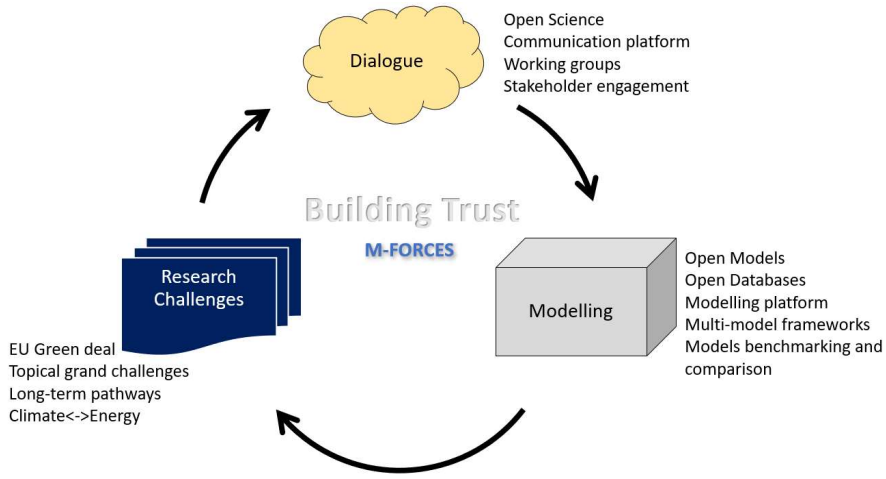
EUROPEAN ENERGY AND CLIMATE MODELLING FORUM

Concept note: The forums working title is EC Nexus. This initiative will be built on top of a number of initiatives and projects and will be funded by the partners.

It will have close links to and build on the Energy Modelling Platform Europe (EMP-E). EMP-E contains an online platform for helping exchanges between energy modelling experts working at European scale, It gathers several H2020 projects dedicated to energy modelling as contributors.

The objective is to create a "***Modelling Forum to support robust Climate and Energy Strategies"*** to strengthen the European energy and climate modelling landscape based on four pillars:

1) continuous stakeholders' engagement at the national and European level,
2) nurturing new cross-disciplinary methodologies,
3) fostering and promoting transparency and openness, and
4) model benchmarking and comparison for consistent policy recommendations.



EC-Nexus will support the analysis of several (national and european level) energy transition strategies for climate neutrality based on a diversified set of modelling approaches. The project bring together existing expertise in European energy and climate modelling whilst delivering robust analyses by integrating and comparing different modelling approaches. The analyses, their underlying modelling methodologies, assumptions, input data as well as the corresponding outcomes should be totally transparent and accessible to all whilst integrating energy, climate, and the economy. All modelling comparison results should support policy implementation by providing consistent information in an open and transparent platform.

The **EC-Nexus initiative** will develop a collaborative modelling platform for assessing low-carbon transition scenarios across the established boundaries of knowledge to cover the multiple dimensions of the energy transition and achieve climate neutrality as envisioned in the Green Deal. ***EC-Nexus*** long-term vision is to serve as the central point of dialogue based on open modelling source standards that allows policy makers and the wider audience to put to scrutiny the research that informed policy. Researchers can benchmark their models (or modelling advances), guide decisions considering different assumptions on (national) transition strategies. To achieve this, ***EC-Nexus*** will cover climate, energy and economic

sectors and consider feedback loops between climate change and energy/transport/industrial models whilst ensuring adequate geographical and time resolutions. ***EC-Nexus*** will establish modelling collaboration processes so as modelling teams can re-assure and compare their findings and understandings.

Some of the founding partners (to be confirmed)

NORGES TEKNISK-NATURVITENSKAPELIGE UNIVERSITET NTNU	**NTNU**
Sintef AS	SINTEF
THE CYPRUS INSTITUTE	CYI
EGE UNIVERSITY	EGE
FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS	CIRCE
ENERGIEINSTITUT AN DER JOHANNES KEPLER UNIVERSITAT LINZ VEREIN	EI-JKU
KADIR HAS UNIVERSITESI	KHAS
VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	VITO
FUNDACION TECNALIA RESEARCH & INNOVATION	TECNALIA
AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH	AIT
ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	UNIBO
DEUTSCHES INSTITUT FUR WIRTSCHAFTSFORSCHUNG DIW (INSTITUT FUR KONJUNKTURFORSCHUNG) EV	DIW
ELECTRICITE DE FRANCE	EDF
AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE	ENEA
PAUL SCHERRER INSTITUT	PSI
TECHNISCHE UNIVERSITAT BERLIN	TUB
TECHNISCHE UNIVERSITAET WIEN	TUW
UNIVERSITY COLLEGE CORK - NATIONAL UNIVERSITY OF IRELAND, CORK	UCC
TECHNISCHE UNIVERSITEIT DELFT	TUD
KATHOLIEKE UNIVERSITEIT LEUVEN	KUL
Teknologian tutkimuskeskus VTT Oy	VTT
European Energy Research Alliance	EERA
UNIVERSITAET STUTTGART	USTUTT
WORLD ENERGY & METEOROLOGY COUNCIL	WEMC
INSTITUT MIHAJLO PUPIN	
Fundacja Inicjatyw Strategicznych	INSTRA
European Roundtable on Climate Change and Sustainable Transition	ERCST

The open platform will be built on a number of intiatives and projects among the founding partners

Table 1: Projects EC-NEXUS will build upon

Project (+aim/description) and Partners involved	Relevance and synergies to EC-Nexus
SET-Nav (H2020) - Navigating the Roadmap for Clean, Secure and Efficient Energy Innovation. The project aim is to provide strategic decision making in the European energy sector, enhancing innovation towards a clean, secure and efficient energy system. **EC-Nexus partners: NTNU, TUW, SINTEF, DIW**	- Analysis of the impact of multiple future pathways and policies, and the development of stakeholder dialogue - Multi-model methodologies and linking - European CGE model analysis - Some data will be available for EC-Nexus
openENTRANCE (H2020) - Open ENergy TRansition ANalyses for a low-Carbon Economy. The project analyses multiple case studies, pathways and issues of the european energy transition with open models and open data. **EC-Nexus partners: NTNU, SINTEF, TUW, KHAS, EI-JKU**	- Pathways defined and its relevant data available for EC-Nexus first assessment - Latest model developments and data for: GENESYSMOD, REMES; Plan4EU…. - Synergies with communication platform - Modelling database and management available for EC-Nexus
REEEM (H2020) - Role of technologies in an Energy Efficient Economy – Model based analysis of policy measures and transformation pathways to a sustainable energy system. The project aims to gain a clear and comprehensive understanding of the system-wide implications of energy strategies in support of transitions to a competitive low-carbon EU energy society, given the objectives and framework outlined in the Strategic Energy Technology Plan. The provisions of the energy services in this society will be defined by their sustainability, affordability, efficiency, energy security and reliability. **EC-Nexus partners: USTUTT**	- Pathways defined and its relevant data available for EC-Nexus first assessment - Latest model developments and data for: NEWAGE, TIMES PanEU, EcoSense …. - Synergies with communication platform - Modelling database and management available for EC-Nexus
ATEST (FP7) - Analysing Transition planning and Systemic Energy Planning Tools for the implementation of the Energy Technology Information System. The project brings together EU competence on the transition towards a sustainable and low carbon energy system through energy innovation, encompassing transition planning, energy modeling activities, and technology assessment. **EC-Nexus partners: USTUTT**	- Roadmap for tools necessary to plan and develop future energy systems and policies
HEIMTSA (FP7) - Health and Environment Integrated Methodology and Toolbox for Scenario Assessment. The project developed a new methodology for evaluating the effects of policy scenarios on both environmental and health impacts. **EC-Nexus partners: USTUTT**	- Multi-dimensional Integrated Assessment framework - New methodology for environmental and health impact assessment
CASCADE-MINTS (FP6) - CAse Study Comparisons And Development of Energy Models for INtegrated Technology Systems. The project examines the prospects for a "hydrogen+electricity" economy in the long run and assesses the role of different technologies such as renewable energy, nuclear energy, CO2 capture and storage	- Model comparison - Harmonised pathways and data sets - Grand challenge: Hydrogen economy

and hydrogen and fuel cells on policy proposals in the areas of climate change mitigation and security of energy supply. **EC-Nexus partners: USTUTT**	
ACROPOLIS (FP5) - Assessing climate response options: policy simulations - insights from using national and international models. The project aims at applying and comparing existing models to assess the impact of energy technologies and policy measures on GHG emissions and on sustainability in a global systems analysis perspective. The questions to be explored are to what extent technologies can facilitate the required emission reductions both in the short and long term and to what extent policies can foster the development of new technologies and their subsequent deployment. **EC-Nexus partners: USTUTT**	- Model comparison - Harmonised pathways and data sets
ECHOES (H2020 Nr. 727470) Analyzing the social factors that influence individual and collective energy choices from a multi-disciplinary perspective. The project focuses on three levels of societal organization, individuals, cultural groups, and formal organizations, and three technology foci, smart meters, electric mobility, and buildings. The synthesis of these technologies and viewpoints will lead to a holistic understand of the potential for social innovation to drive the energy transition. The project includes a survey effort across 31 European nations that investigates individuals' interest in energy-investment, and motivation behind energy choices. **EC-Nexus partners: EI, NTNU**	• expertise and background related to energy justice, social acceptance and energy behaviors • Topical expertise in smart meter, electric vehicle and efficient building adoption
SMARTEES (H2020 Nr. 763912) This ambitious project aims to synthesize social science perspectives to inform policy decisions and social innovation goals at the city and regional level. A substantial part of the project is using agent-based modelling, supported by various interdisciplinary theoretical perspectives, to aid in the application of innovative energy policies in partner cities and regions. The cumulative research expertise from various social sciences will be mobilized to be used as decision support in energy decisions across the EU. **EC-Nexus partners: EI, NTNU**	• Models of social innovation, group motivation and group efficacy in energy • Policy prescriptions at the regional and municipal levels to be considered in energy modelling scenarios • Agent-based models in energy