



WHY Open Day
11th of June 2021 | online

Predicting the Impact of Household Behavior Intervention on Environmental Pollution

EU GREEN WEEK 2021 PARTNER EVENT

ZERO #EUGreenWeek
POLLUTION
for healthier people and planet

WELCOME!
Opening Session



**PREDICTING THE IMPACT OF
HOUSEHOLD BEHAVIOR INTERVENTION
ON ENVIRONMENTAL POLLUTION**



#EuGreenWeek
#whyh2020

**EU GREEN WEEK
PARTNER EVENT**

ONLINE
11. 06. 2021 10:00-13:00 CET

EU GREEN WEEK 2021 PARTNER EVENT

**MACIEJ
GRZESZCZYK**
EUROPEAN COMMISSION;
DG ENER

**THE IMPORTANCE OF
ENERGY SYSTEM MODELS
IN ENERGY POLICY
MAKING**

**CLICK HERE FOR THE
PRESENTATION**



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DAY



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Nives Della Valle

European Commission
Joint Research Centre,
Institute for Energy and
Transport - Renewables
and Energy Efficiency Unit

**THE IMPORTANCE OF
INCLUDING BEHAVIORS'
ASPECTS IN CLIMATE
POLICY**



**CLICK HERE FOR THE
PRESENTATION**



**OPEN
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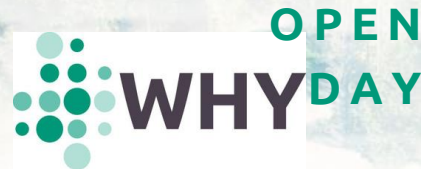
ONLINE

**11. 06. 2021 10:00-13:00 CET
EU GREEN WEEK 2021 PARTNER EVENT**

Cruz E. Borges
DeustoTech (Energy
Unit) University of
Deusto, Spain



**Climbing the Causality
Ladder to Understand
and Project the Energy
Demand of the
Residential Sector**



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WHY project presentation

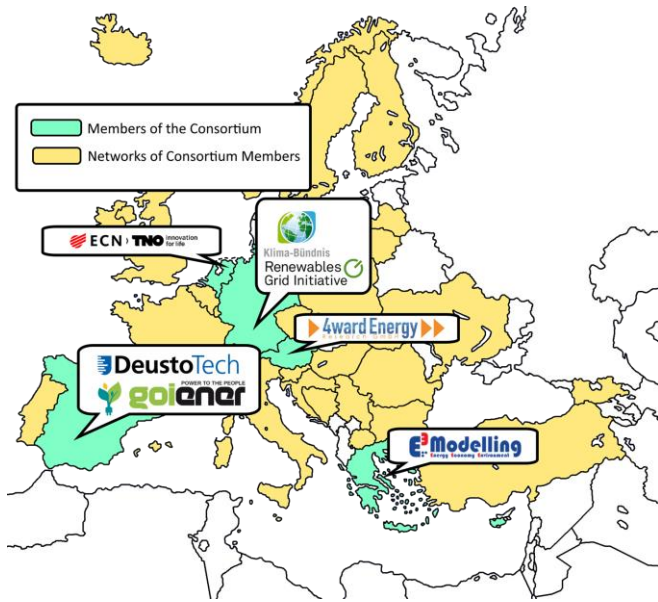
Cruz E. Borges

(cruz.borges@deusto.es)

University of Deusto



Who are we?



- Partners covering all the innovation value chain
 - 1 University,
 - 2 RTOs,
 - 1 SME,
 - 1 Industry and
 - 2 NGOs
- Geographically distributed across Europe and with several members of the advisory board around the globe



 **DeustoTech**

 **ECN TNO** innovation for life

 **Climate Alliance**

 **4ward Energy**
Research GmbH

 **goiener**
POWER TO THE PEOPLE
Energia berriatzen orokuntza eta kontsumo kooperatiba
Energia berriaren erabilera eta kontsumo berriaren erabilera

 **E3 Modelling**
Energy Economy Environment

Renewables Grid Initiative 

Rationale behind WHY



- Climate ambitions
- Energy system models as tools informing policy-making
- Satisfying results in analysing energy supply dynamics...



- ... a lack of accuracy in simulating the effects from ambitious climate policies on the residential sector

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Key objective of WHY



Improve the assessment of energy consumption trends on households by including **causal models** in leading Energy System Models



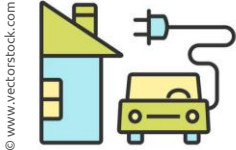
Energy efficiency



Distributed generation



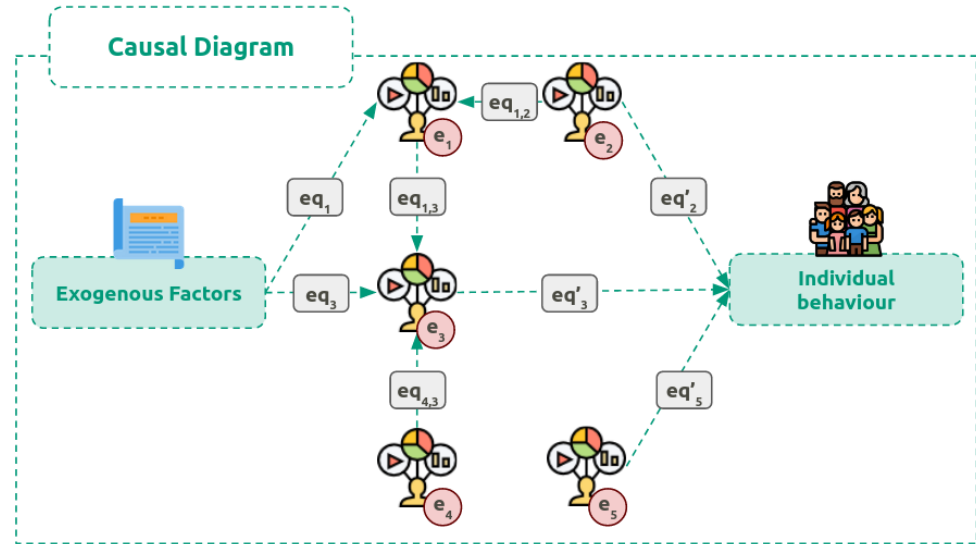
Demand response



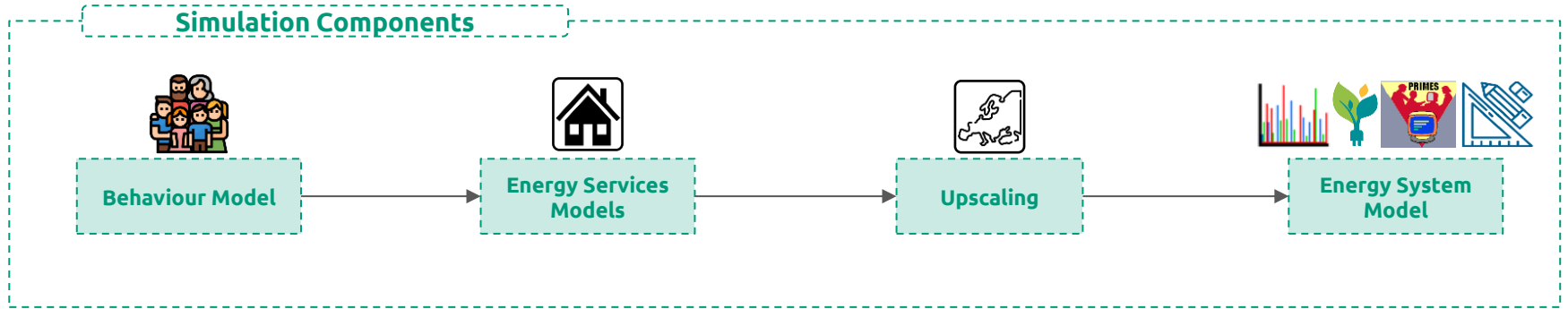
Electrification of services

Concept I: Causal Models

- Generalization of Structural Equation Models
- Are built using Expert Knowledge
 - NOT data-driven
- Causal models:
 - Form a Theory [Falsifiable and Identifiable]
 - Allow to estimate the impact of interventions and derive Counterfactuals NOT data-driven [without actually carrying them out (!)]








Concept II: bottom-up modelling



Proof of the Concept



Scenarios	Geo.	Temp.	ESM	Objective
Gniebing Microgrid Operation	City	Daily / Yearly	 Load Profile Generator	<ul style="list-style-type: none"> • Improve load forecasting under normal operation • Create load profiles under black-out operation
Energy Cooperative O&P	Regional	Daily / Yearly	 Own Model	<ul style="list-style-type: none"> • Improve load forecasting under normal operation • Test the impact on the utility that new policies / tariff have
Bilbao 2050 city vision	City	2050	 Load Profile Generator	<ul style="list-style-type: none"> • Create different load profile under different interventions to foster EE, DG, DR and ES • Project business as usual energy consumption
2030 & 2050 European energy strategy	European	2030 / 2050	 PRIMES	<ul style="list-style-type: none"> • Create different load profile under different interventions to foster EE, DG, DR and ES • Assess the impact of different EE campaigns
Global energy scenario	Worldwide	2100	 TIAM-ECN	<ul style="list-style-type: none"> • Create different load profile under different interventions to foster EE, DG, DR and ES • Project business as usual energy consumption

**NEXT:
PANEL
DISCUSSION**

WHAT CAN
ENERGY SYSTEM
MODELS DO TO
HELP REDUCE
THE POLLUTION?



LEARN MORE:

WWW.WHY-H2020.EU

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