluate the impacts of long-term scenarios. On the supply side, ESMs have provided useful results, but however, on the demand side, they lack the degree of accuracy required for proper characterization of, among others, the use of energy in households. One of the intrinsic difficulties is that energy demand in the residential sector is influenced by a myriad of factors (like the

high diversity of dwellings, socio-economic conditions of the social/family units, and behavioral-related consumption patterns) that cannot easily be accounted for in traditional ESMs.

THE AIMS

To overcome this challenge, the novel Causal Modeling will be used to quantitatively analyse human decision making in energy consumption and their reactions to interventions (e.g. policy changes). This will be combined with an innovative FFORMA approach which allows multiple different load profiles to be categorised by a set of vectors describing it. WHY will therefore create innovative methodologies for short- and long-term load forecasting. The WHY modeling will allow to directly assess the impact of a multitude of policies on the energy system as well as performing both ex-ante and ex-post assessment over policy measures. WHY will therefore contribute to a holistic understanding of household energy consumption and improved demand modelling.

SOLUTIONS

The WHY toolkit will be used to assess several scenarios simulating different policy measures. Integration with widely-used ESMs (PRIMES, TIMES) will be demonstrated and the results analyzed. All results will be open-sourced to maximize uptake, and be widely disseminated to diverse target audiences (i.e. DSOs, energy companies, policy makers, researchers).

Consortium members

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Project start: 01/09/2020 | Duration 3 years | Grant Agreement number: 891943 — WHY — H2020- LC-SC3-2018-2019-2020 / H2020-LC-SC3-EE-2019

EERADATA

ABOUT THE EERAdata PROJECT

EERAdata aims to accelerate the implementation of the “Energy Efficiency first” principle across Europe by supporting policy-makers to effectively assess the impacts of Energy Efficiency (EE) investments, with an initial focus on investments in buildings, in order to achieve a highly energy efficient and decarbonised building stock.

EERAdata brings together researchers, energy agencies and municipalities from 6 EU countries who will collaborate for two and a half years to inform investment decisions and improve energy efficiency in buildings.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 847101.

3.3 Partners

This section presents all Partners involved in the newTRENDs project. We publish short characterization of each Partner and mention Work Packages they are responsible for within the project.

FRAUNHOFER ISI (FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.) – GERMANY

The Fraunhofer Institute for Systems and Innovation Research ISI is part of the Fraunhofer Society for Applied Research in Germany, a non-profit corporation, which promotes applied research and assures the link between fundamental and industrial research. The Fraunhofer Society is mostly financed through contract work for public bodies at European, national and regional level as well as for industrial companies. The research society has around 60 research institutes all over Germany. The Fraunhofer ISI complements the scientific and technological spectrum of the Fraunhofer Institutes through interdisciplinary research on the interdependence between technology, economy and society.

Fraunhofer will act as the project coordinator of newTRENDs and therefore leading WP1 on the project management. Fraunhofer will furthermore lead WP2 on the 'Selection of New Societal Trends and Quantification of Impacts on Energy Demand' as well as the WP6 the 'Focus Study: Circular Economy and Digitalisation in Energy Demand Models related to the Sectors Industry and Tertiary' in WP 6 on. Fraunhofer will further co-lead WP3 and WP8.

E3-MODELLING (E3-MODELLING AE) – GREECE

E3-Modelling is a knowledge-intensive company that provides consulting services based on large-scale empirical modelling of the economy-energy-environment nexus. The company owns and operates PRIMES and GEM-E3, two renowned modelling tools used extensively in the preparation of major impact assessment studies and scenario building of the European Commission. For the past 30 years, E3-Modelling has been delivering cutting-edge research and hands-on consulting services to governments, the private sector and international organisations on the design and impact analysis of transition pathways towards low- and net-zero emissions in the fields of energy, climate, and transport. Furthermore, the company is at the forefront of macro-economic research, modelling economic growth, sectorial growth, and employment at European and global levels.

E3-Modelling leads WP7 and co-leads WP3.

TECHNISCHE UNIVERSITAET WIEN – AUSTRIA

The Energy Economics Group (EEG) is within the Institute of Energy Systems and Electric Drives at Technische Universitaet Wien. The core areas of research in EEG are:

- Dissemination and integration of strategies for renewable and state-of-the-art energy system
- Energy modelling, mapping and analysis of energy policy strategies,
- Competition in energy markets (liberalization vs. regulation),
- Global and local environmental aspects (life cycle analysis, cumulated energy demand, CO2-emissions), Sustainable energy systems and climate change,
- Integration of RES-e into transmission grids,
- Macroeconomic studies (employment, value added) of RES, e-mobility, energy storage, energy efficiency and smart grids.

EEG has managed and carried out numerous national as well as international research projects funded by the European Commission, national governments, public and private clients in several fields of research, with special focus on renewable and new energy systems. The expertise of the staff members of EEG ranges across all disciplines necessary to analyse the above-mentioned topics.

TU Wien will lead the WP4 on prosumers and big data sources in energy demand models related to the built environment.

TU Wien will contribute to

WP0 – one of WP leaders

WP3 – improving the demand-side modelling

WP7 – contribution in dissemination activities

TEP ENERGY GMBH – SWITZERLAND

TEP Energy GmbH was founded in 2008 by researchers of the Centre for Energy Policy and Economics (CEPE) of ETH Zurich and of the Fraunhofer Institute for Systems and Innovation Research (ISI) in Karlsruhe as an independent company based in Zurich, Switzerland. TEP is performing research and advises its clients on how to face the challenges arising from the mega trends climate change, energy scarcity and structural changes in the energy sector. To this end, TEP examines the implications of these mega trends in each particular case, identifies specific risks to be hedged and reveals opportunities and potential benefits to be tapped. The service proposition of TEP includes applied research, scientific and evidence based advising in terms of technology, economics and policy (TEP), quantitative modelling, and conceiving, evaluating and implementing policy instruments.

TEP is responsible to advance the modelling of the new trends digitalisation and shared economy, with a focus on the tertiary sector and including cross-sectoral

aspects arising from these two new trends. Moreover TEP covers circular economy aspects related to buildings and construction, e.g. material flows from construction and retrofits.

POLITECNICO DI MILANO – ITALY

Founded in 1863 is the oldest of Milan's universities and Italy's largest school of Architecture, Design and Engineering and one of the best scientific-technological universities in the world according to the QS World University Rankings, classified 1st in Italy and 156th worldwide (Ranking 2018-2019).

The Department of Management, Economics and Industrial Engineering (DIG) of Politecnico di Milano was established in 1990. The Department's main mission is to impact on society by creating and sharing knowledge at the intersection between engineering, management and economics through outstanding research, top quality education and serving the community. DIG research aims to produce excellent science though a tailored approach characterized by multi-disciplinarity, mastering of multiple methodologies and intense connections with practitioners and policymakers.

The Department is part of the School of Management of Politecnico di Milano, established in 2003 together with MIP Politecnico di Milano Graduate School of Business which focuses on post-experience education. The School is EQUIS and AMBA accredited and ins ranked by Financial Times and QS among the best European Business Schools. The School is member of PRME, Cladea, ACE and QTEM.

Politecnico di Milano is primarily involved in two tasks:

- provide data-driven insights on the role of large-scale interventions to promote energy-efficient household behaviours within new societal trends identified at European level, and within the European policy needs for 2050 energy demand goals (Task 4.2);
- improve the statistical and computational tools by which big and new data sources can inform energy demand models related to the built environment (Task 5.1).

Politecnico di Milano will cooperate with the other partners to draw insights from available pilot studies on demand-side policy interventions, as well as with modellers to advance and streamline the paradigm by which newly collected high-frequency datasets can effectively improve policy assessment of existing bottom-up energy demand models.

RESEARCH AND INNOVATION CENTRE PRO-AKADEMIA – POLAND

Research and Innovation Centre Pro-Akademia – Poland – RIC is the first professional non-governmental public benefit research organization in Poland, established in Lodz in 1996. In its scientific and research activities, the organization focuses on interdisciplinary, multi-sectoral and international cooperation. RIC conducts interdisciplinary applied research in the field of circular economy and sustainable energy. In the last 25 years, RIC successfully

implemented over 200 projects, closely collaborating with SMEs, large enterprises, public authorities and academia.

RIC coordinates NewTrends WP4 on policy analysis for improved energy-demand modelling. RIC also contributes to WP5 on exploiting smart meter data for more accurate and holistic mapping of the demand side and to WP6 on collecting data on decarbonisation of industry and tertiary sectors.

WISEEUROPA – FUNDACJA WARSZAWSKI INSTYTUT STUDIÓW EKONOMICZNYCH I EUROPEJSKICH – POLAND

WiseEuropa is an independent think-tank and research organisation that undertakes a strategic reflexion on European politics, foreign policy, economics and environmental issues. The research experience in the fields of national, European and global economic and institutional policies, public policy and governance and innovation as well as energy, climate and environmental policies allows the Institute to offer analytical, consulting and communication services on the cross-cutting policy issues WiseEuropa has expertise in participating as a partner in Horizon 2020 and FP7 also including projects relevant for energy policy. They conduct policy assessments and analytical studies related to energy transition and low-emission development for the Polish ministries.

WiseEuropa will coordinate and be the main contributor to the WP8 – dissemination and communication activities.

WiseEuropa will also co-lead WP4 – contributing to the policy analysis and developing recommendations for the better design of energy modelling to support policymakers in addressing the New Societal Trends.

WiseEuropa will contribute to the trend selection within WP2.

E-THINK - ZENTRUM FÜR ENERGIEWIRTSCHAFT UND UMWELT – AUSTRIA

e-think – Zentrum für Energiewirtschaft und Umwelt – is a start-up private non-profit research institution based in Vienna. Its aim is to advance research in the field of energy economics at its interface with environment and human society. Through technical, economic and environmental assessments e-think contributes to the transition towards sustainable energy systems. e-think‘s main areas of competence are:

- Analyse socio-economic aspects of energy use
- Model energy systems and develop scenarios
- Assess impacts of energy policies
- Develop effective and efficient deployment strategies for RES in electricity, heat and transport
- Promote energy efficiency in buildings, mobility, electrical and industrial applications

In newTRENDs project e-think will be responsible for WP3:

- Coordination of capacity building for developing energy transition roadmaps towards 2050

- Setting up a database of tested tools and guidelines and performance of trainings in the networks
- Assistance in the preparation of energy transition roadmap elements

3.4 News and events

This section includes the latest news and expert comments as well as the events planned within the project.

NEWS

Ad hoc generated content in line with current events in the project. Example:

How will current trends influence the future of energy demand? European Commission funded is focusing on the future impact on energy demand in Europe. Read more in [insert paper title here].

EVENTS

This subpage will serve as a calendar for all events of the project. Example:

Kick-off meeting [date] [hour] [place] [description]

Project meeting [date] [hour] [place] [description]

3.5 Newsletter

The section where it is possible to subscribe to the project newsletter; including the necessity to provide GDPR consent ("I consent to the sending of information about the project to the e-mail address provided.")

3.6 Publications

This section is dedicated to publish all documents created as a part of the project.

- Scientific papers
- Reports
- Policy briefs
- Webinars
- Podcasts
- Printables

3.7 Media

This section is dedicated to the media where they could find the latest press releases and media appearances.

- · Press releases

All press releases will be available here.

- Media appearances

All publications will be available here.

Imprint

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Institutes:

WiseEuropa – Fundacja Warszawski Instytut Studiów Ekonomicznych i Europejskich (Wise)

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