

DTU



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Interaction with politicians through “model lab” exercise

The war room idea – ModelLab sounds more peaceful

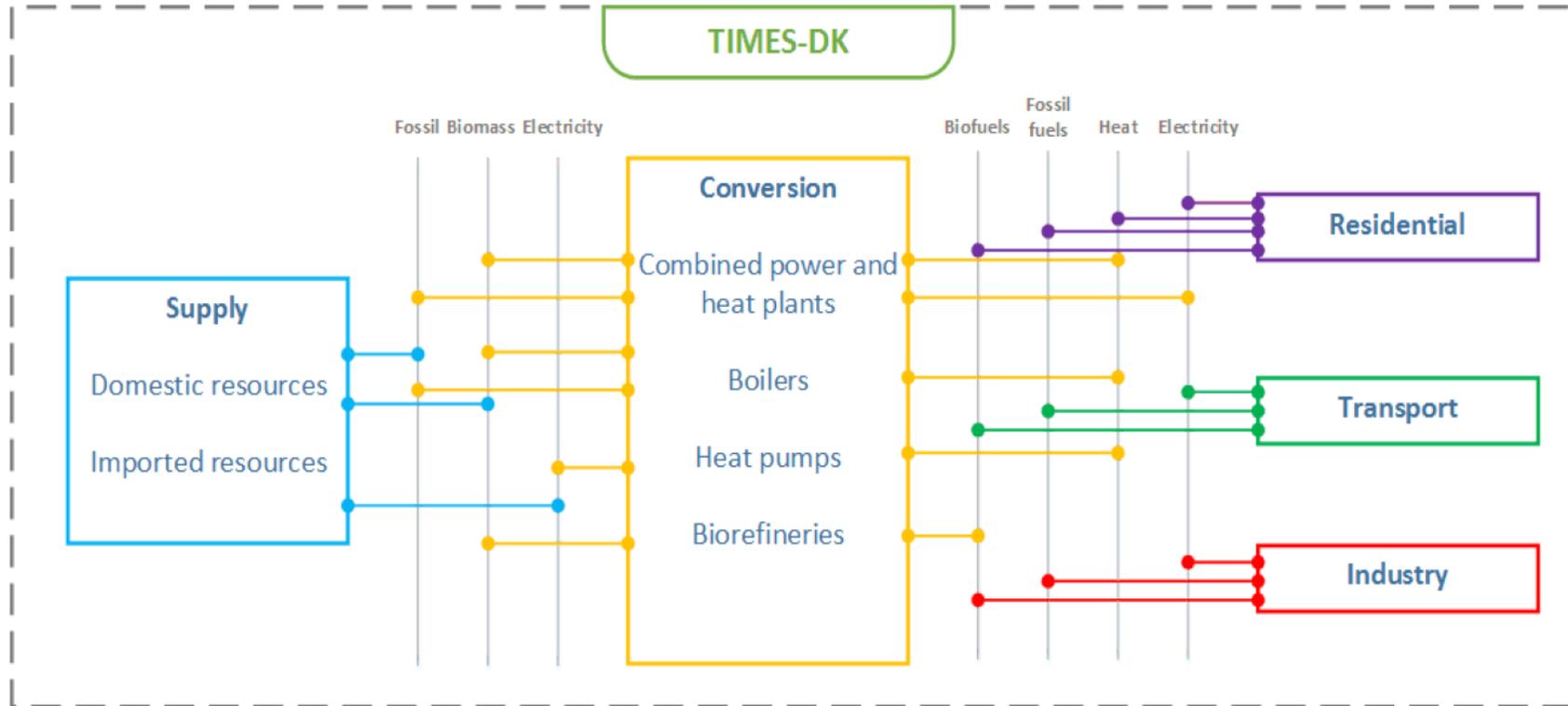
White house war room



DTU ModelLab

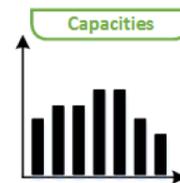
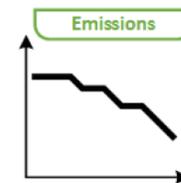
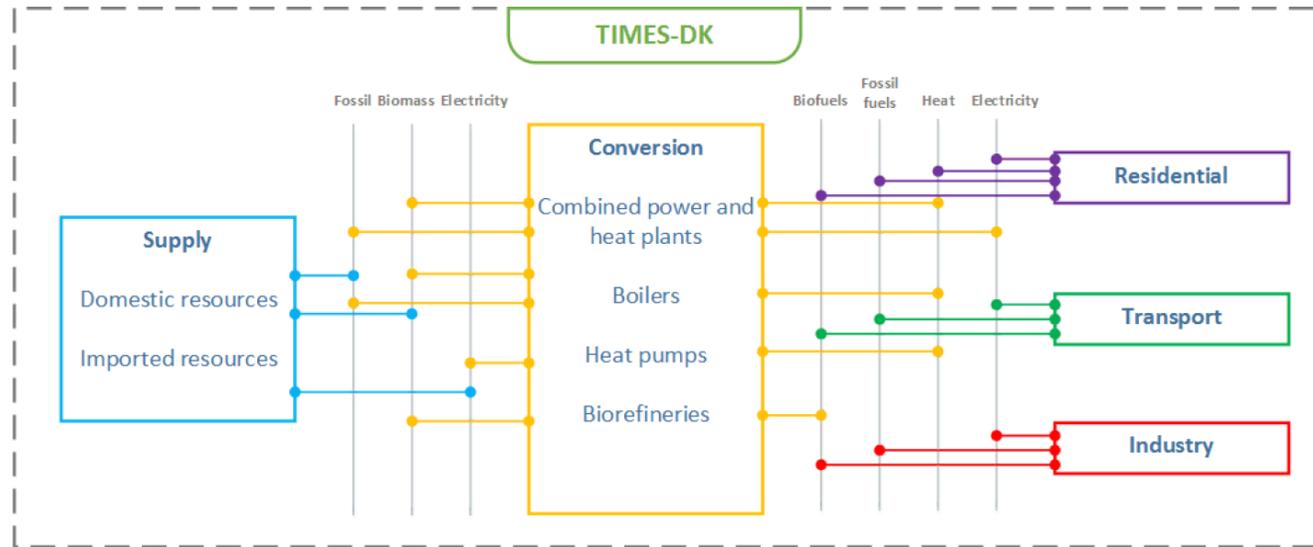
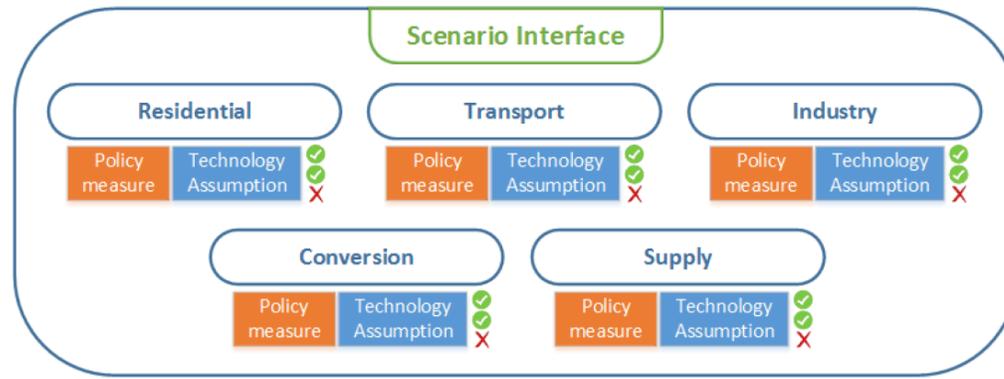


Energy Scenarios as a Democratic Process



State of the art TIMES model covering all sectors in the Danish energy system – developed as a collaboration between DTU and DEA

What we really do when using models – the model is only a part of the process



Menu

- Policy Targets
- Resources
- Transport
- Power & Heat
- Residential
- Industry
- References

Scenario name: My_Scenario

TIMES-DK Scenario Interface

Denmark is committed to achieving... To do this, different technical, economic and policy options need to be put into place.

With TIMES-DK Scenario Interface you can explore different pathways for Denmark by selecting different options for the various sectors:

1. From the tab on the left, you can access the sections where to input your assumptions. Alternatively, you will find the complete tab menu by clicking on the icon ► on the top of the Excel bar.
2. Once within a section, hover on the drivers with the mouse and explanations will guide you in the selection of parameters. According to the driver, you might be able to adjust values, target years, type of constraints or simply activate/deactivate specific features.
3. You can assign a name to the created scenario.
4. Create DD file, Create Run and Solve Model

Global assumptions

Driver	Options	Reference
CO2 target	55, 100, 30, 70, 20, 40, 20	Hten (2017)
Renewable energy target	80, 20, 50, 80, 20	
PV production	40	
Wind production	50	

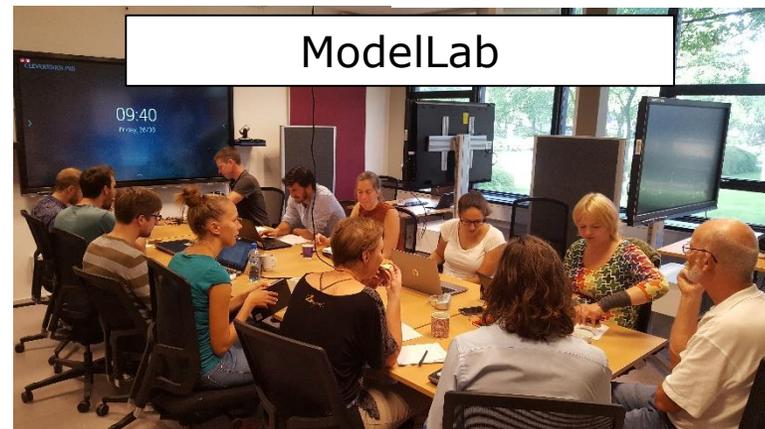
Options

Year	Sector	Reference
2040	Apply to all sectors	Energistyrelsen (2015)
2035	Heat & Power	
2030	Residential	
2050	Transport	
2040	Industry	
2030	Apply to all sectors	EEA (2015)
2025	Residential	
2050	Heat & Power	
2030	Industry	
2050	Transport (land)	
2030	Transport (aviation)	
2050	Transport (aviation)	
2030	Apply to all sectors	EC (2016)
2040	Apply to all sectors	
2035	Residential	
2035	Industry	
2050	Transport	
2035	Heat & Power	
2020	Heat & Power	IRENA (2013)

Stakeholder Interface/ Political programs

Workshops has been held with stakeholders and project teams – but it is really hard to get the politicians on board.....

Design policies and implement them in TIMES-DK – run the model



Modellab

Evaluate policies

Compare results with targets and expectations

Klimaaftalen DTU

- Om værktøjet
- Beskrivelser af scenarier
- DTU's anbefalinger
- Forudsætninger
- Abonner på opdateringer
- Scenarier
 - Energiaftalen 2018
 - Regeringens klimaudspil
 - DTU energispare
 - DTU lav vækst
 - Carbon budget 2°C
 - Carbon budget 2°C, begr.bio
 - Carbon budget 1.5°C
 - Carbon budget 1.5°C, begr.bio
- Scenarie difference
- Online version fra Tokni

Hovedresultater Transportsektoren Forsyningssektoren

Result Interface

CO2-emissioner og VE-andel

Biobrændsels-forbrug

El-produktion

El-kapacitet

El-netto-eksport

Fjernvarme-produktion

What if we take the energy and climate programs from all the parties and run them in TIMES-DK and present the results on a public homepage?

About the tool

Descriptions of scenarios

Preconditions

Subscribe to updates

Scenarios

Frozen policy

DGSB

The Government

The Alternative

Red-Green Alliance

Liberal Alliance

Radikale Venstre

Socialistisk Folkeparti

Social Democrats

Carbon budget 1.5°C

Carbon budget 1.5°C (bio)

CCS

Scenario difference

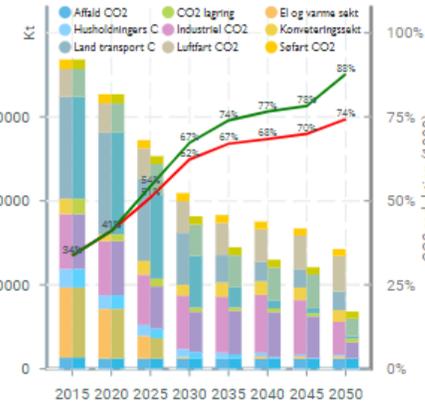
(green minus red)

Danish English

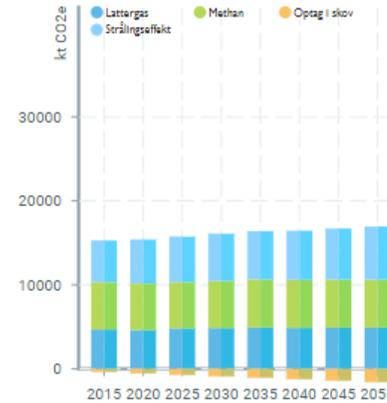
Developed by Tokni

Overview

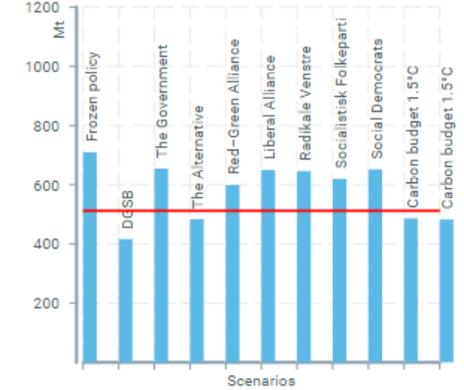
CO2 emissions and %-reduction



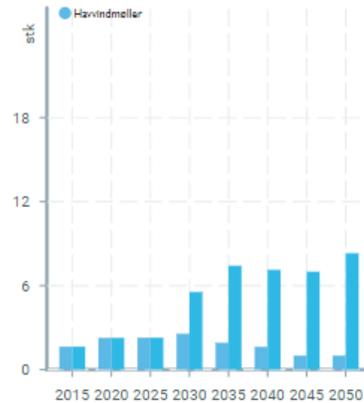
Other GHG emissions



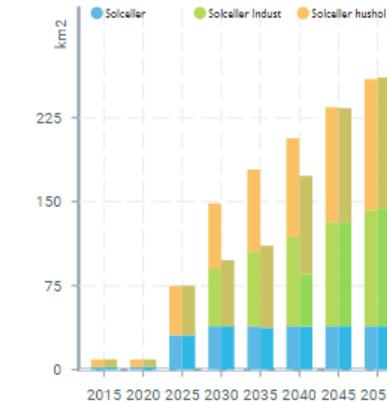
Accumulated CO2 emissions



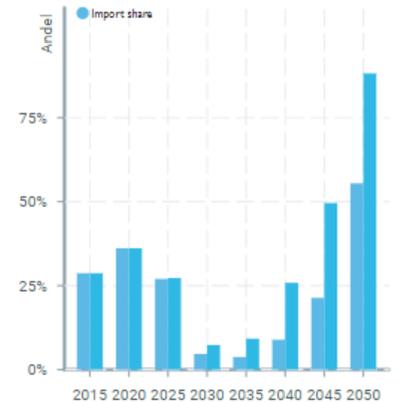
Number of offshore wind energy parks (at 800 MW)



Solarcell area

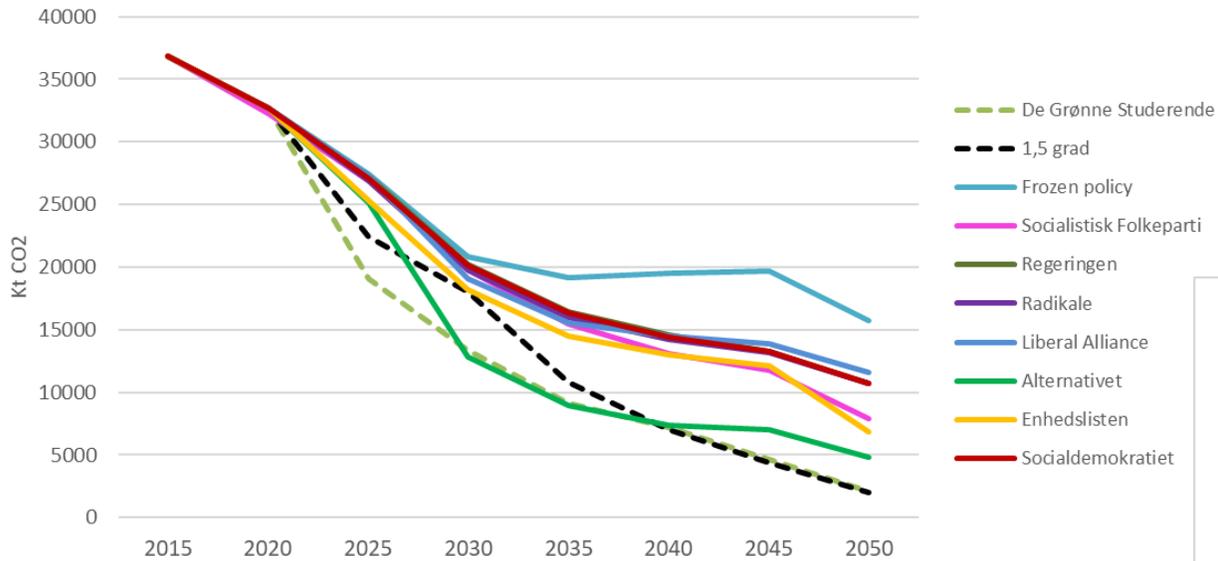


Share of imported biomass



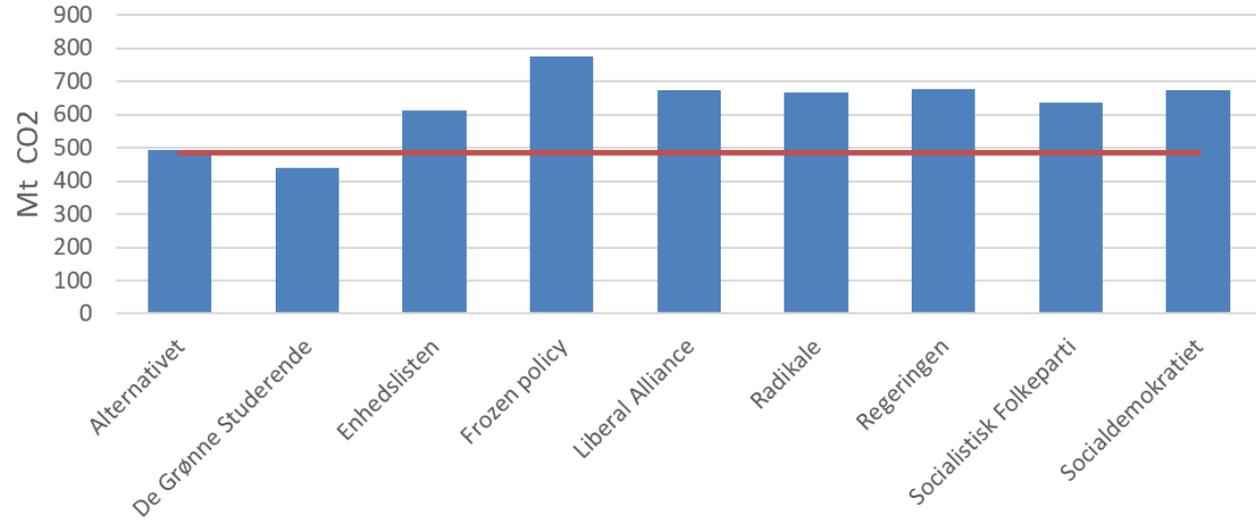
<http://klimaaftalen.tokni.com/>

CO2 emissions



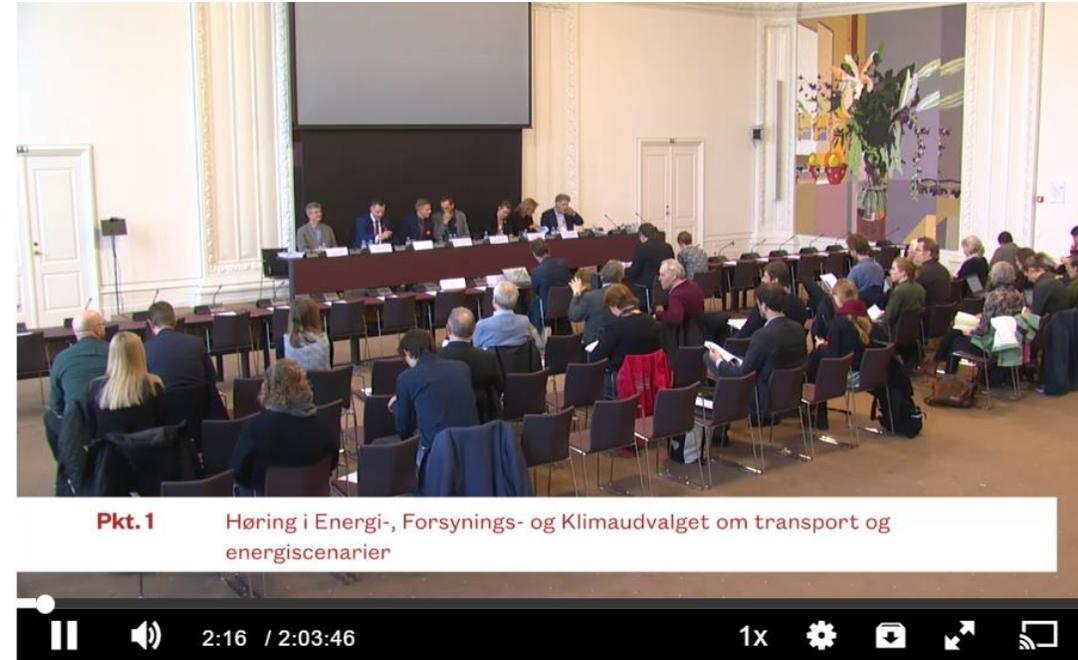
..and make a press release with these two graphs?

Carbon budget spending from 2018-2050



That did the trick..

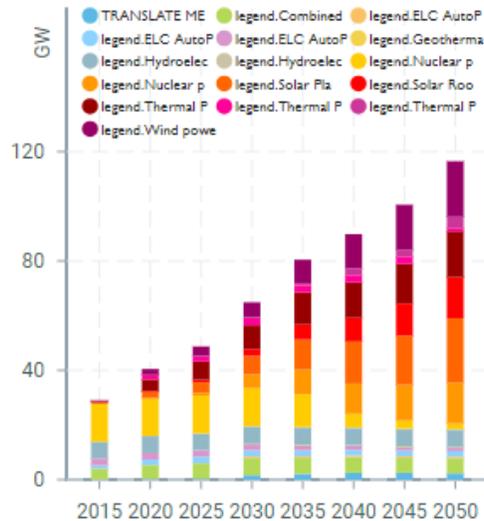
- Interviews in national radio
- Pieces and interviews to different medias
- Public hearing in Parliament (yesterday)
-and now many of the parties wants to visit our ModelLab to review their policies



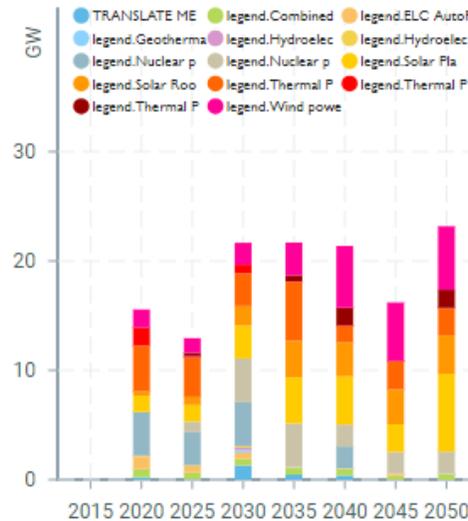
За допомогою цього інструменту ви можете ознайомитися з попередніми результатами сценаріїв розрахованих за допомогою енергетичної моделі TIMES-Україна. Виберіть сценарій у меню ліворуч та перегляньте результати на діаграмах, наведених нижче.

Інформація та результати моделювання, наведені тут, – попередні результати спільного проекту МЕВПУ, УДЕЦ та ДЕА: “Long-Term Energy Modelling and Forecasting in Ukraine: Scenarios for the Action Plan of Energy Strategy of Ukraine until 2035”. Дані та результати є попередніми, тому на них не слід посперечатися або розповсюджувати.

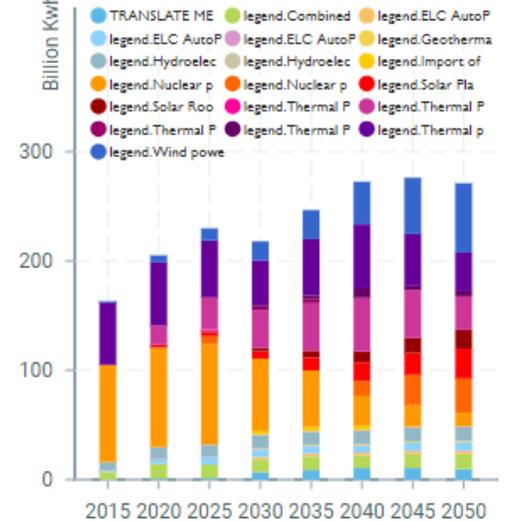
All Electric Capacity



New Capacity



Electric Production (incl. import)





Thank you for attending.

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Sustainability 

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Energy Systems Analysis

Energy Systems Analysis (ESY) comprises competences within systems analyses, operation management and energy technology knowledge. ESY provides tools and expertise, supporting national and international energy policy making by advancing the national and international development of energy systems models, especially TIMES and Balmorel.

<http://www.sustainability.man.dtu.dk/english/Research/Energy-Systems-Analysis>

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Search

Second book available! **New book available!** **EEG – CROSSTEM Results**

A second book was published by IEA-ETSAP members which collates a range of concrete analyses at different scales from around the globe, revisiting the roles of countries, cities and local communities in pathways to significantly reduce greenhouse gas emissions and make a well-below-2°C world a reality.

Limiting Global Warming to Well Below 2°C: Energy System Modelling and Policy Development

New book available! Written by IEA-ETSAP members, it collates together a range of methodological approaches and case studies of good modeling practice at national and international scale based on IEA-ETSAP tools and expertise.

Informing Energy and Climate Policies Using Energy Systems Models

Energy Economics Group – CROSSTEM Results

About IEA-ETSAP

The Energy Technology Systems Analysis Program (ETSAP) is one of the longest running Technology Collaboration Programme of the International Energy Agency (IEA). ETSAP currently has as contracting parties 20 countries, the European Commission and two private sector sponsors.

Why choose TIMES

The IEA-ETSAP methodology (the TIMES energy system model) offers elegant solutions for compilation of long term energy scenarios and in-depth national, multi-country, and global energy and

IEA-ETSAP Community

The IEA-ETSAP community leads a major initiative for open source solutions for energy scenario modeling needs.

Contracting Parties



IEA-ETSAP Tool Users (63 countries)

News [ARCHIVES]

ETSAP is hosting a session on "Going beyond energy systems analysis: How can we make long-term energy scenarios more relevant to climate policy making?" in the Long-term Energy Scenario 2019 International Forum organised by IRENA in Berlin during 10 - 12 April 2019. For more details see [here](#).

A new position at E4SMA S.r.l. in Turin (Italy) for an Energy System Modeler with VEDA-TIMES experience. For more details see [here](#).

IEA-ETSAP workshop

Back to back with IEW 2019, the IEA-ETSAP workshop will be held in Paris as follows:

- Times Training Course on Monday, June 3rd to Wednesday,

<https://iea-etsap.org/>