5th International Conference on Smart Energy Systems
Copenhagen, 10-11 September 2019
#SESAAU2019

Development of an Irish energy system model for the analysis of current Irish energy policy and possible alternatives

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UN environment

DISTRICT ENERGY IN CITIES INITIATIVE

Innovation Fund Denmark

Introduction

Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

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Context in Copenhagen

Ireland vs Denmark

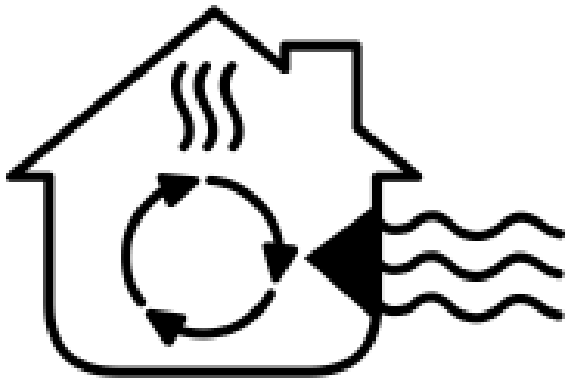
	Ireland [SEAI, 2017]	Denmark [DEA, 2017]
RES-E	30%	62%
RES-H	7%	35%
RES-T	7%	8%
RE share of PES	9%	26%

Where we are going

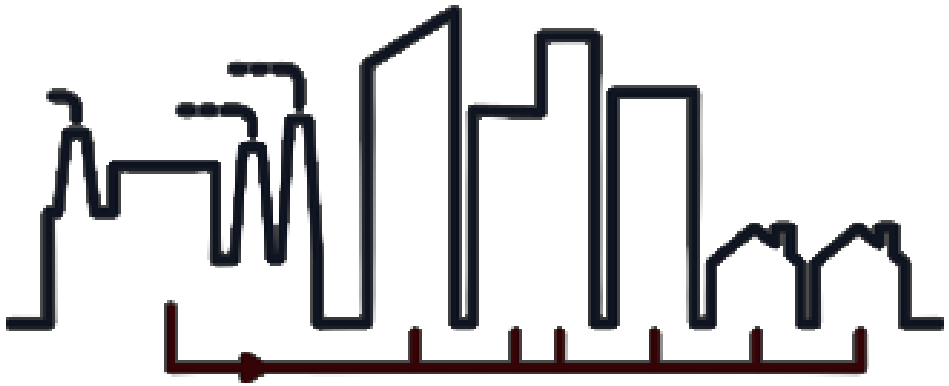
	Ireland [SEAI, 2017]	Ireland Targets [Irish Government, 2019]	Ireland 2030 [EnergyPLAN model]
RES-E	30%	70%	81%
RES-H	7%	None	-
RES-T	7%	None	-
RE share of PES	9%	None	27%

The Government's plan to get there by 2030

≈32% of private cars will be electric

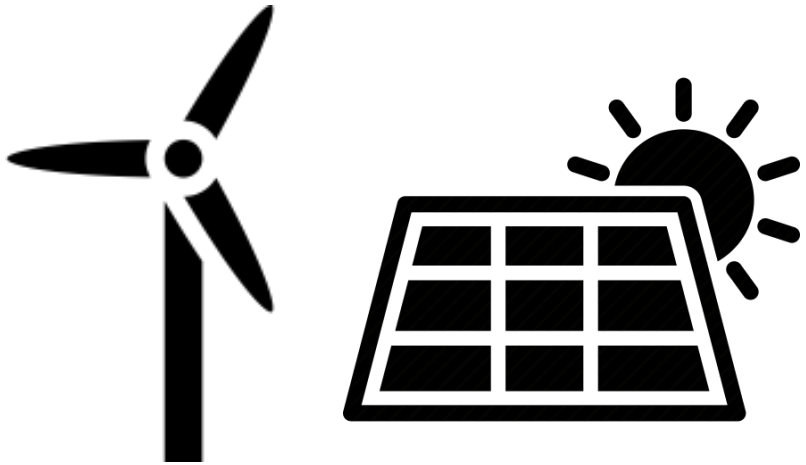


33% of households retrofitted to A2

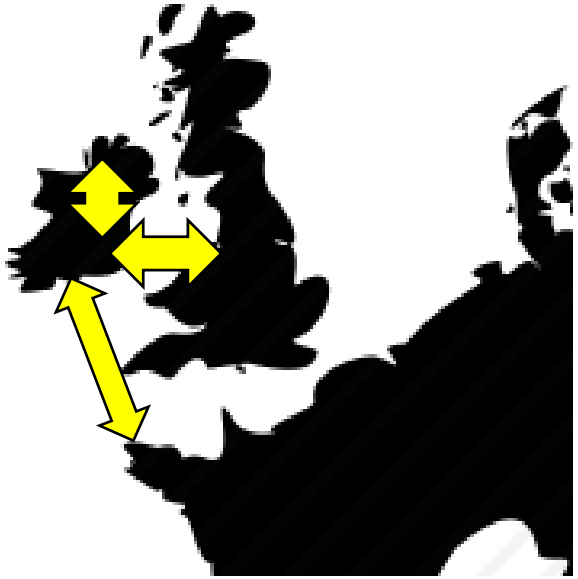


0.46% of heat demand by District Heating

The Government's plan to get there by 2030



411% increase in VRES

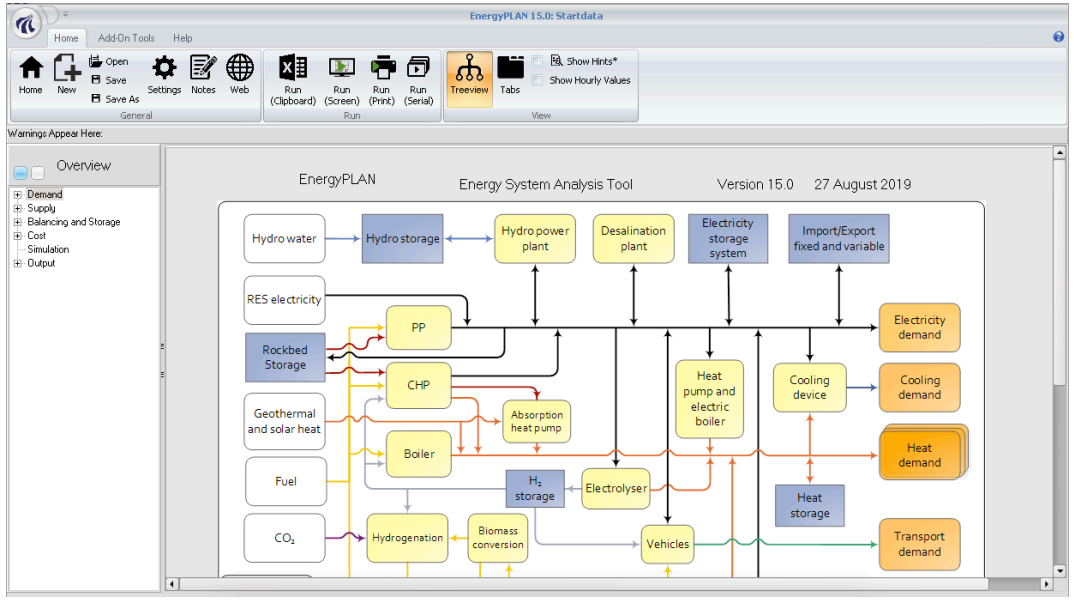


540% increase in interconnection

11% Decrease in PP Production

What EnergyPLAN captures well

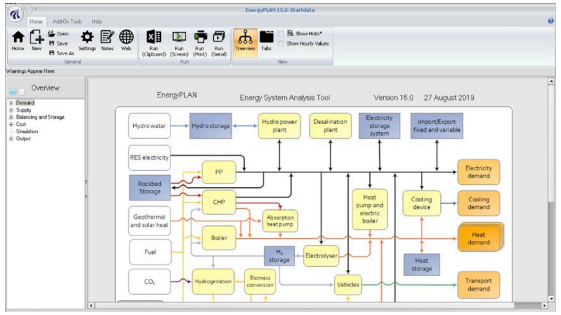
Data

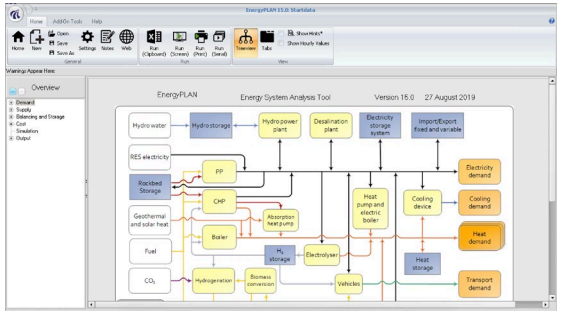


One Scenario

How EnergyPLAN could be improved

Data





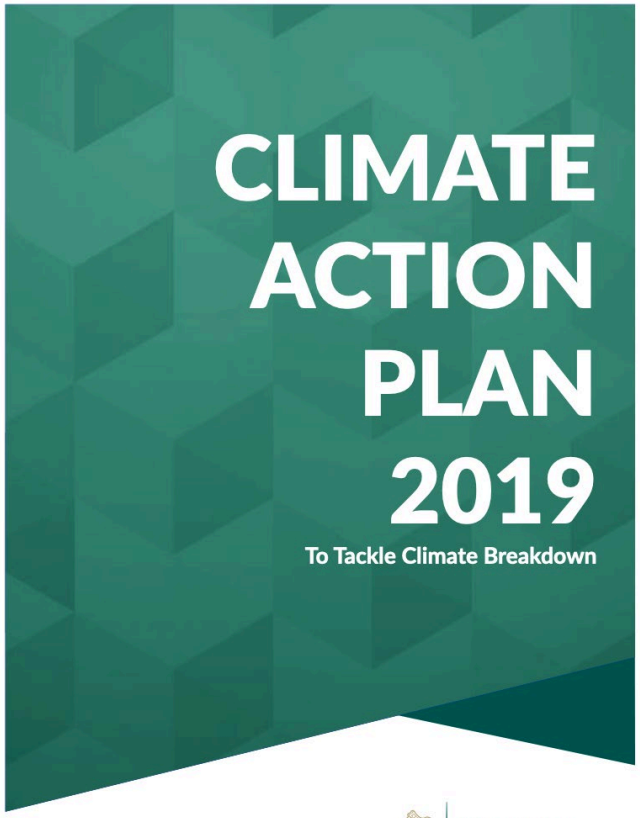
Multiple Scenarios

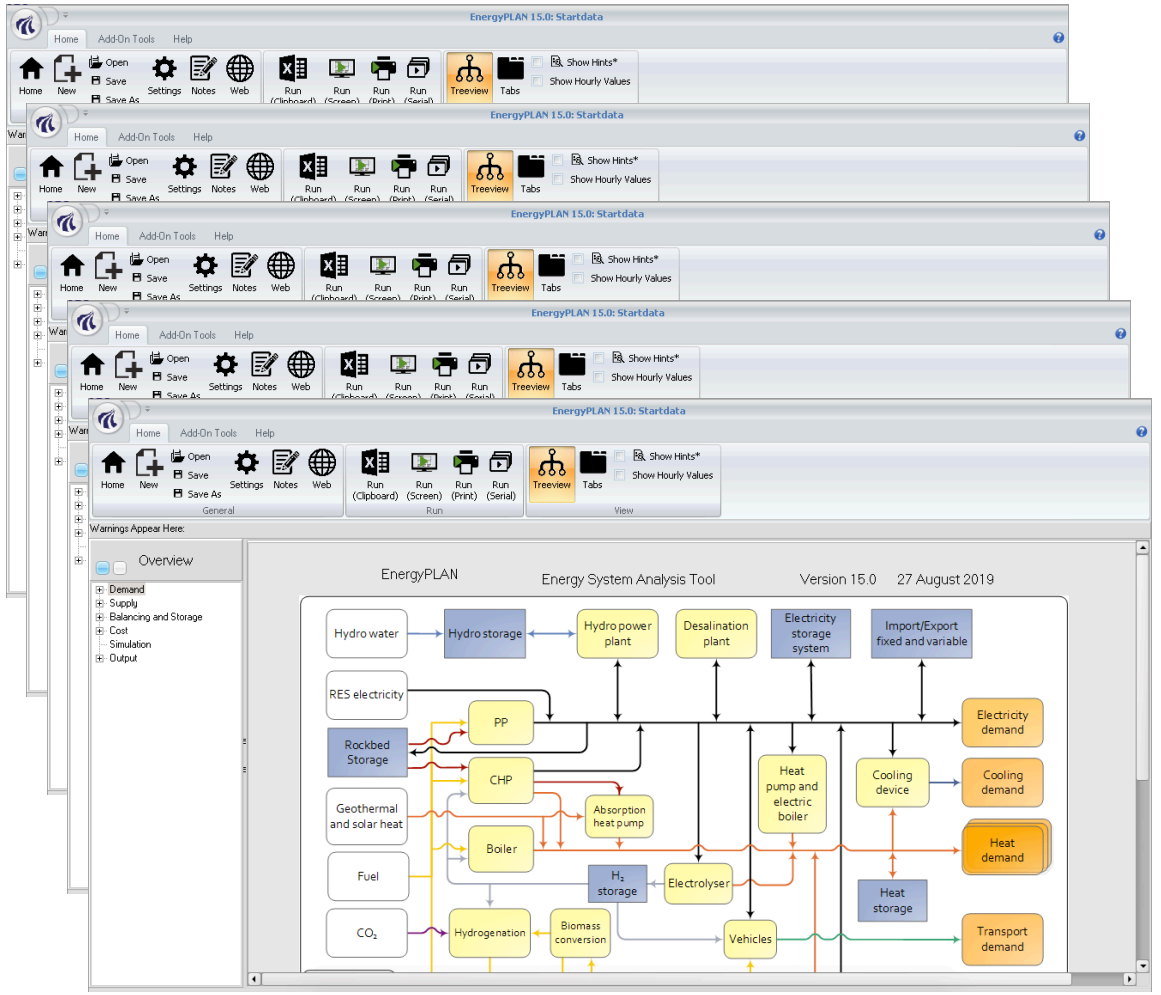
Comparison

New tool in development using Python

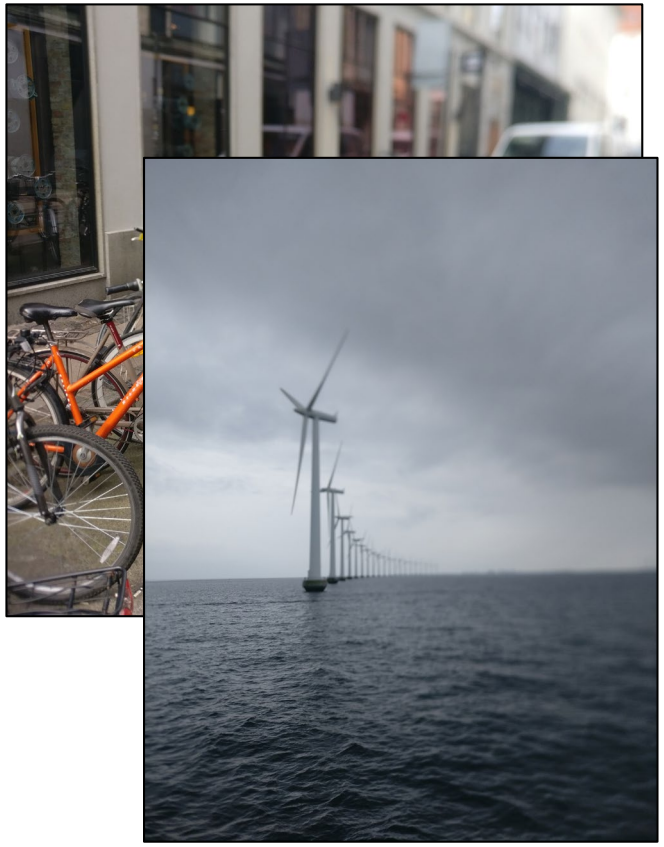
- Change multiple inputs at once
- Captures interdependencies between variables
- Run multiple models at once
- Easy plotting of effect incremental increases

Next Step


CLIMATE
ACTION
PLAN
2019
To Tackle Climate Breakdown
Rialtas na hÉireann
Government of Ireland


EnergyPLAN 15.0: Startdata
Overview
Demand
Supply
Balancing and Storage
Cost
Simulation
Output
EnergyPLAN
Energy System Analysis Tool
Version 15.0
27 August 2019
Hydro water
Hydro storage
Hydro power plant
Desalination plant
Electricity storage system
Import/Export fixed and variable
RES electricity
Rockbed Storage
Geothermal and solar heat
Fuel
CO2
PP
CHP
Boiler
Absorption heat pump
H2 storage
Electrolyser
Hydrogenation
Biomass conversion
Heat pump and electric boiler
Vehicles
Cooling device
Heat storage
Electricity demand
Cooling demand
Heat demand
Transport demand

Thanks for listening!



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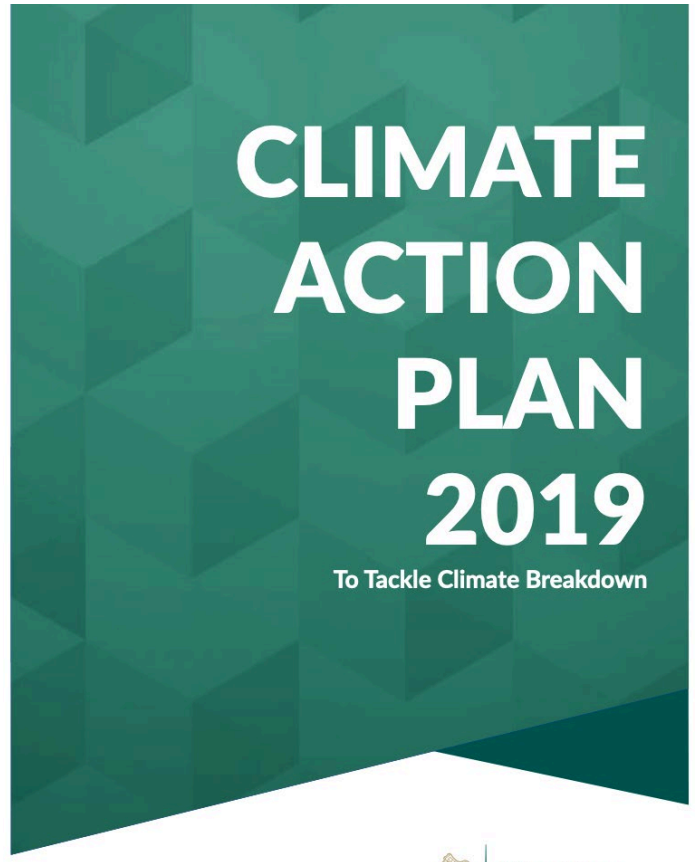

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