

*5th April 2019 | Johannesburg*

*Colloquium on Energy for the Gauteng Megacity Region*

# **The future of coal - global perspectives consequences for South Africa**

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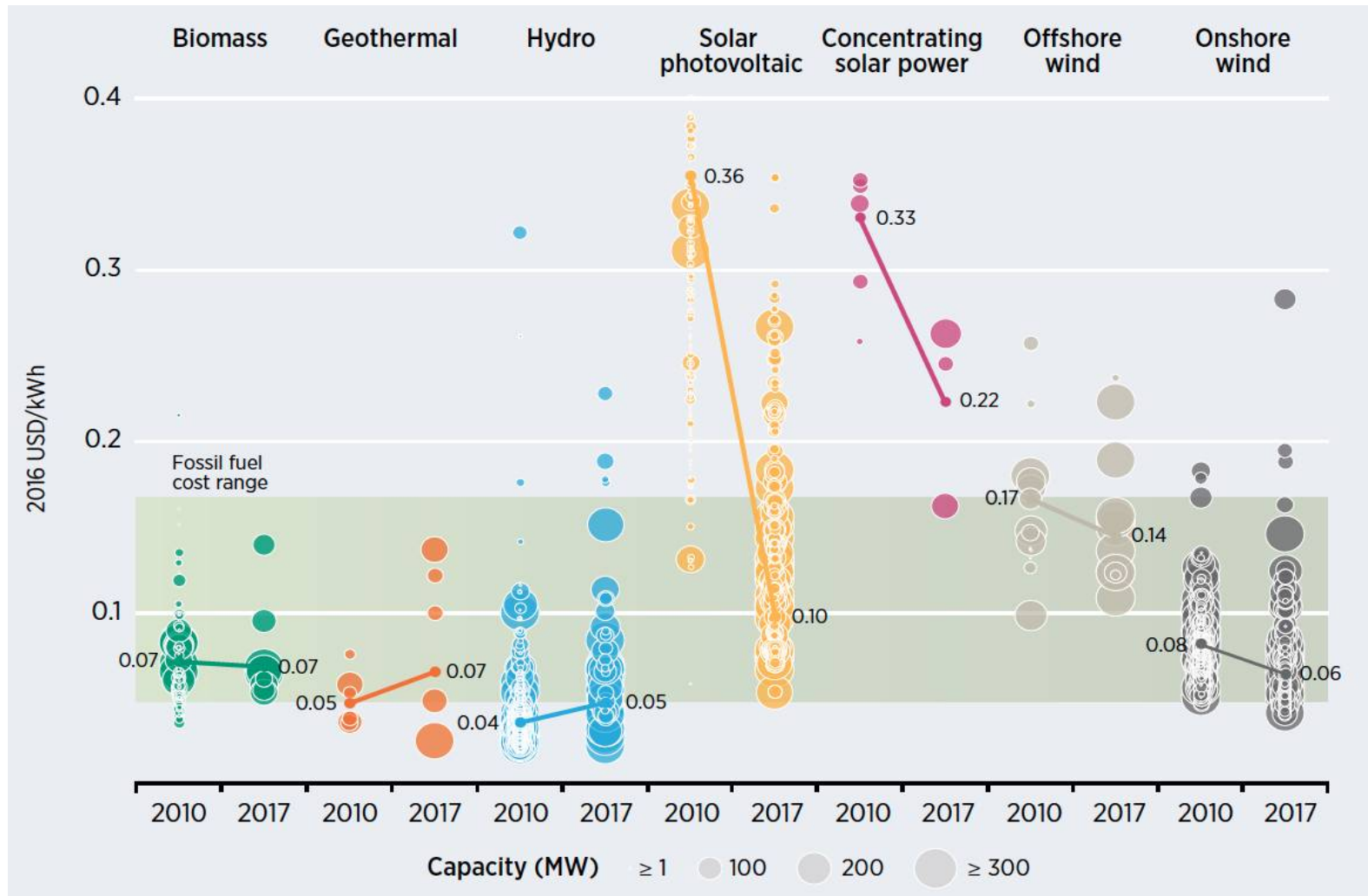
Timon Wehnert

- Founded 1991
- Think tank dedicated to applied research and sustainability
- 250 staff members



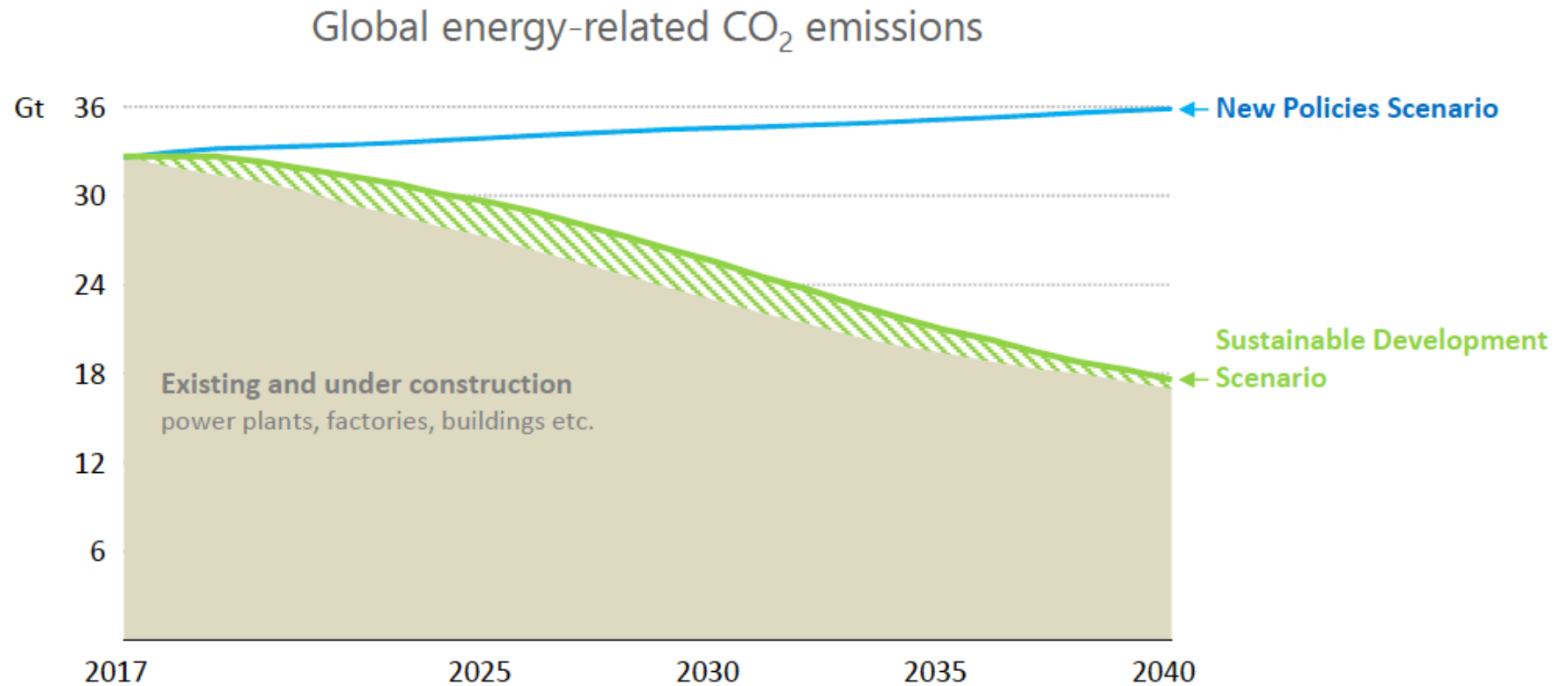
Transition Research:  
from problem assessment  
to real world experiments

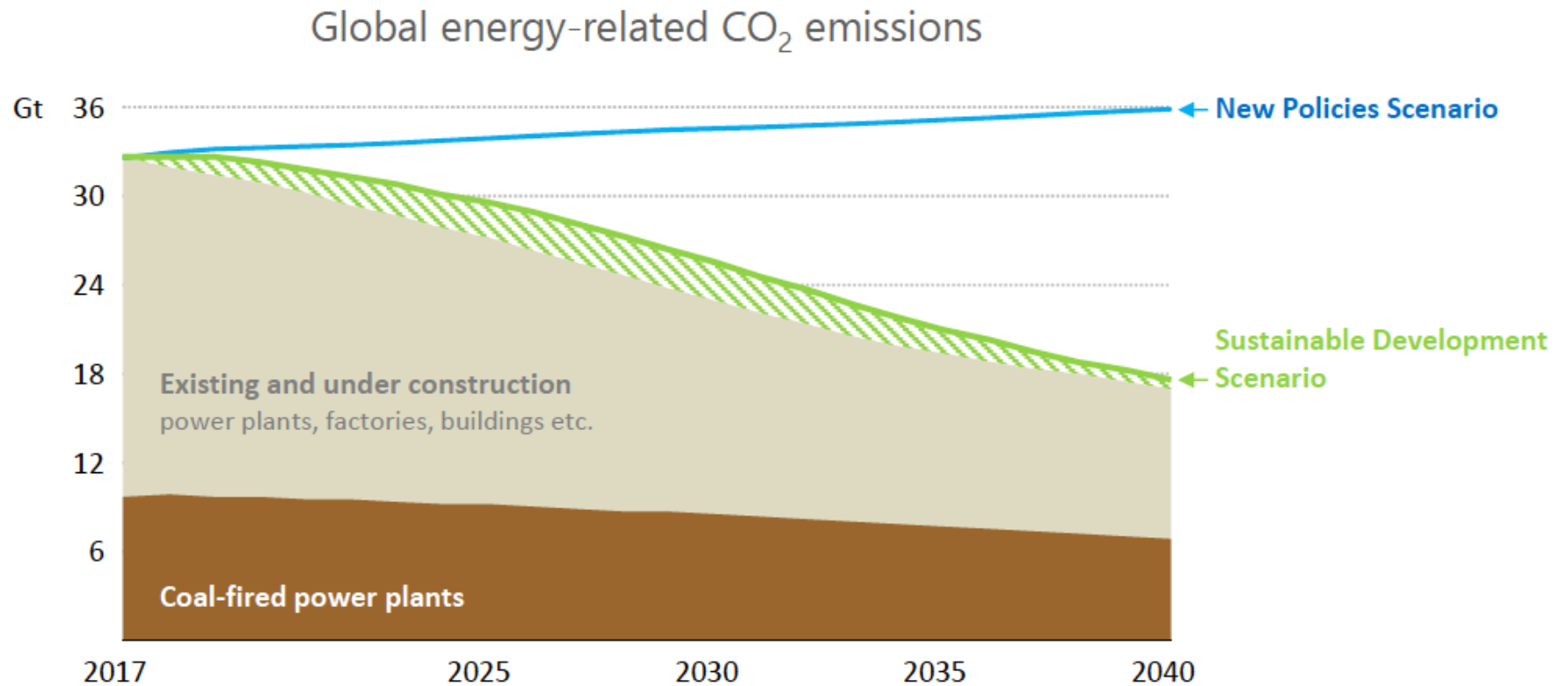
# Global levelled cost of electricity from utility-scale renewable power generation technologies 2010 - 2017

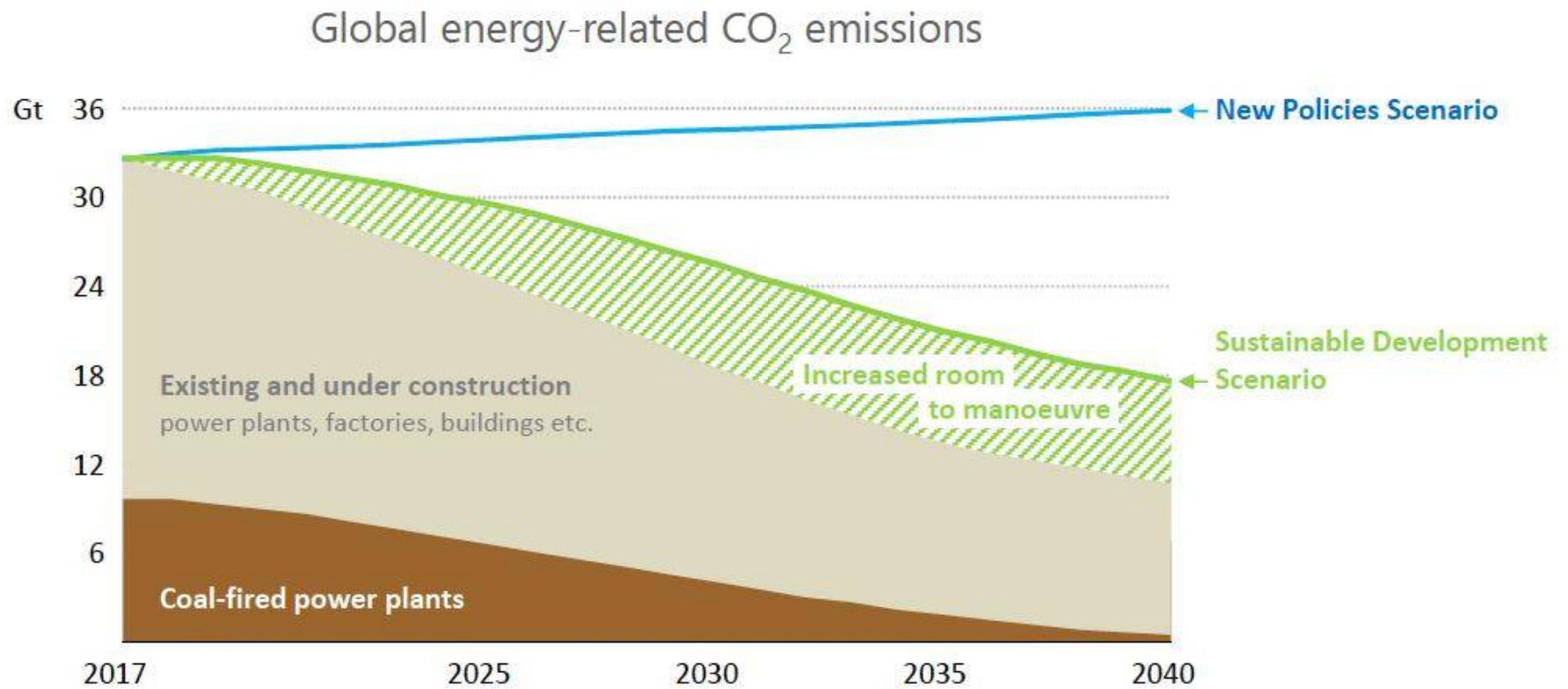


**Renewables are price competitive to new coal-fired power plants**  
(with respect to production costs for electricity)

# The IEA's perspective: World Energy Outlook 2018

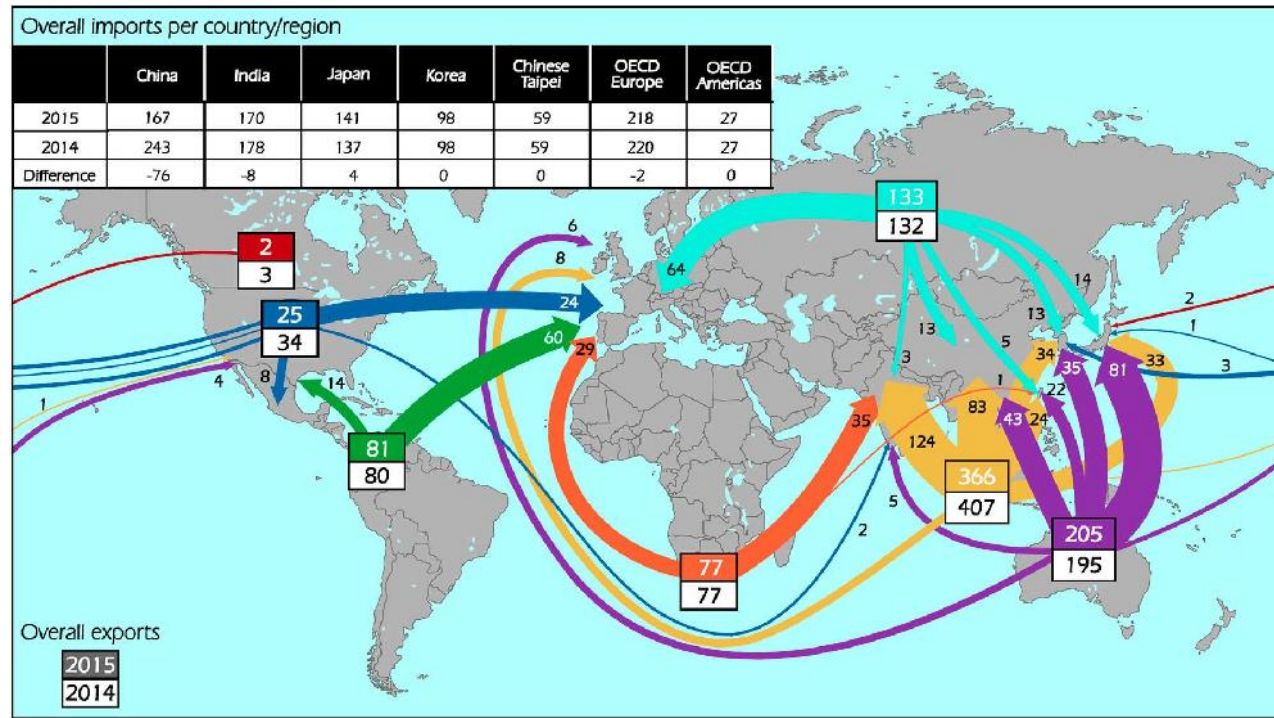








**IPCC 1.5: Globally coal needs to be phased out by 2050**  
**Europe is in the process of phasing out coal already now**



- What does this mean for global coal trade?
- When will China and India stop importing coal?
- How much coal will South Africa export in 2040 – and to where?

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# Looking forward to discussing your views on this

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# The local level contribution to meet the Paris Climate Agreement

**What Berlin does to become a climate-neutral city by 2050**

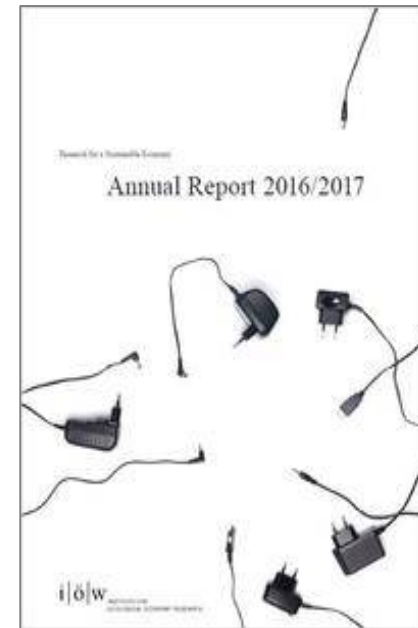


Colloquium on  
Energy for the Gauteng Megacity Region  
Goethe Institute Johannesburg, 05th April 2019  
Johannes Rupp  
IÖW – Institute for Ecological Economy Research Berlin

# The Institute for Ecological Economy Research (IOeW)



- **Since 1985 focus on sustainable economy research and political consulting, Berlin (central office) and Heidelberg**
- **Around 50 scientists** from economic, social, engineering and natural science
- **Focal areas:**
  - **Climate and energy**, Sustainable corporate management, Environmental policies and economics, Products and consumption, Water and land management, Innovation and Technologies, ...
- **Independent, 100% Third-party funded – mainly public funding**
- **More information: [www.ioew.de/en](http://www.ioew.de/en)**





# Berlin Summer 2017



Source: Berliner-Zeitung.de (June 2017)





# Berlin Summer 2018

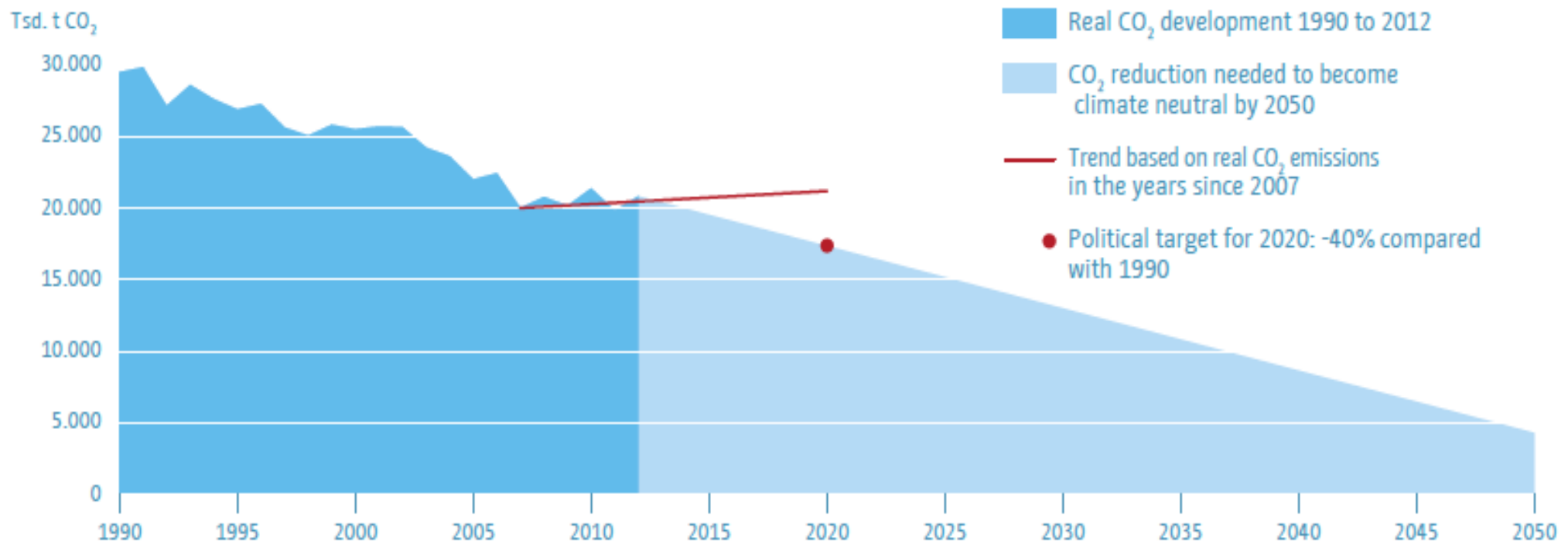


Source: rbb24.de; July 2018

# The challenge to become climate-neutral by 2050



## Reduction of CO<sub>2</sub>-Emissions by 85 % – compared to 1990





## Energy supply

### Field of action: energy supply

- phase out coal and markedly reduce oil consumption
- expand gas-based flexible CHP
- intensify and convert district heating network, heat storage facilities
- massively expand solar power
- expand heat pumps and geothermal energy
- use excess energy from renewables (P2X), virtual power stations, etc.
- promote urban energy transition and business models

## Buildings & Urban development

### Field of action: buildings and urban development

- increase average energy-related renovation rate to 2% per year by 2030
- higher standards for new buildings
- subsequent consolidation 5% by 2050
- reduce per capita consumption of living space
- take account of social and architectural aspects
- district concepts as integrated urban development
- role model effect of the projects
- create easily accessible and affordable advice options
- maintain and upgrade streets, squares, green and open spaces
- strengthen urban CO<sub>2</sub> sinks

## Industry & Commerce

### Field of action: industry

- increase energy efficiency and replace fossil fuels
- expand advice and networking of SMEs
- gear climate protection agreements and public procurement to climate neutrality
- create new funding possibilities
- pilot projects/campaigns for key technologies and areas with multiple benefits (e.g. tourism, retail trade)
- improve training and qualification of energy advisors

## Traffic

### Field of action: traffic

- further change in the transport system (modal split) in favour of the ecomobility alliance
- operate more than one third of vehicles with non-fossil fuel by 2030
- further reduction in fuel consumption
- further develop sharing options
- expand parking space management
- shift goods traffic away from road
- use car pools (esp. in the city) as pioneers for Berlin fleet transformation

## Private Households & Consumption

### Field of action: private households and consumption

- markedly increase appliance efficiency through incentives, advice and information
- strengthen climate-friendly consumption through information, pilot projects and role models
- network, strengthen and permanently establish climate education
- markedly increase sufficient expansion of sharing possibilities and good examples
- develop climate neutral brand and communication

### Overarching aspects

- create institutional structures
- build up funding architecture
- establish climate protection as a cross-cutting issue
- develop monitoring
- permanently establish participation

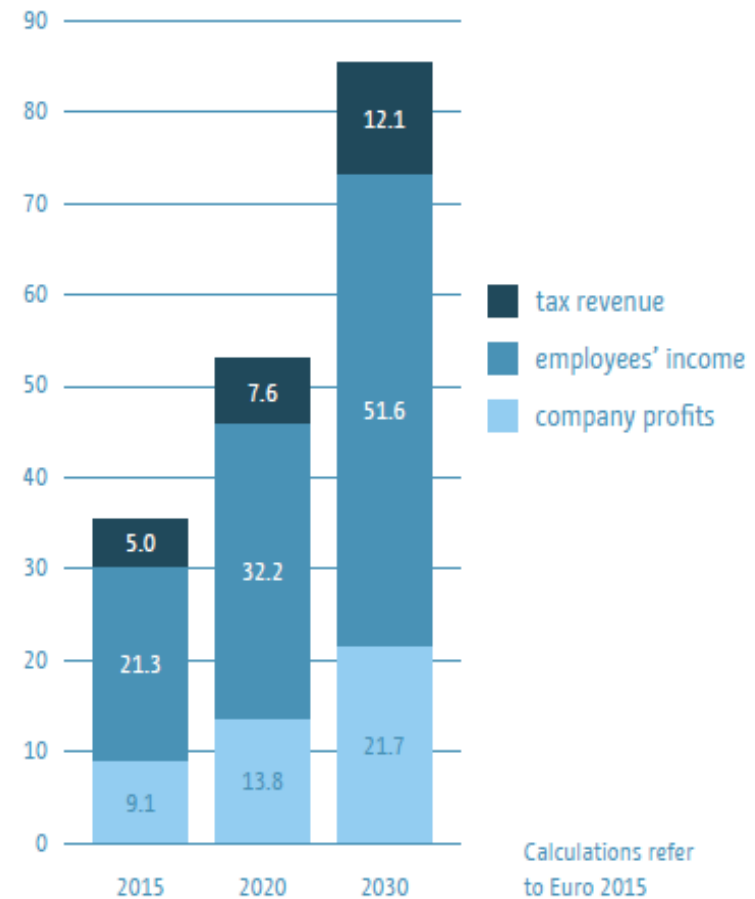
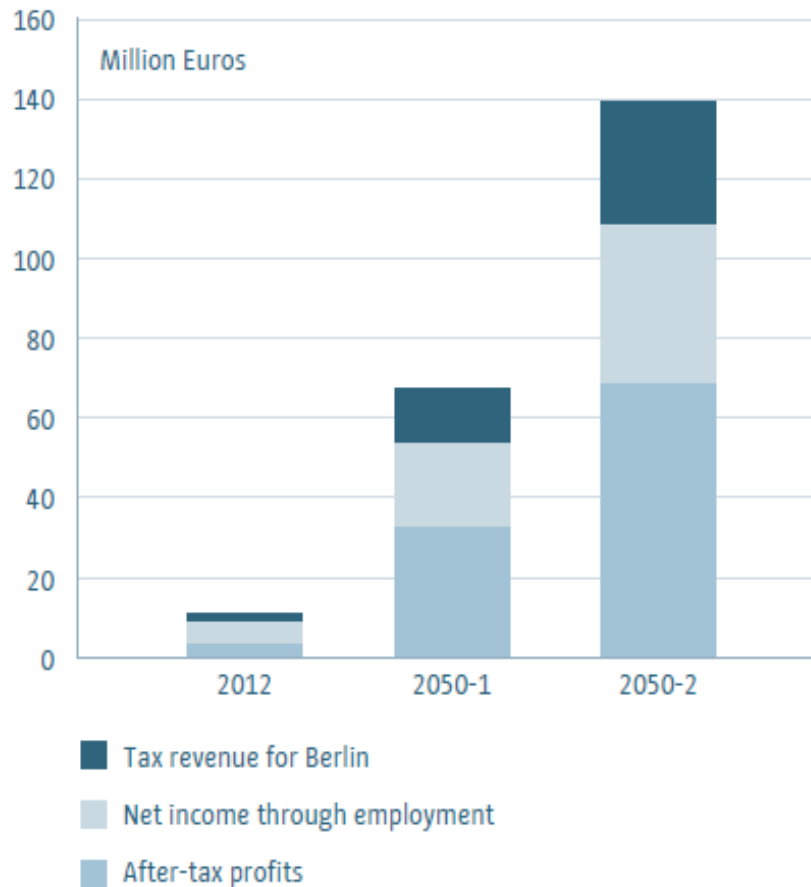






# The economic benefits

## through renewable energies & building retrofits





Thanks for your attention and being here.



Johannes Rupp  
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Research, Berlin  
[www.ioew.de/en](http://www.ioew.de/en)

# Questions Sessions

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## Question 1

**When in Germany,**

**will the last coal fired power plant be shut down?**

## Question 2

**When in South Africa,**

**will there be more jobs in renewables –  
than jobs in coal?**

## Question 3

**End of coal exports in South Africa:**

**When will coal exports be less than 10% of today?**

**In 2015 South Africa exported 77 Mt of coal**

**When will it be less than 7 Mt ?**

## Question 4

**Who should take the lead in Gauteng Province to push the energy transition?**

***Government***

***or***

***Private Sector***

## Question 5

**What will be the share of households with PV installations, incl. storage capacities by 2030?**

***like today***

***or***

***100 %***



## Question 6

**Who will benefit from the energy transition measures undertaken in the long-run?**

***Larger (inter)nationally operating companies / service providers***

***or***

***SMEs, operating on the local / regional level***