

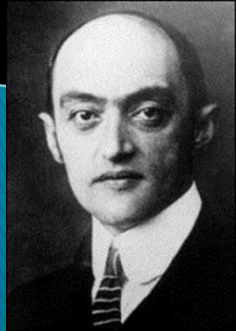


# Addressing economic and environmental challenges: Role of innovation policy

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The Schumpeter 'Innovation in Enterprise' lecture,  
Kadriorg Art Museum, Tallin, Estonia, 22 November 2017



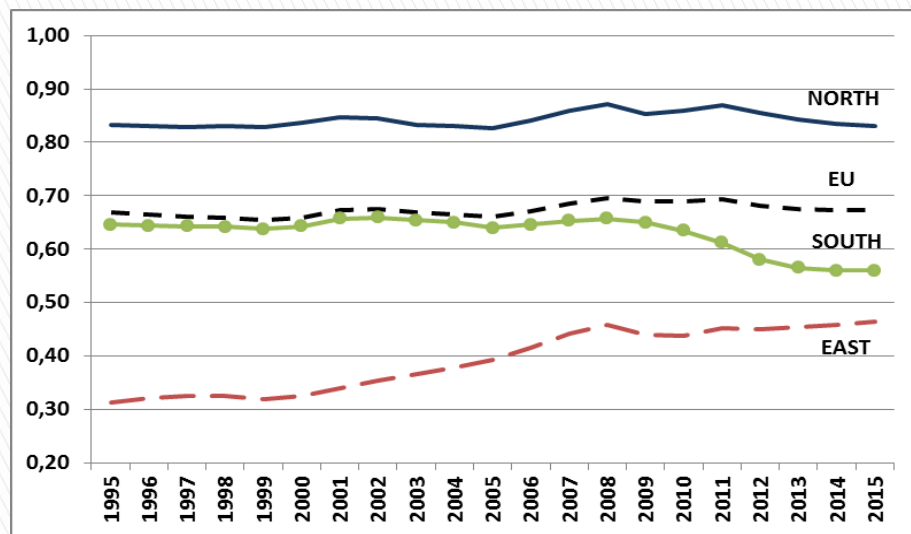
# Main message

- ▶ Europe is stuck in a (partly self-inflicted) **stagnation**
- ▶ And need to transform the economy due to the **climate challenge**
- ▶ These challenges are **closely related** and require a **coordinated** policy response
- ▶ With **innovation policy** as a central element

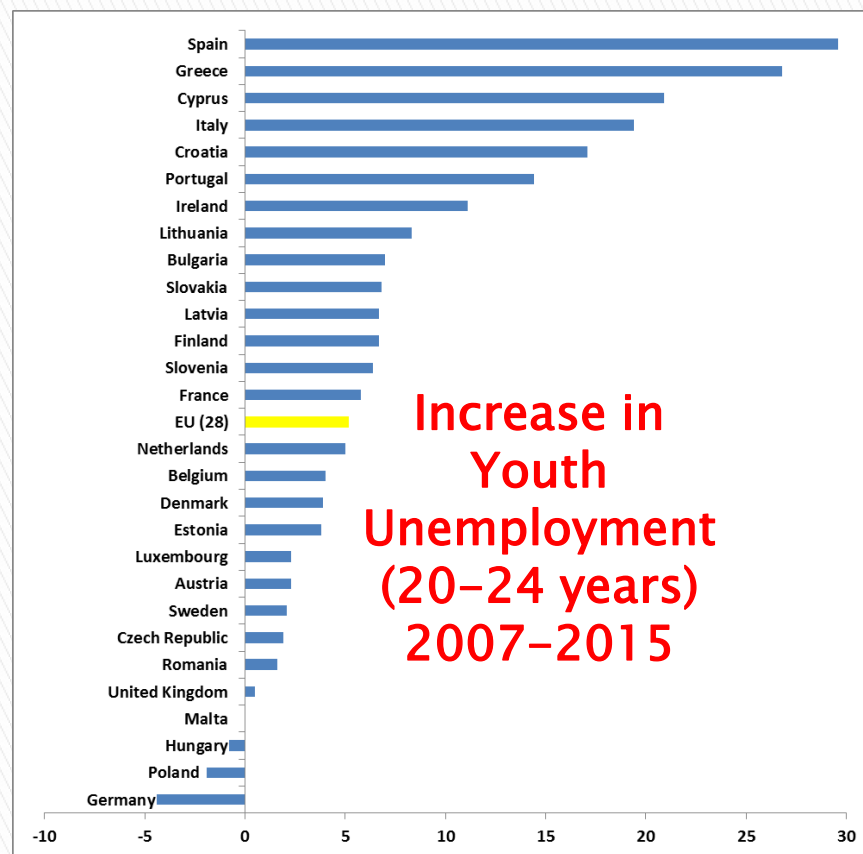


# Europe: From growth & convergence to stagnation & divergence, with parts of Europe falling behind

## ▶ GDP per capita (rel to USA)



## ▶ Youth unemployment

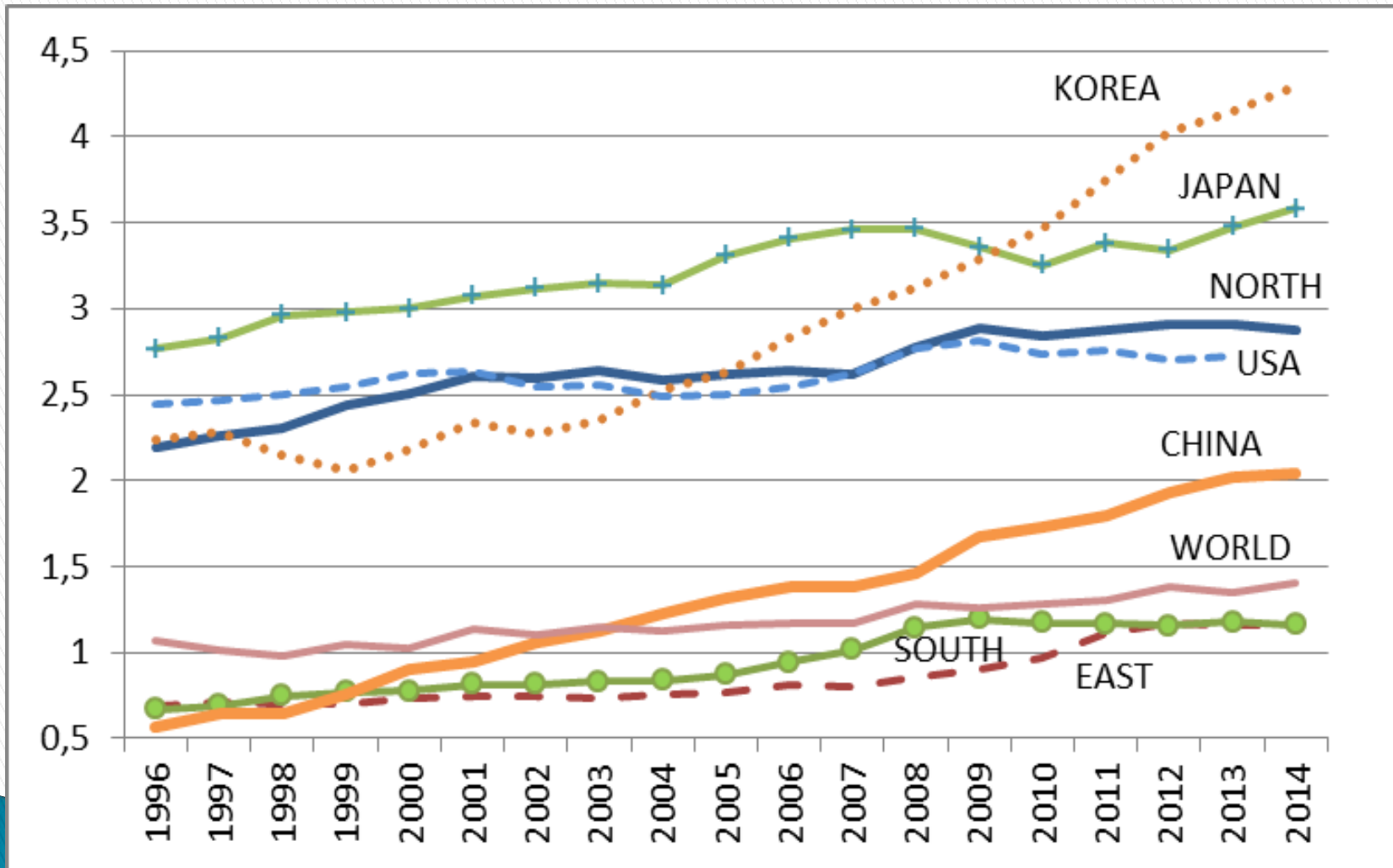


**Social cohesion -  
a goal of the past?**

**Increase in  
Youth  
Unemployment  
(20-24 years)  
2007-2015**

# Europe: Stagnating R&D

(share of GDP, 1996–2014)



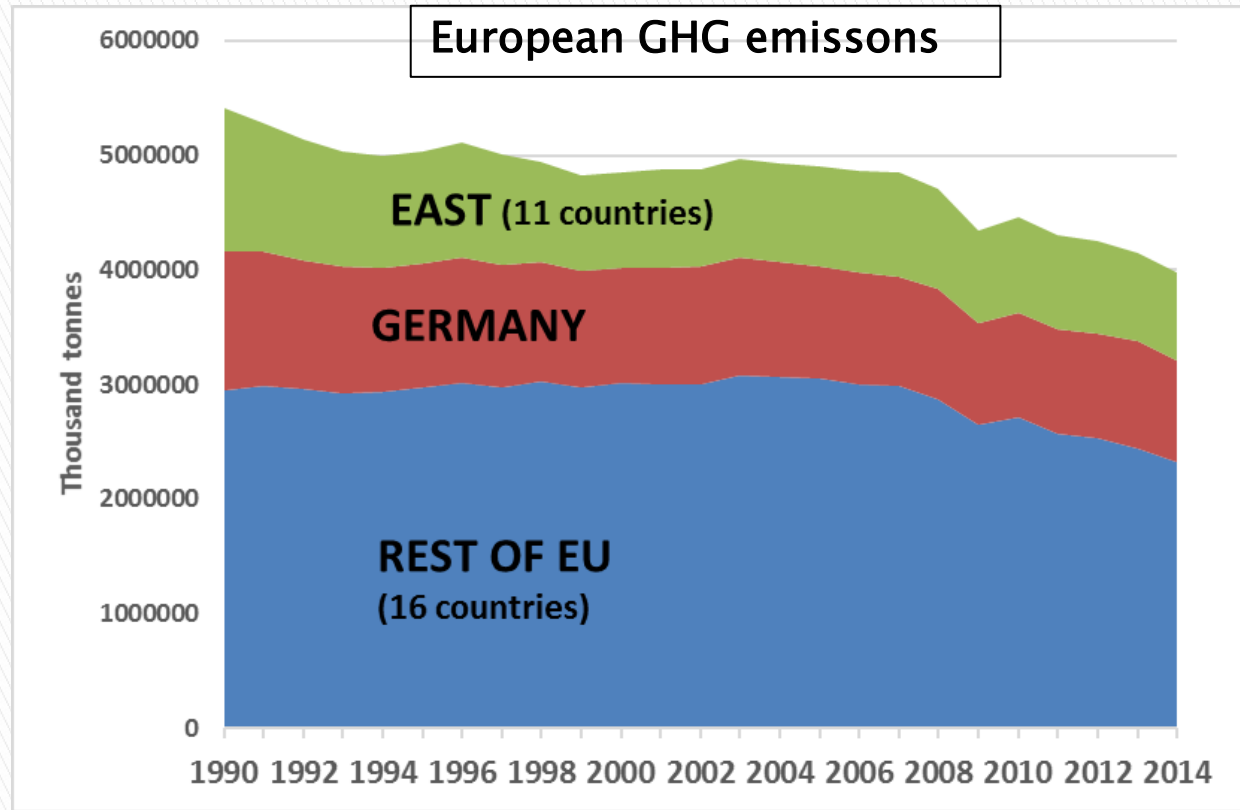
# What explains the European stagnation? The financial crisis but also:

- ▶ **Different capacities** for dealing with globalization
- ▶ **Asymmetric effects** of European integration
- ▶ **The Euro** – lacking necessary **policy coordination** – led to spread **austerity policies** and **soaring unemployment**
- ▶ **Need for a new policy stance**
- ▶ How to get Europe, and especially the weaker economies in the **south and east**, out of the **low growth/high unemployment trap?**

**Without further harm to the climate!**

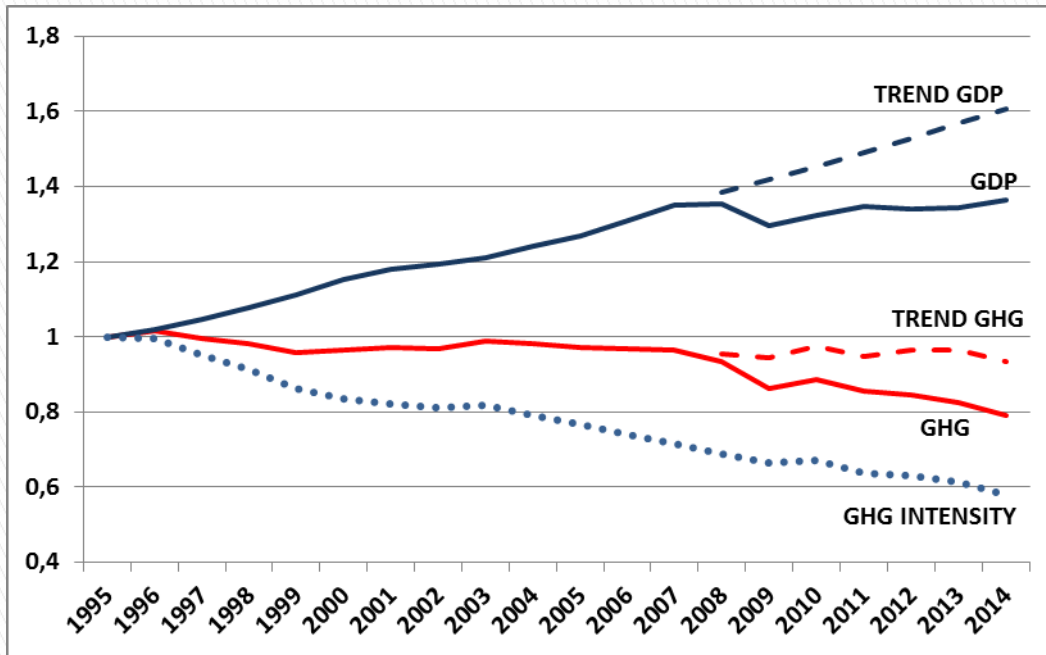
# EU policymakers pride themselves on being on the right track. But is that really true?

European policy makers like to compare with 1990. No wonder why!



Entire reduction 1990–2007 caused by rapid deindustrializing in the former socialist East in the early 1990s.

# Decline in European GHG emissions after 2007 caused by the crisis



GDP growth , GHG emissions and GHG intensity  
EU28, 1995-2014

To reach 2100 goals, the GHG intensity must decline **twice as fast** as in the past (or **GDP must shrink every year**).

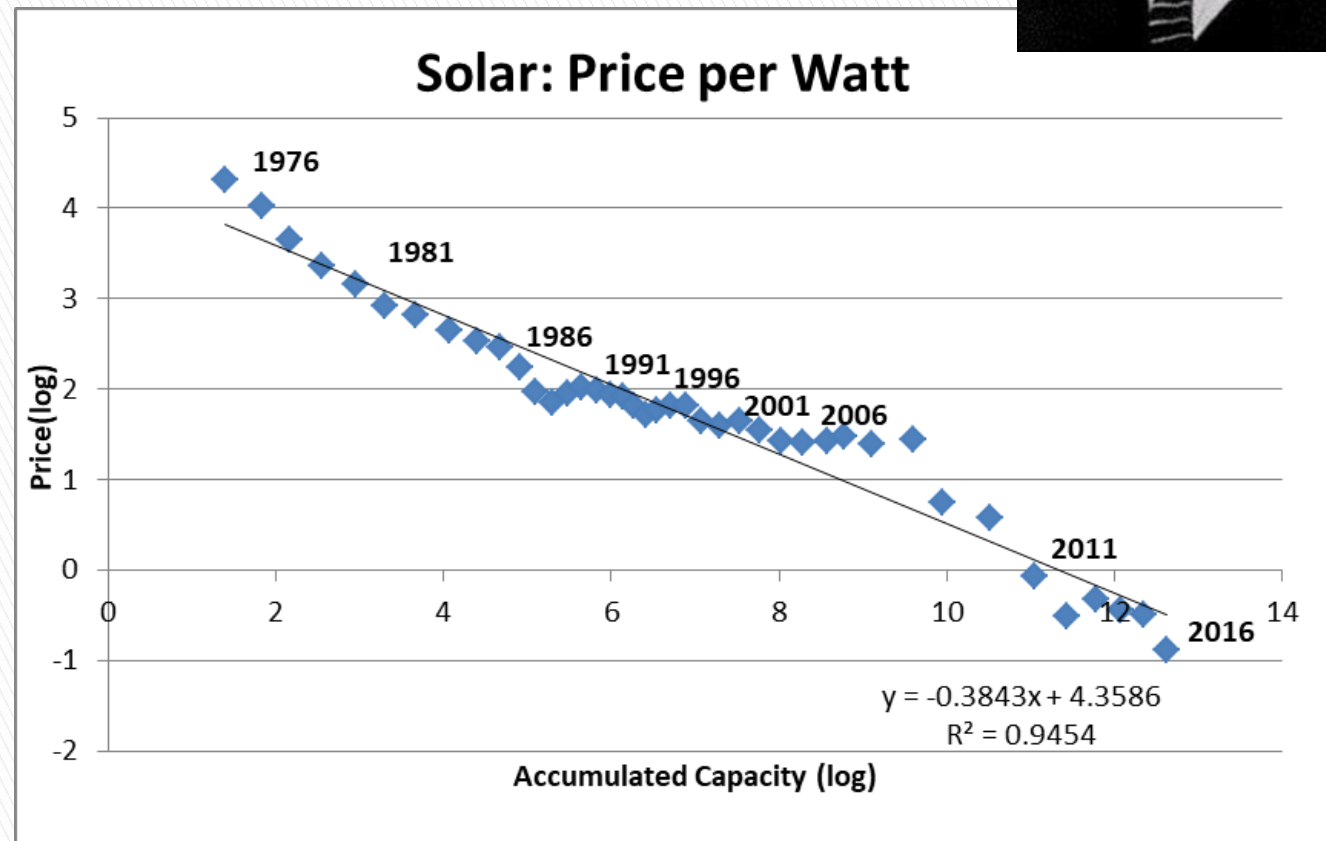
**A radical transformation of the economy required**

# Renewable energy: A new Technological Revolution



- Rapidly declining costs
- Unlimited availability
- Broad applicability
- Pervasive effects

Renewables, electrification & ICTs will transform the global economy





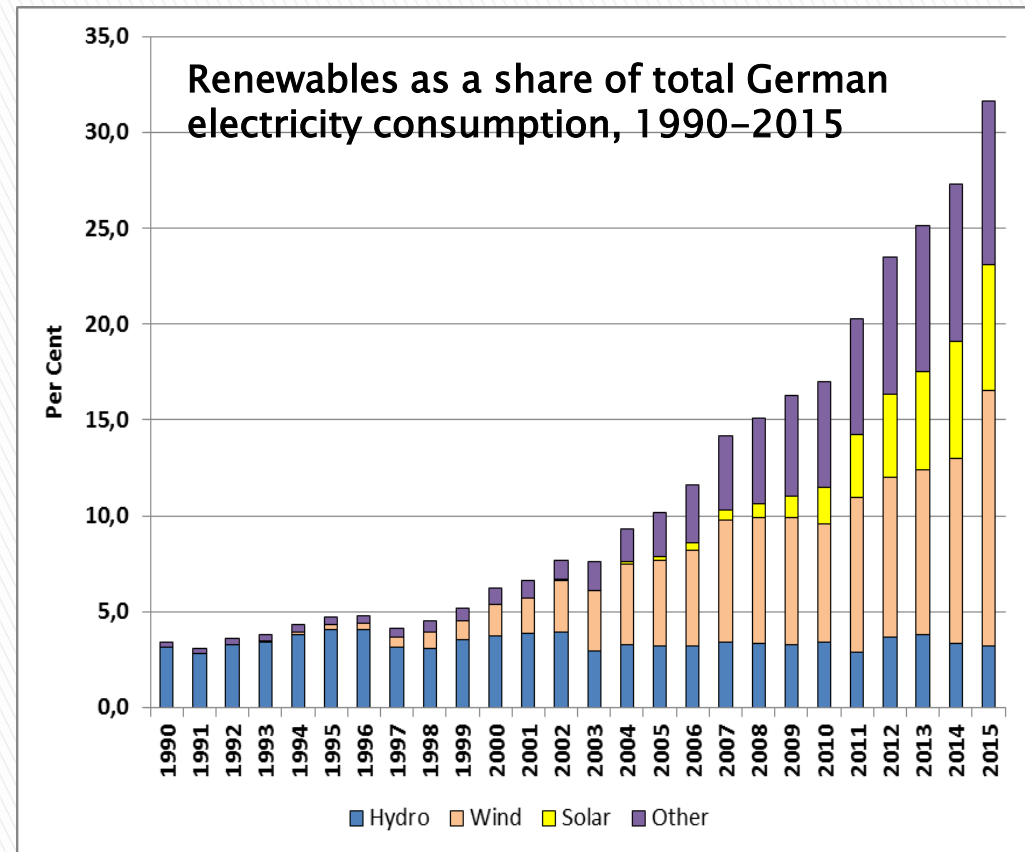
# Riding the waves of renewables, electricity & ICT: A new (innovation) policy stance



- ▶ A **vision (commitment)** about transforming the economy towards **sustainability essential** (“mission”)
- ▶ Main policy elements: Support **renewables**, increase **energy efficiency**, electrify **transport**, actively **reduce polluting sectors** (e.g. coal, oil and gas etc.)
- ▶ Need to penetrate **all policy areas (sectors/levels)**
- ▶ Changes in **governance** (coordination across **levels & sectors**) required
- ▶ **Innovation policy**: not mainly about **R&D**, but creating **opportunities** (e.g., demand), supporting **experimentation**, enhancing **learning & capabilities**

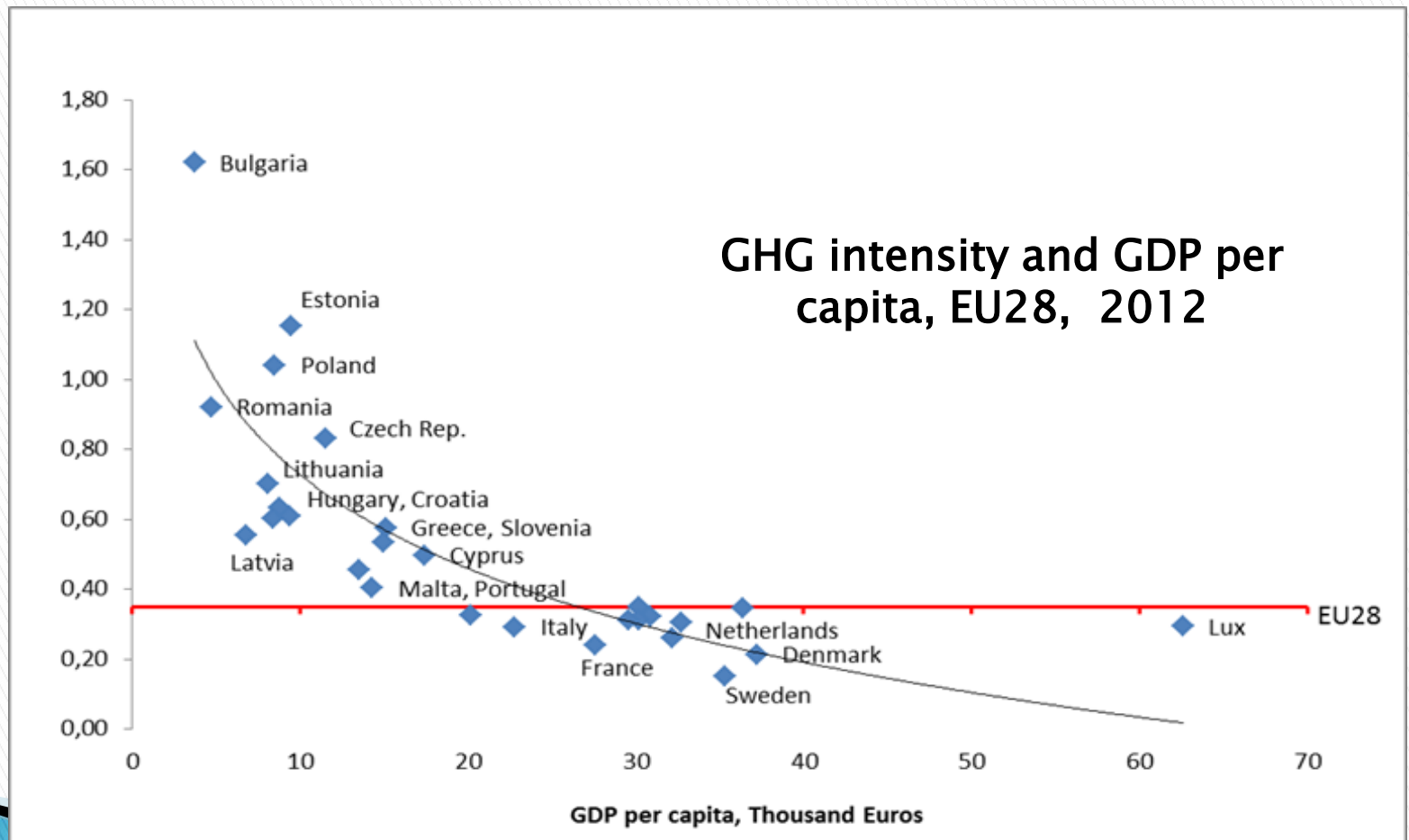
# It can be done! And quick! Germany's "Energiewende"

- ▶ **Bottom-up** initiative
- ▶ Supporting deployment (demand)
- ▶ Several technologies supported (avoiding premature lock-in)
- ▶ Surprisingly rapid transformation, 250 000 jobs created
- ▶ Other examples: Wind-energy in Denmark, Electrical cars in Norway ....



*Germany's "Energiewende" – supporting transformation, diffusion and innovation*

# The least developed parts of Europe most in need of radical change towards sustainability



# A European program for sustainable growth?

- ▶ Transition towards **sustainability** requires **substantial investments** in sustainable energy, increased energy efficiency, public transport, infrastructure etc.
- ▶ Much needed: a European program for sustainable growth, with a particular focus on the economically lagging countries, targeting investments for reducing GHG emissions
- ▶ Delivering growth – and jobs – where it is most needed while speeding up transformation, diffusion, learning and innovation

*More: Fagerberg, Martin, Laestadius: The Triple Challenge for Europe, OUP, 2015*