

## *WEO-2011 “Lower-Nuclear Case”*

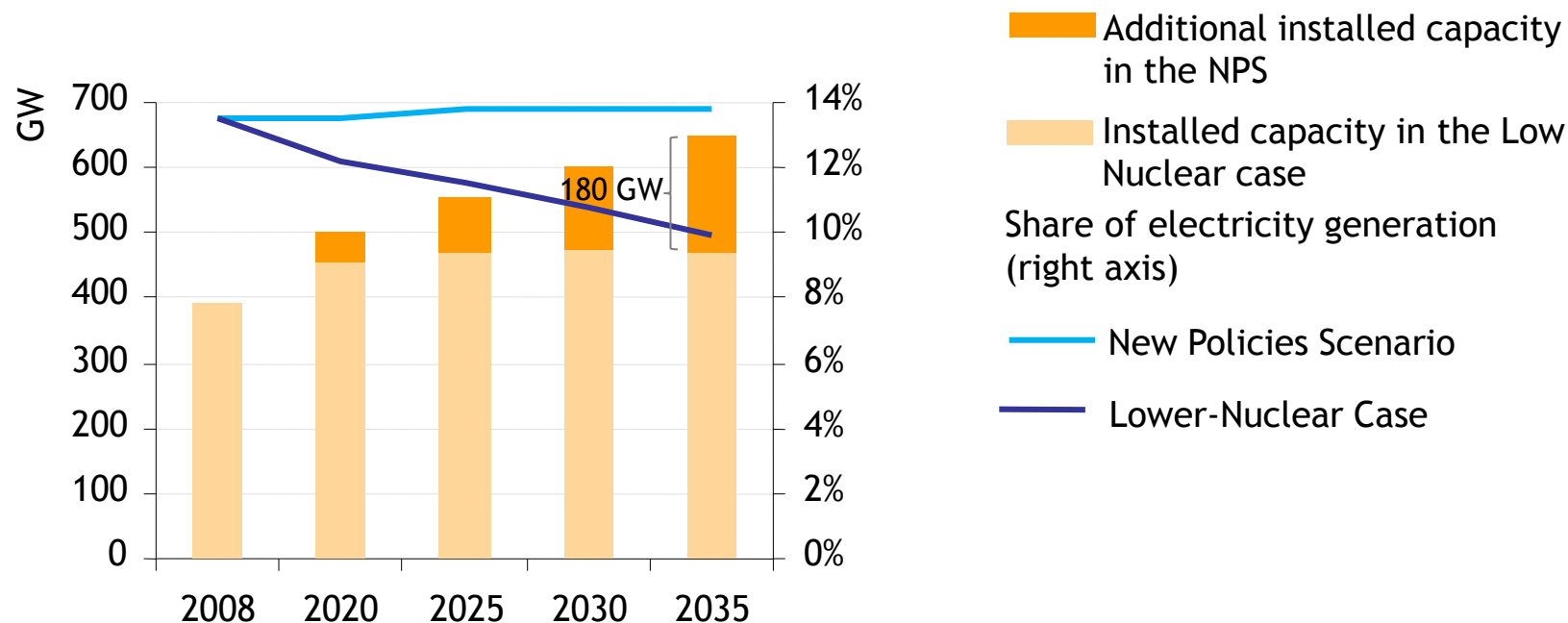
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Executive Director  
International Energy Agency

**ITRE, Brussels**  
**12 July, 2011**

- **Recent projections for growth in nuclear capacity may now be viewed as optimistic**
- **An increasing number of plants may be retired early due to more stringent safety regulations**
- **Life extensions for older plants may become less common**
- **Investment may be delayed or deferred**
  - > *Investment to replace the aging fleet in OECD*
  - > *Investment in emerging economies to meet rising baseload demand*
- **Costs of new nuclear plants may increase**
- **Countries pursuing new nuclear power programs may face difficulties**
  - > *Including Indonesia, Thailand & possibly some Middle East countries*

- *The “Lower-Nuclear Case” is not what the IEA expects to happen, but an assessment of the implications of a possible slowdown in the expansion of nuclear power*
- *The “Lower-Nuclear Case” assesses what such a slowdown would mean for:*
  1. *Global energy trends*
  2. *The cost of energy*
  3. *Energy security & diversity of the fuel mix*
  4. *Efforts to combat climate change*
- *WEO-2012 will follow with a more detailed analysis of the prospects for nuclear energy*

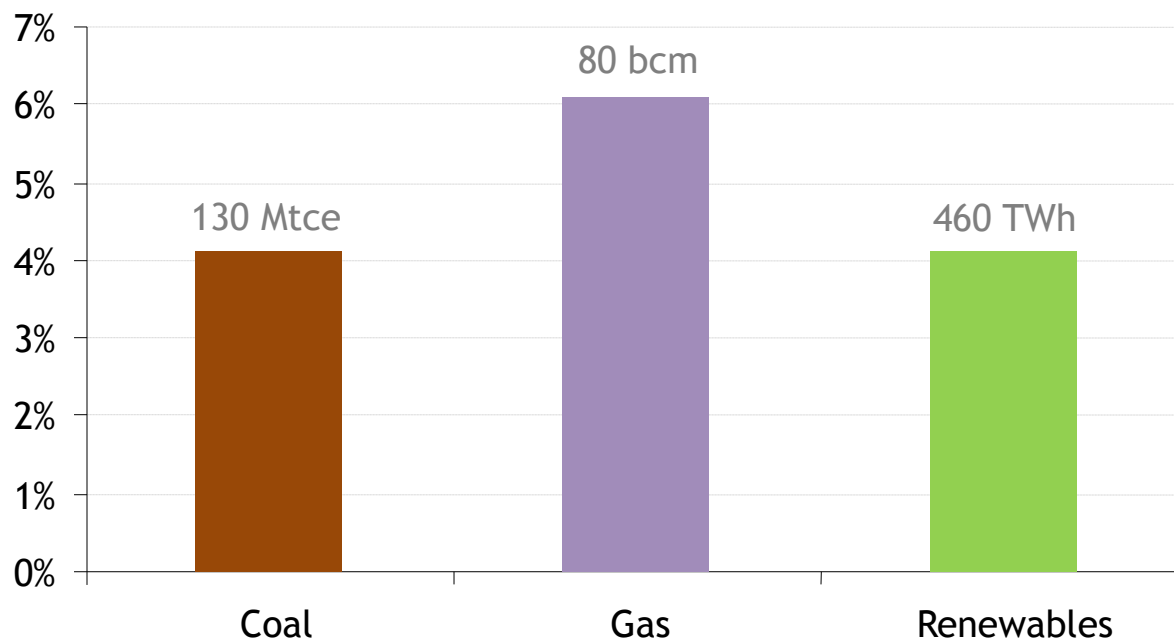
# Lower-Nuclear Case: implications for electricity generation from nuclear



***In the Lower-Nuclear Case, capacity additions are just half the level of the New Policies Scenario of WEO-2010, reducing nuclear's share of generation to 10% in 2035 from 14% today***

# Lower-Nuclear Case: implications for the fuel mix

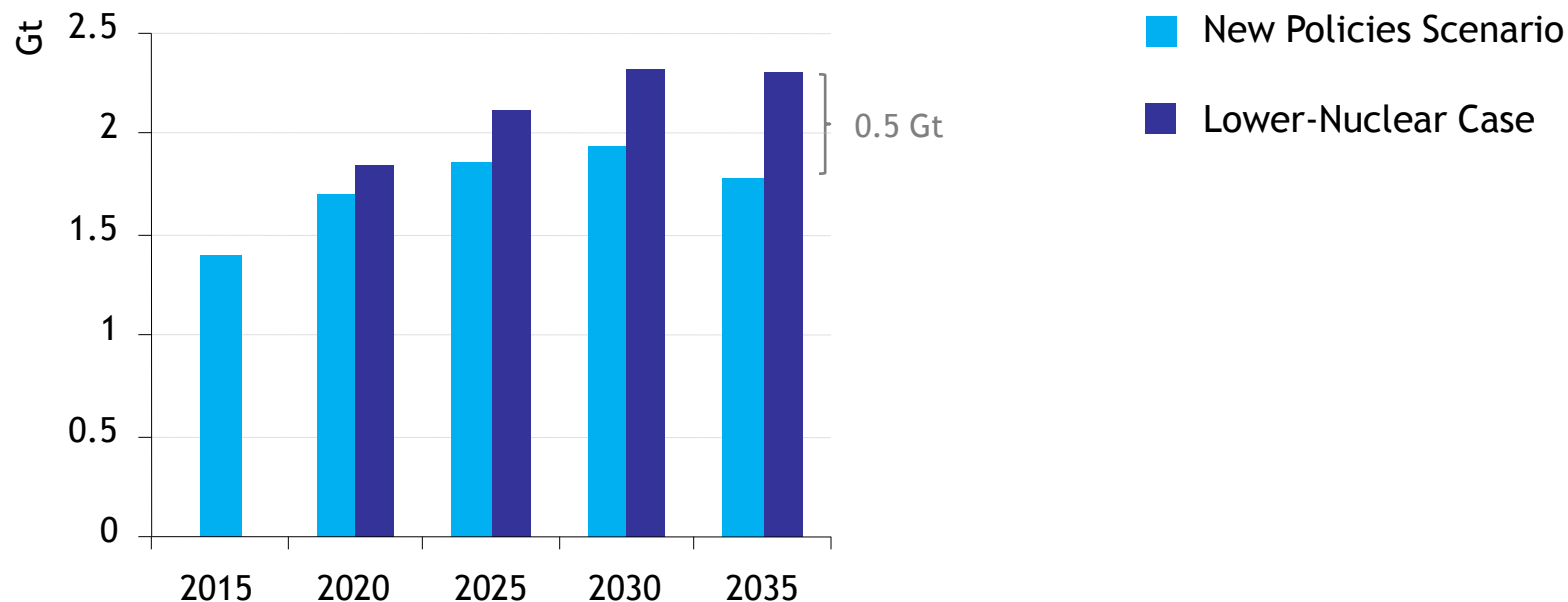
Increase of coal-, gas- and renewables-based electricity generation in 2035 compared with the New Policies Scenario



***The Lower-Nuclear Case would push up demand for coal, natural gas & renewables, and have a corresponding knock-on effect on energy prices***

# Lower-Nuclear Case: implications for CO<sub>2</sub> emissions

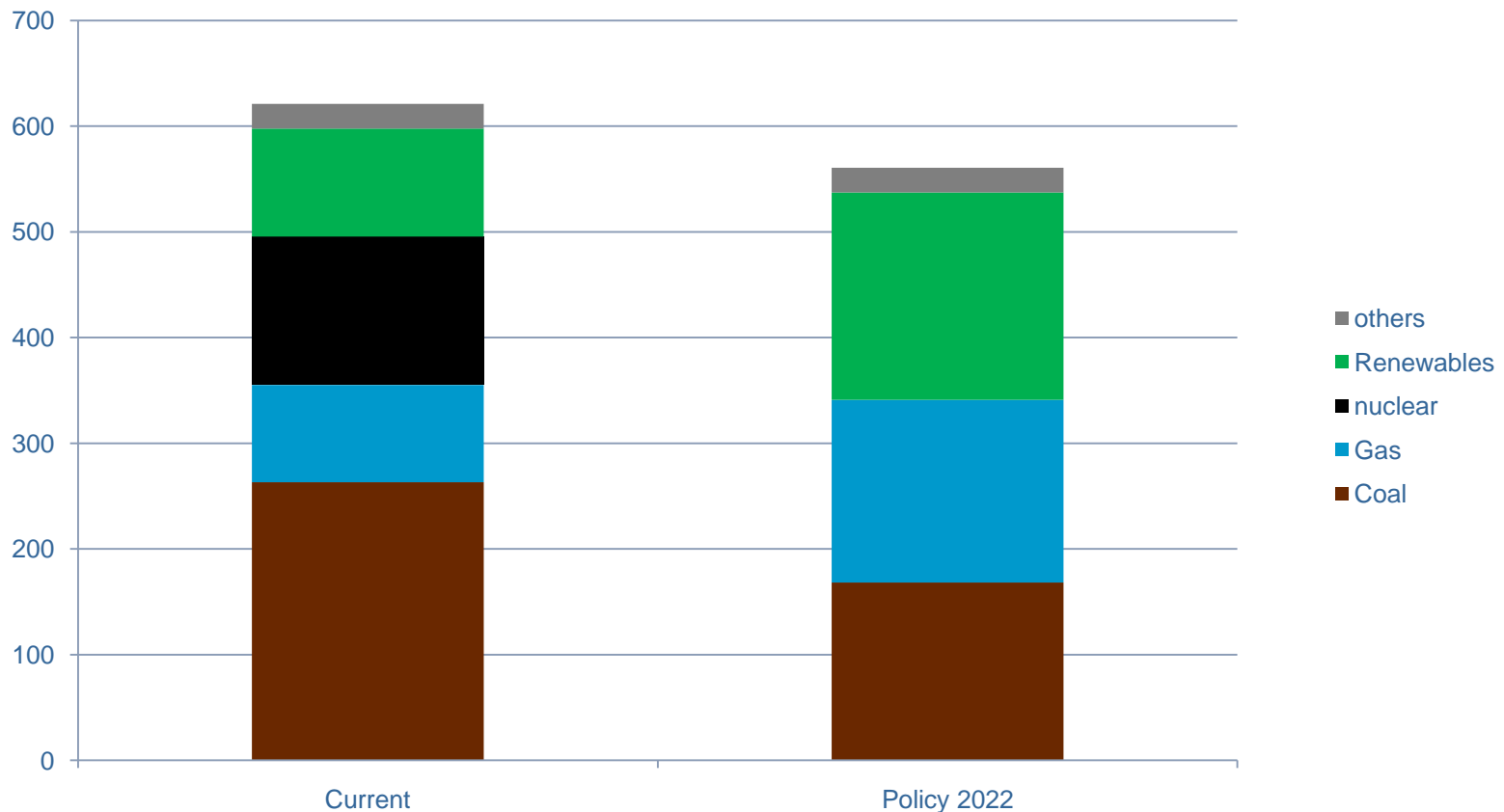
## Growth in CO<sub>2</sub> emissions from power generation compared to current levels



***The growth in emissions from the power sector in 2008-2035 is almost 30% higher in the Lower-Nuclear Case than in the New Policies Scenario***

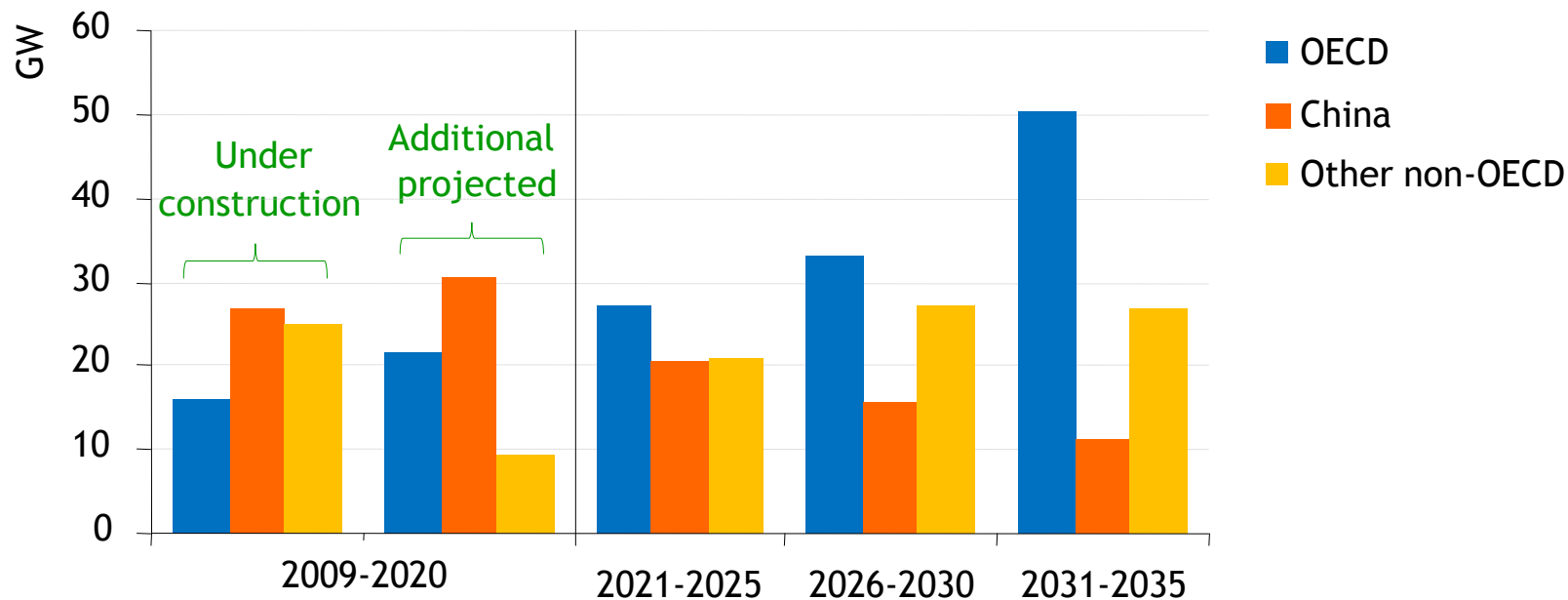
# Gas will be needed to deliver CO<sub>2</sub> reductions

## German electricity mix with 10% demand reduction, no nuclear, 35% renewables and CO<sub>2</sub> at the target level



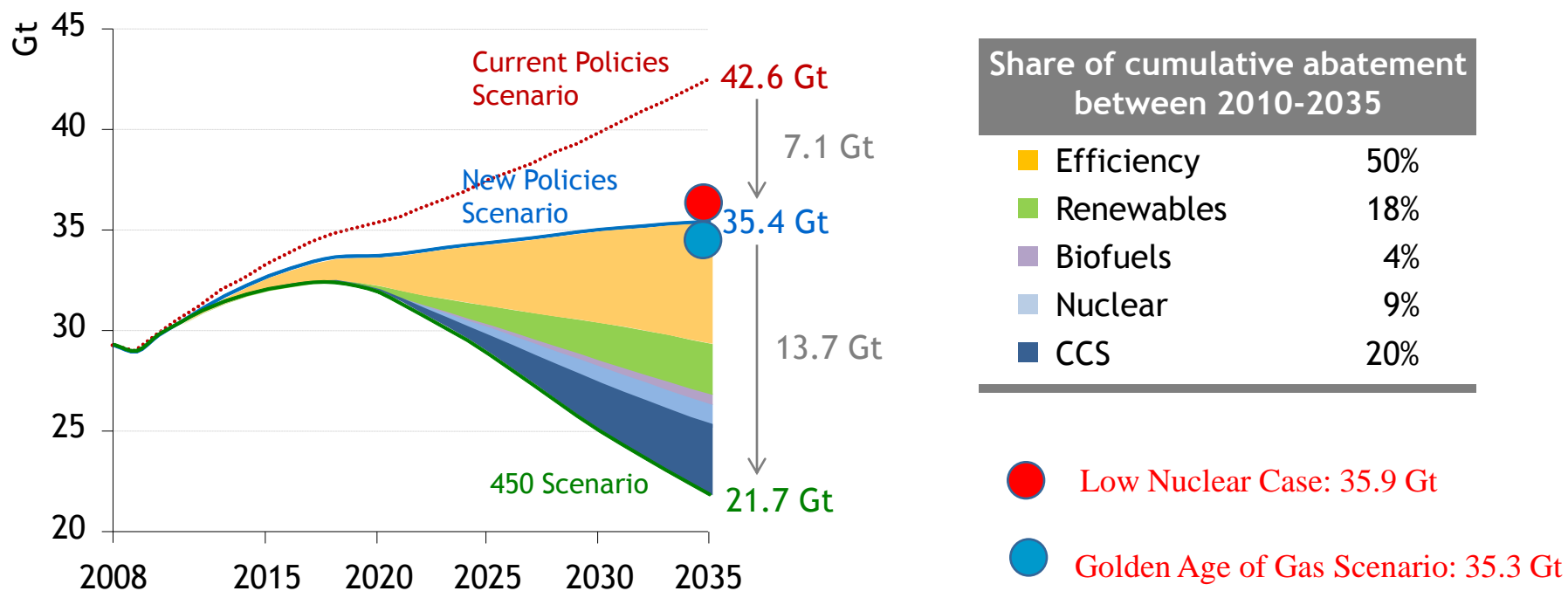
# Most growth in nuclear capacity comes from non-OECD

## Nuclear capacity under construction and additions by region in the New Policies Scenario



# Is the 450 scenario practically impossible?

**World energy-related CO<sub>2</sub> emission savings by technology in the 450 Scenario relative to the New Policies Scenario**



**In moving from the New Policies Scenario to the 450 Scenario, more expensive abatement options such as CCS play a growing role**

# Concluding Points

- In the low-nuclear case, natural gas prices would increase due to stronger demand
  - > Asia & Europe would bear most of the increase in import dependence, with benefits for gas exporters (e.g. Russia)
  - > The “gas glut” would dissipate more quickly than expected
  - > Contribute to a “Golden Age of Gas”
- CO<sub>2</sub> emissions would rise with increased use of fossil fuels
  - Makes 450 Scenario practically impossible to achieve
- Effects are regional – Germany’s decision affects Europe
  - > Policies should be discussed at the European level
- Widening nuclear gap between Europe and non-OECD emerging economies
  - > Few signs of slowed deployment in China, Middle East, Asia