

# **The role of renewable energies in capping global warming at 1.5C**

## ***Insights from the IPCC's 2018 Special Report***



CENTRAL EUROPEAN UNIVERSITY

## **Diana Ürge-Vorsatz**

***Central European University***

***Vice Chair, WGIII, Intergovernmental Panel on Climate Change***

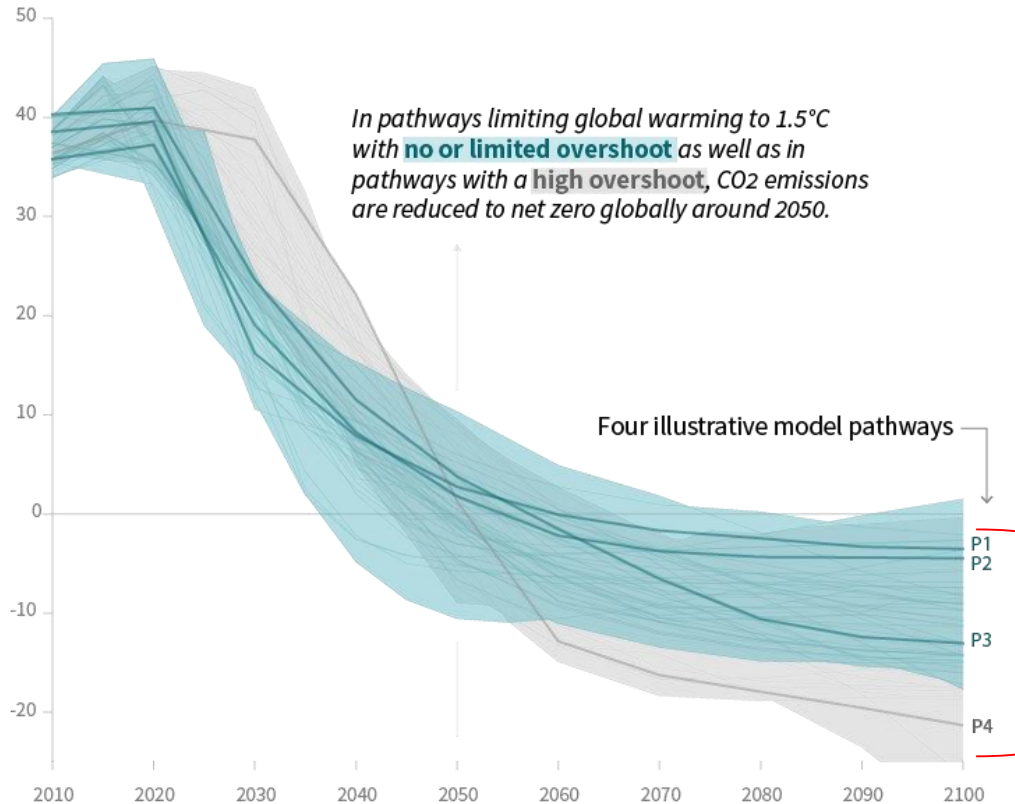
UNIVERSITAS · EUROPAE · CENTRALIS

**EUFORES Workshop, Parliament, Budapest, March 1, 2019**

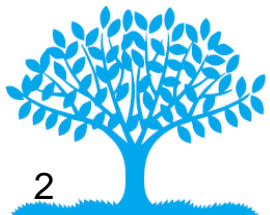
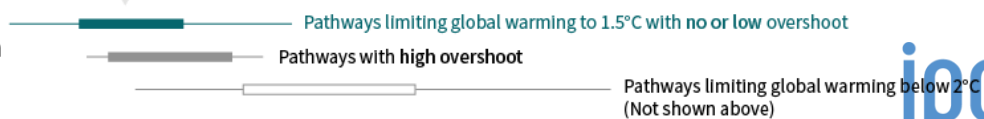
# Global emissions pathway characteristics

Global total net CO<sub>2</sub> emissions

Billion tonnes of CO<sub>2</sub>/yr



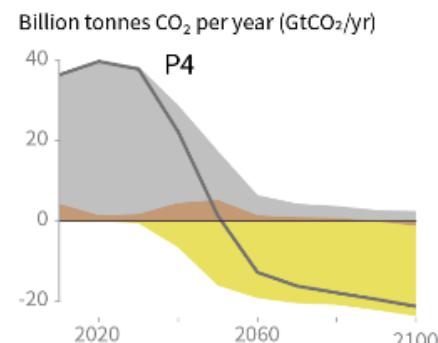
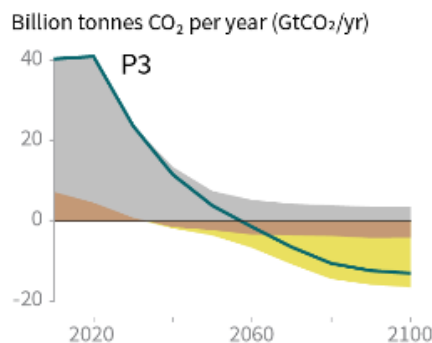
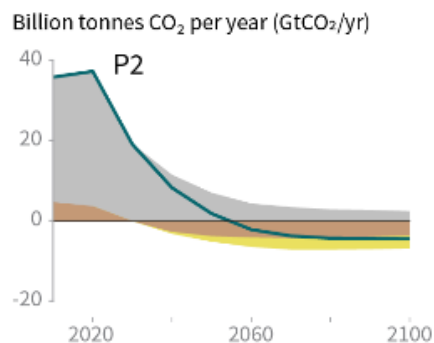
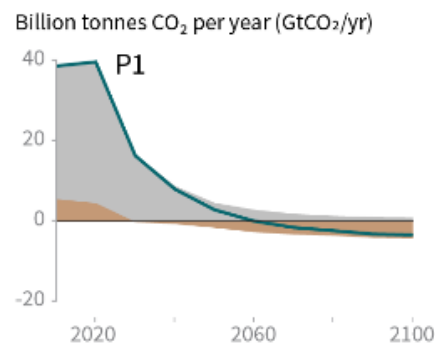
Timing of net zero CO<sub>2</sub>  
Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios



# Characteristics of four illustrative model pathways

## Breakdown of contributions to global net CO<sub>2</sub> emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS

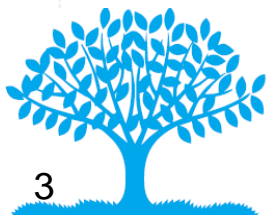


**P1:** A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

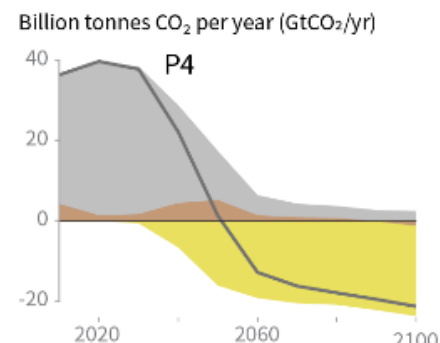
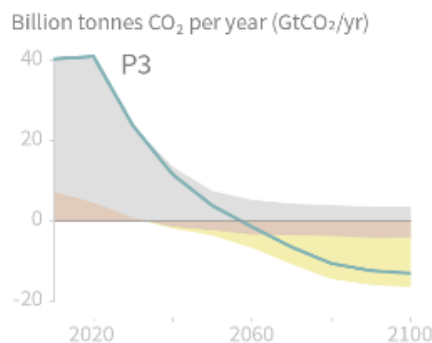
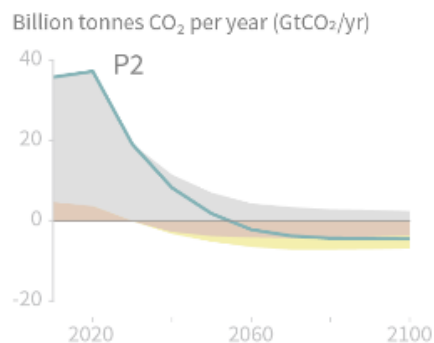
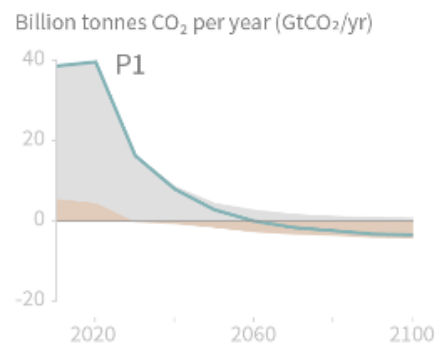
**P4:** A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.



# Characteristics of four illustrative model pathways

## Breakdown of contributions to global net CO<sub>2</sub> emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS

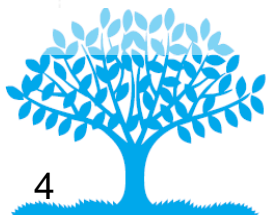


**P1:** A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

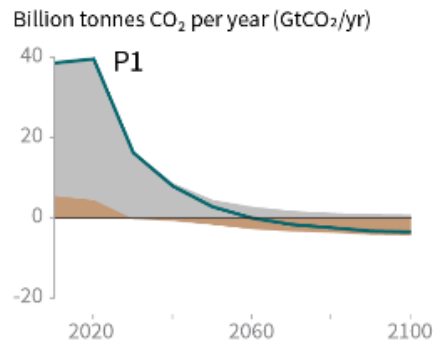
**P4:** A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.



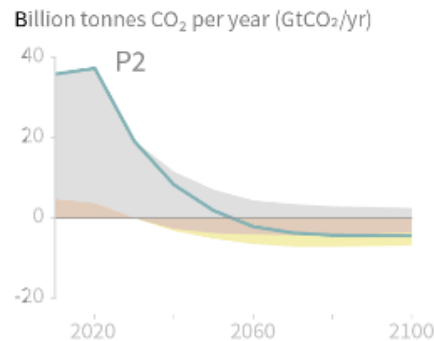
# Characteristics of four illustrative model pathways

## Breakdown of contributions to global net CO<sub>2</sub> emissions in four illustrative model pathways

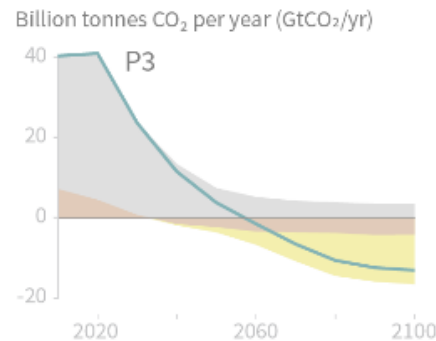
● Fossil fuel and industry ● AFOLU ● BECCS



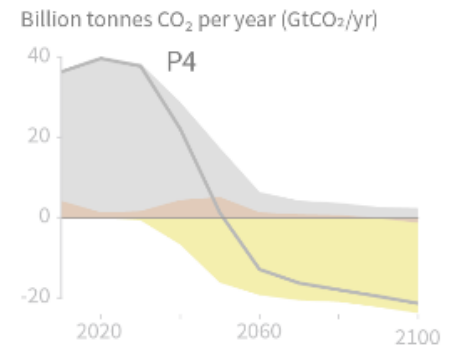
**P1:** A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.



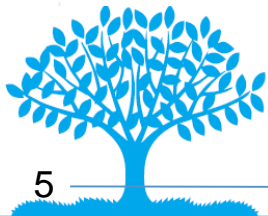
**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.



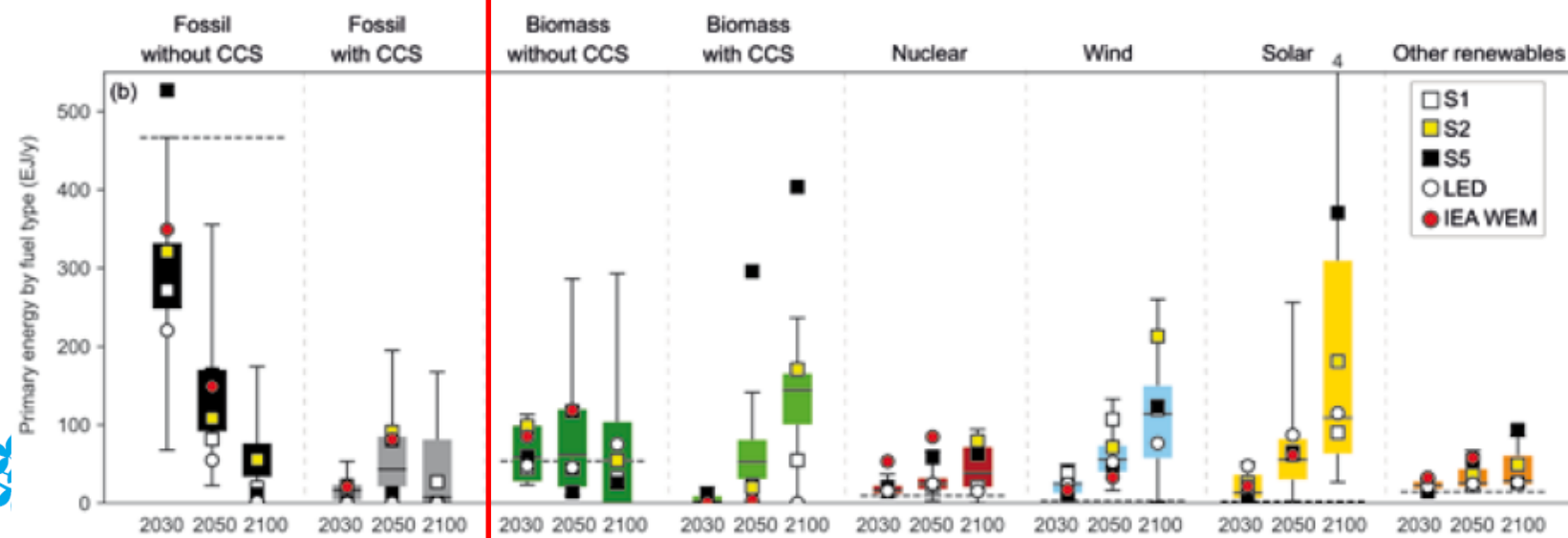
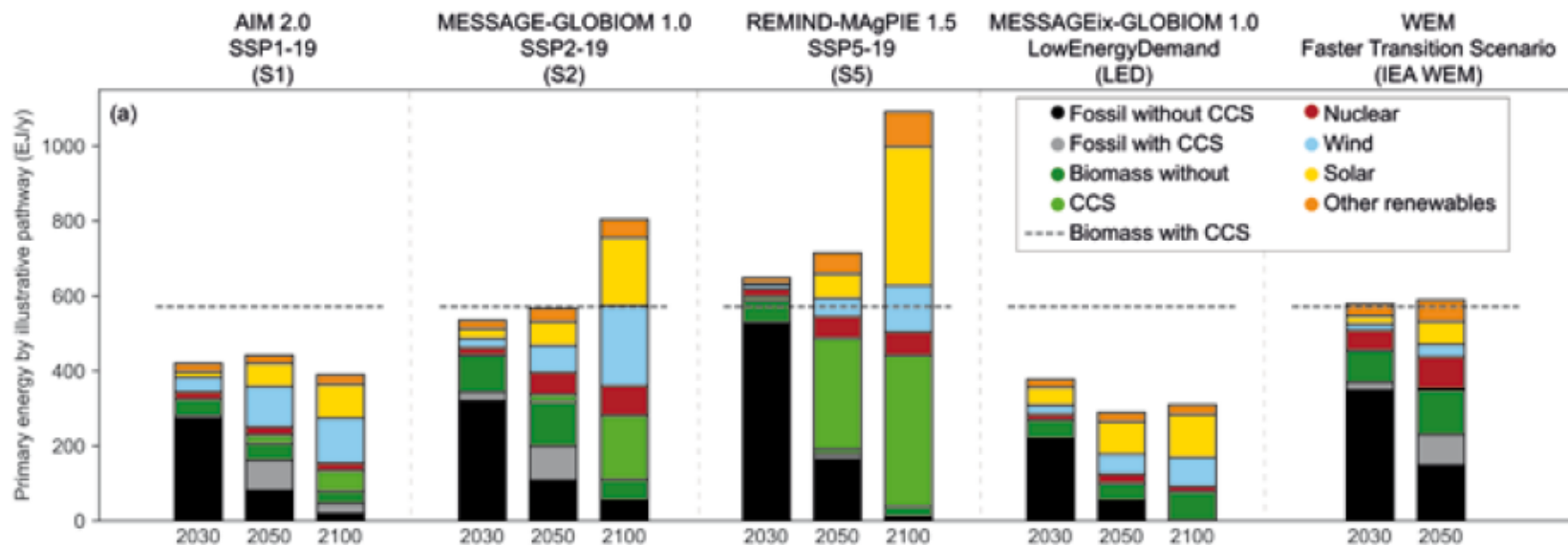
**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.



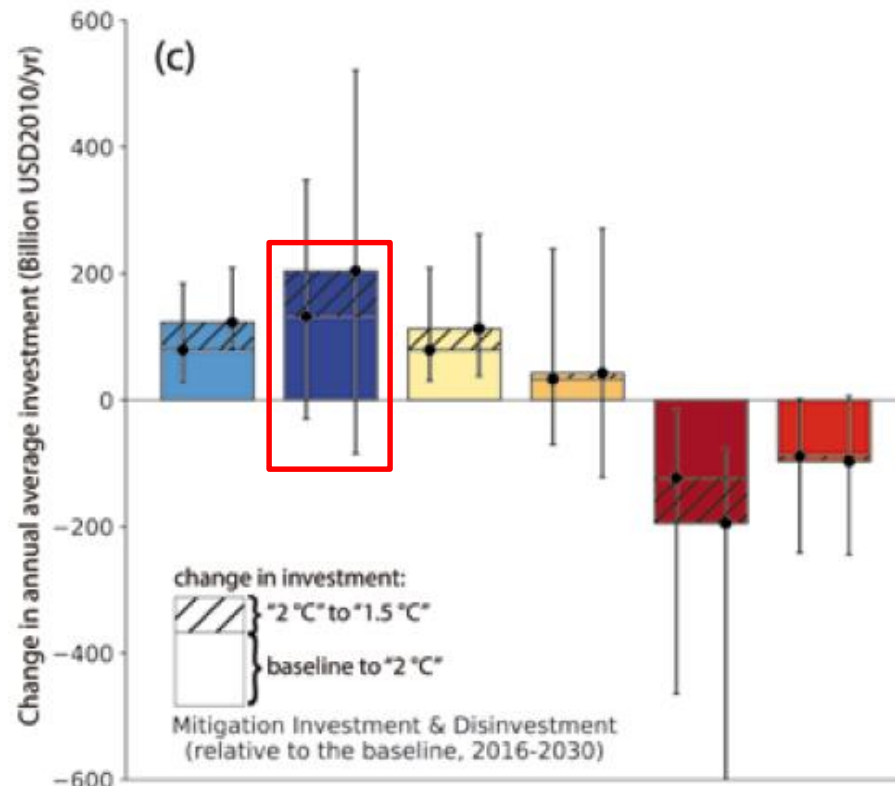
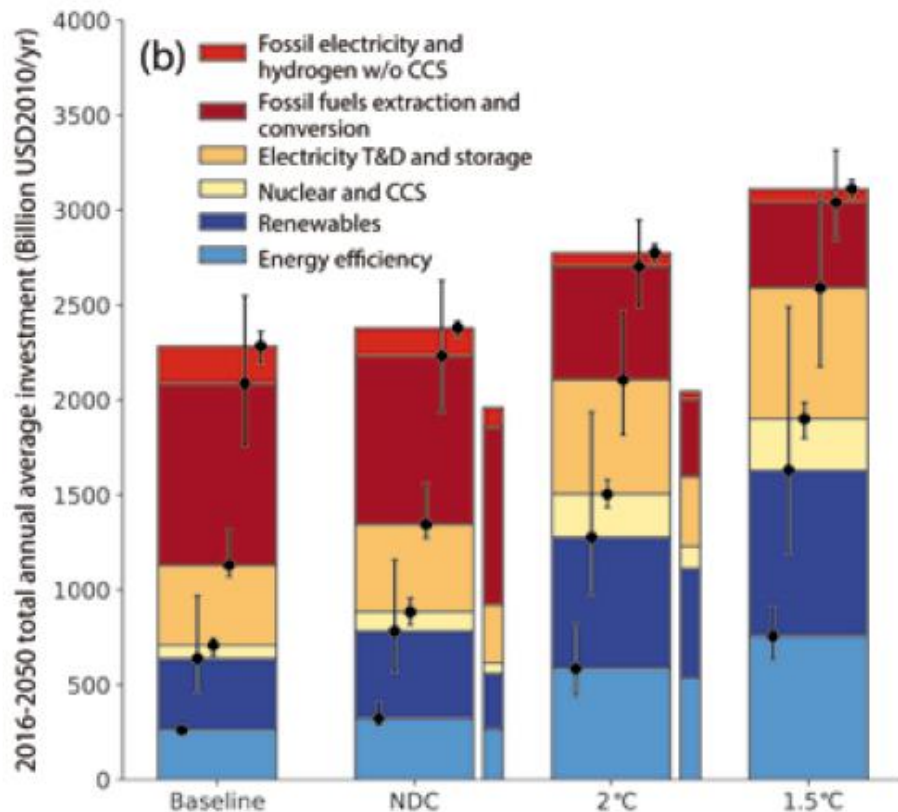
**P4:** A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.



# Primary energy supply for the four illustrative pathway archetypes plus the IEA's Faster Transition Scenario and their relative location in the ranges for pathways limiting warming to 1.5°C



# Global energy investments under different scenarios





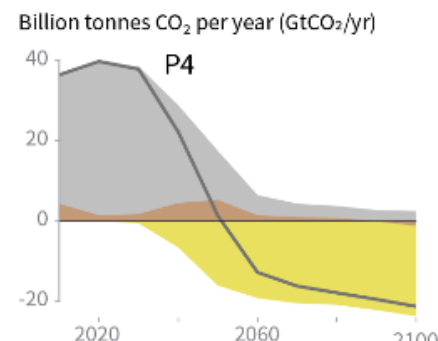
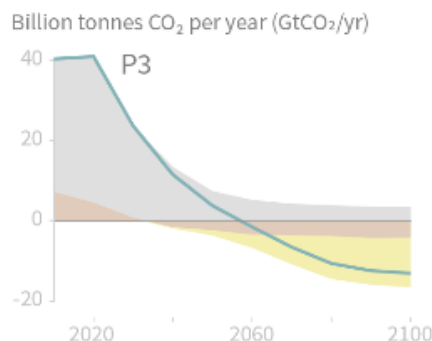
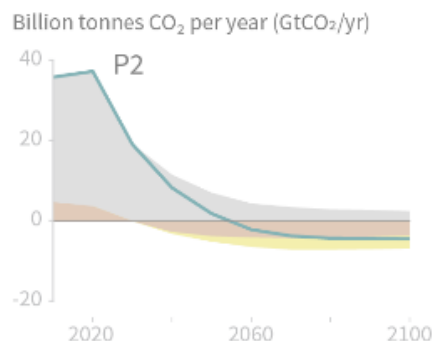
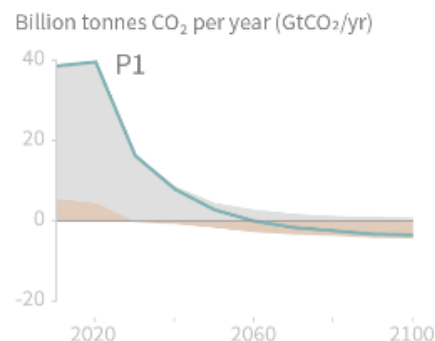




# Characteristics of four illustrative model pathways

## Breakdown of contributions to global net CO<sub>2</sub> emissions in four illustrative model pathways

● Fossil fuel and industry ● AFOLU ● BECCS

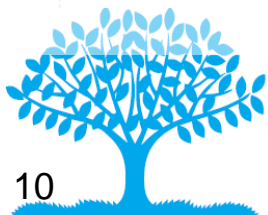


**P1:** A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

**P2:** A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

**P3:** A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

**P4:** A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.





# First Solar-Powered Airport Takes Off

Cochin International Airport. Kerala, India



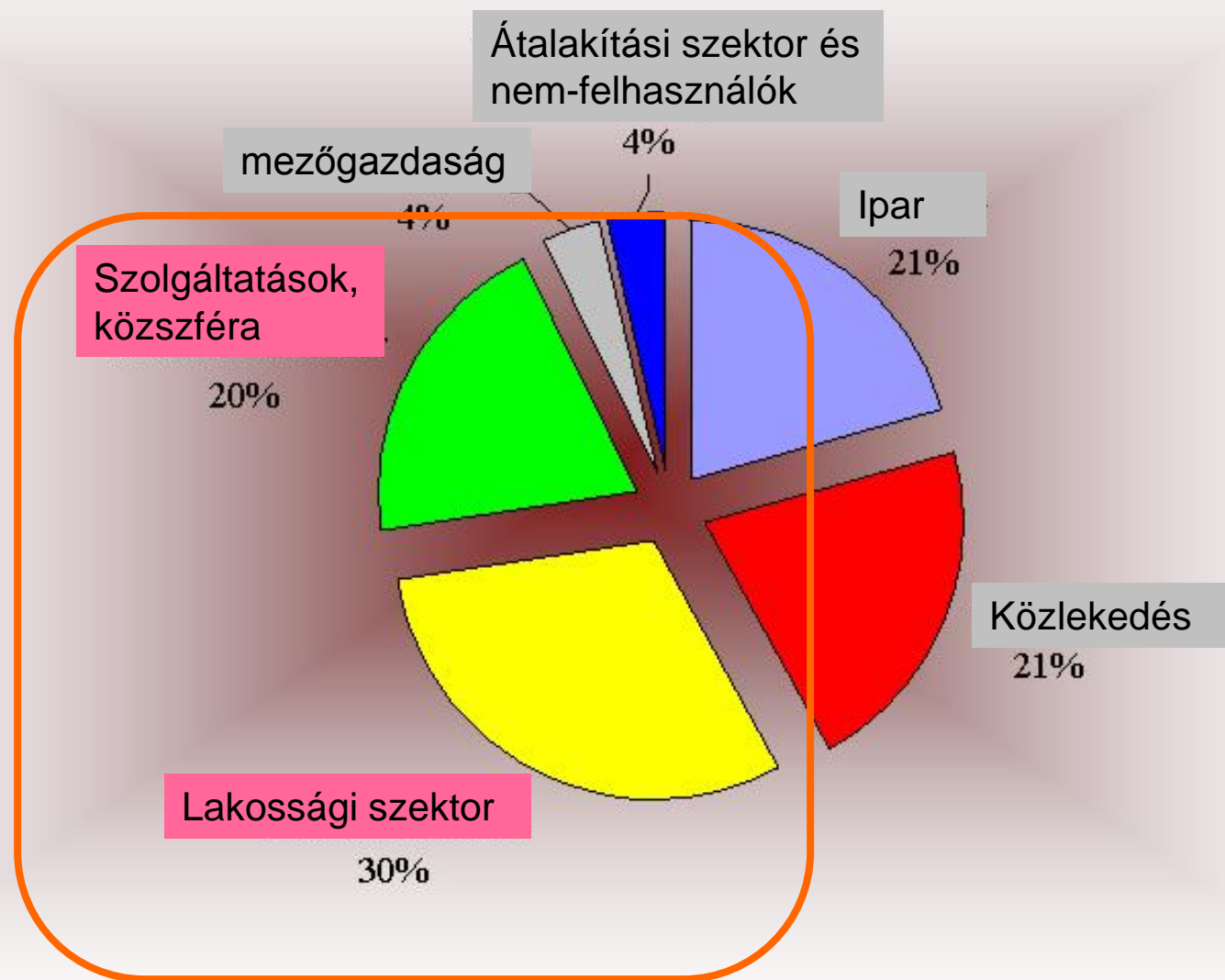
**UN Environment** 

@UNEnvironment





# CO<sub>2</sub> kibocsátás [\*] Magyarországon, végfelhasználókra lebontva, 2004



[\*] A szektorok által fogyasztott áramhoz kapcsolódó kibocsátásokkal együtt

# Zéró Energiás 4 lakásos társasház



*From E-On Energy Globe Award Hungary 2018*



A napelemek látják el a társasházat energiával



From E-On Energy Globe Award Hungary 2018





Híreink ▾

Házépítés és szolgáltatások ▾

Modern és luxus házak ▾

Lakberendezés ▾

Amit mindenképpen tudni kell!

Típussterv árajánlat

Egyedi árajánlat készítés

**KIEMELT HÍREINK:**

A lakóépület építésének egyszerű bejelentéséről szóló kormányrendeletet itt olvashatja...

Rengeteg infó az 5% ÁFA ügyében. Kattintson...

Minden infó az új CSOK-ról és a jogszabályokról. Kattintson ...

Home / Akciók / Zéro Energia ház 26 millió forintért

## Zéro Energia ház 26 millió forintért

Akciók, Kiemelt cikkeink, Környezetvédelem, energiatakarékosság hozzászólás

**Tetszik a Kp.hu?**

Készház Portál

Like Page 11K likes

**Tetszik a cikk?**

Like



Share

2 people like this. Be the first of your friends.

Mindenki szeretne olyan házban élni, melyben nem kell rezsiköltséget fizetni.

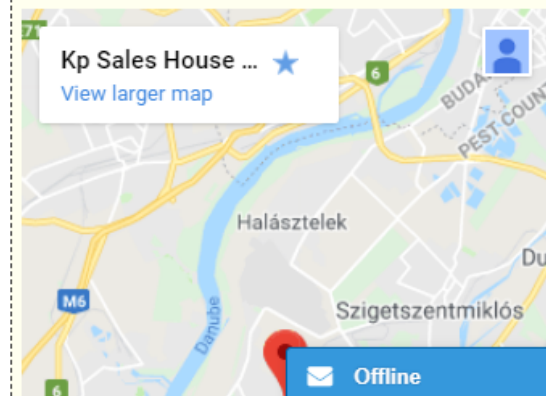
Mi egy olyan házat ajánlunk Önnek, ami 0 Ft, azaz nulla forintból üzemeltethető.

EnergyFriendHome Zéro Energy házaink valóban nem fogyasztanak csak napenergiát, hívhatjuk Fényevő házaknak is őket.

Ezek az épületek alapesetben is minimális

**Budapestről új helyre költözött a bemutatótermünk és a készház gyárunk!****Új címünk: 2316. Tököl, Vince Tanya.**  
(Tököli Hév megállótól 250 m-re.)  
Info: 06-20/444-44-24.

Az alábbi Google térkép segít a navigációban.



Offline

# Köszönöm a figyelmet

MÍNUSZBAN



M A R A B U

*A HVG engedélyével*

- Mindig csak ígéretik ezt a globális felmelegedést, csak ígéretik, de figyelj meg: ezt az ígéretüket se fogják betartani!

**Ürge-Vorsatz Diana**  
Center for Climate Change  
and Sustainable Energy  
Policy (3CSEP)

**CEU**

**Ipcc.ch**

Email: [vorsatzd@ceu.hu](mailto:vorsatzd@ceu.hu)

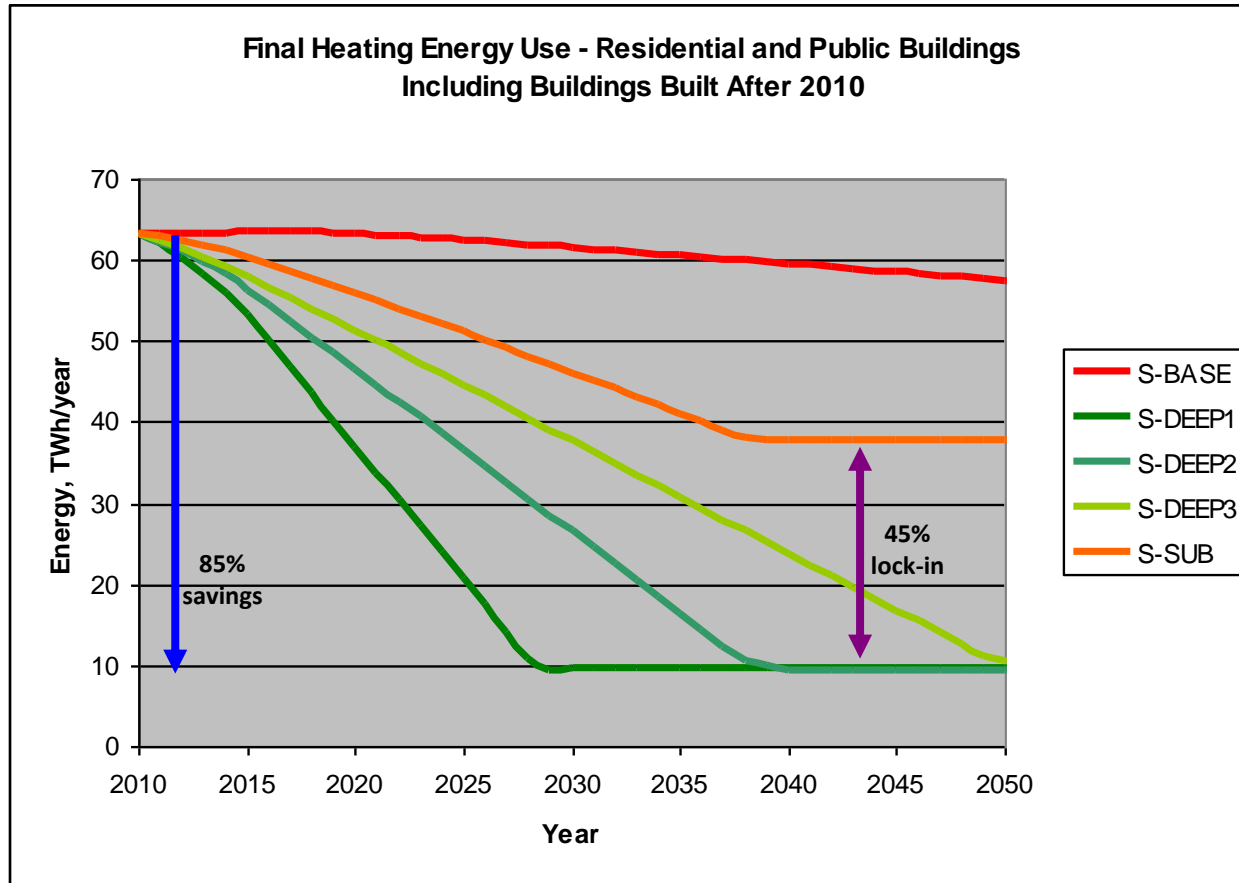


From E-On Energy Globe Award Hungary 2018

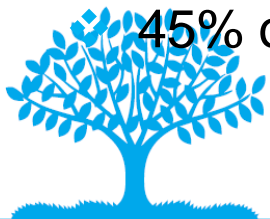
INTERGOVERNMENTAL PANEL ON climate change



# Scenario results: Hungary heating and cooling final energy use until 2050



- ❖ 85% of energy is saved in deep scenarios
- 45% of the savings remain locked-in by the suboptimal scenario



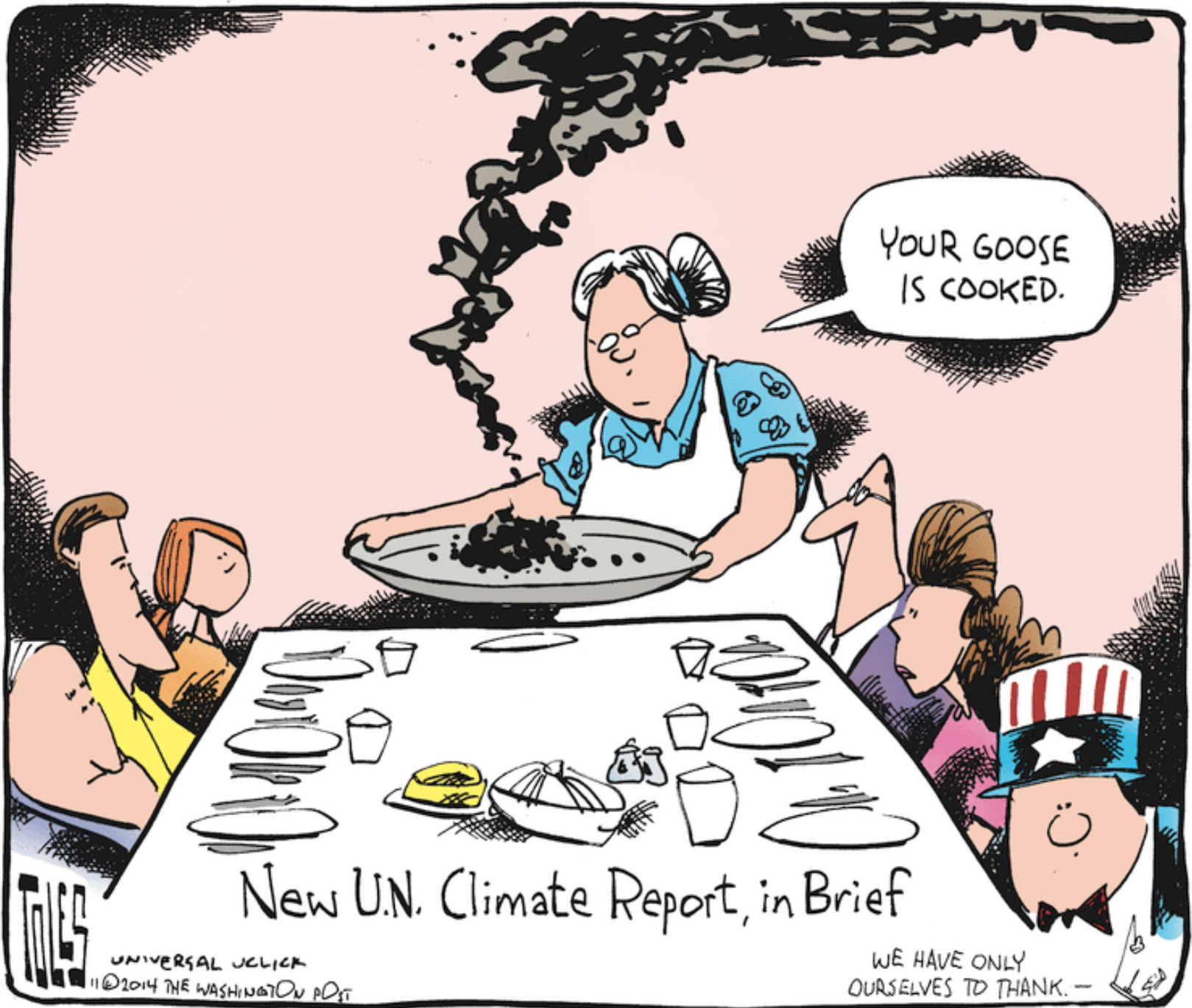
# Rámegy a gatyánk is? Belerokkanunk?



- A melegedés 2 fokon maximalizálása a gazdasági össztermék kevesebb, mint 2%-ába fog kerülni 2030-ig, 3.4%-ba 2050-ig és 4.8%-ba 2100-ig. Ez észre sem lesz vehető az addig várható 300% - 900% -os növekedés mellett.
- Ez a 21. évszázad alatt kb. 0.06 százalékpontos növekedés-csökkenést jelent évente
- ebben az értékben nincs benne a mérséklés által elkerült gazdasági károk, valamint az egyéb nyereségek (pl energiamegtakarítások értéke stb)



Source: IPCC 2014, AR5 WGIII



YOUR GOOSE IS COOKED.

# New U.N. Climate Report, in Brief

WE HAVE ONLY OURSELVES TO THANK. —

UNIVERSAL UCLICK  
© 2014 THE WASHINGTON POST

11.4.14

