

# The Future of Nuclear Power: An OECD Perspective

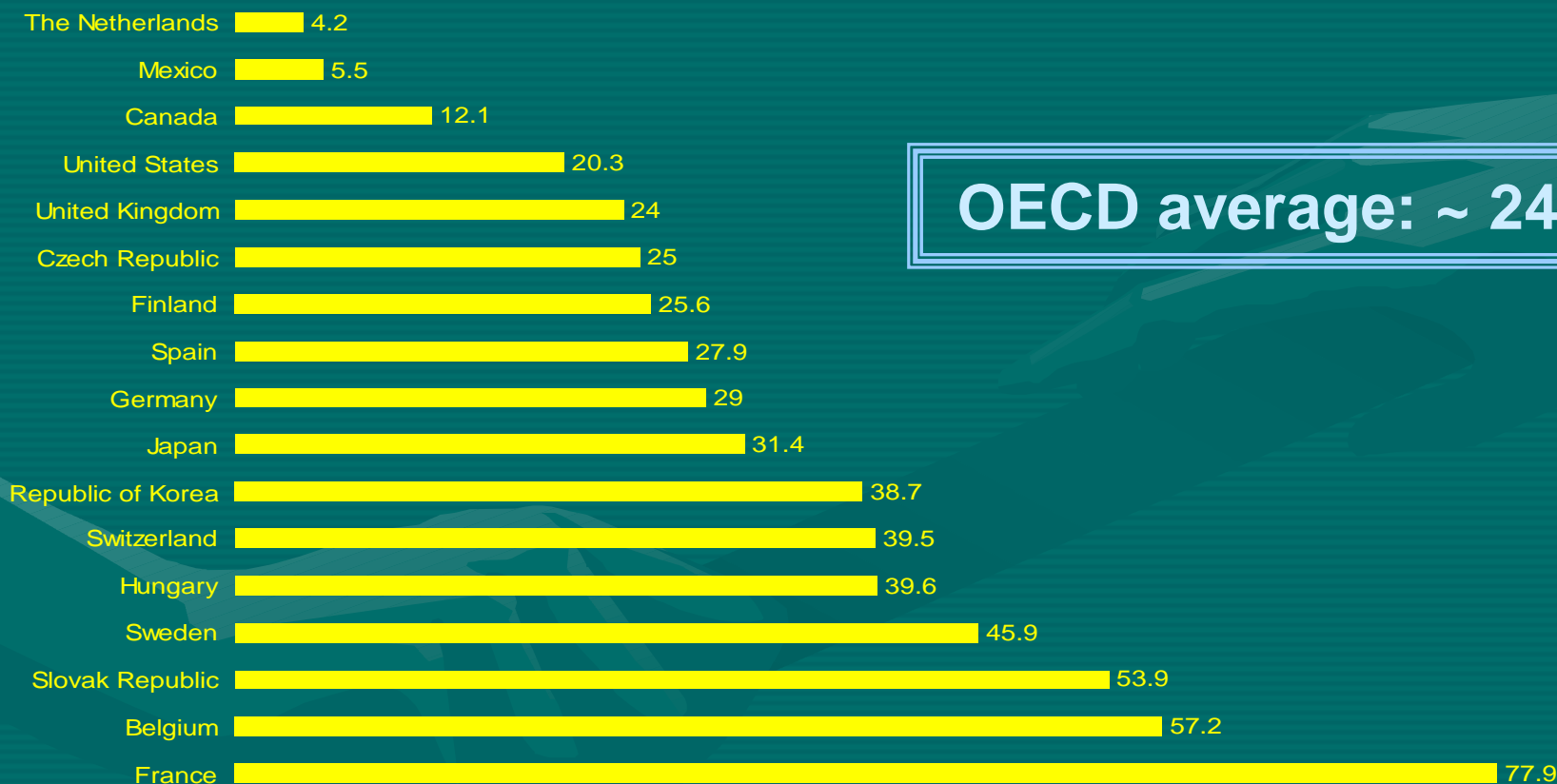
Gail H. Marcus,  
Deputy Director-General,  
OECD Nuclear Energy Agency

International Conference, Bratislava, Slovakia,  
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# Nuclear Energy Today

	OECD Countries	World
Number of Reactors	359	440
Installed Capacity	304 GWe	362 GWe
Share of Electricity Supply	23%	~16%

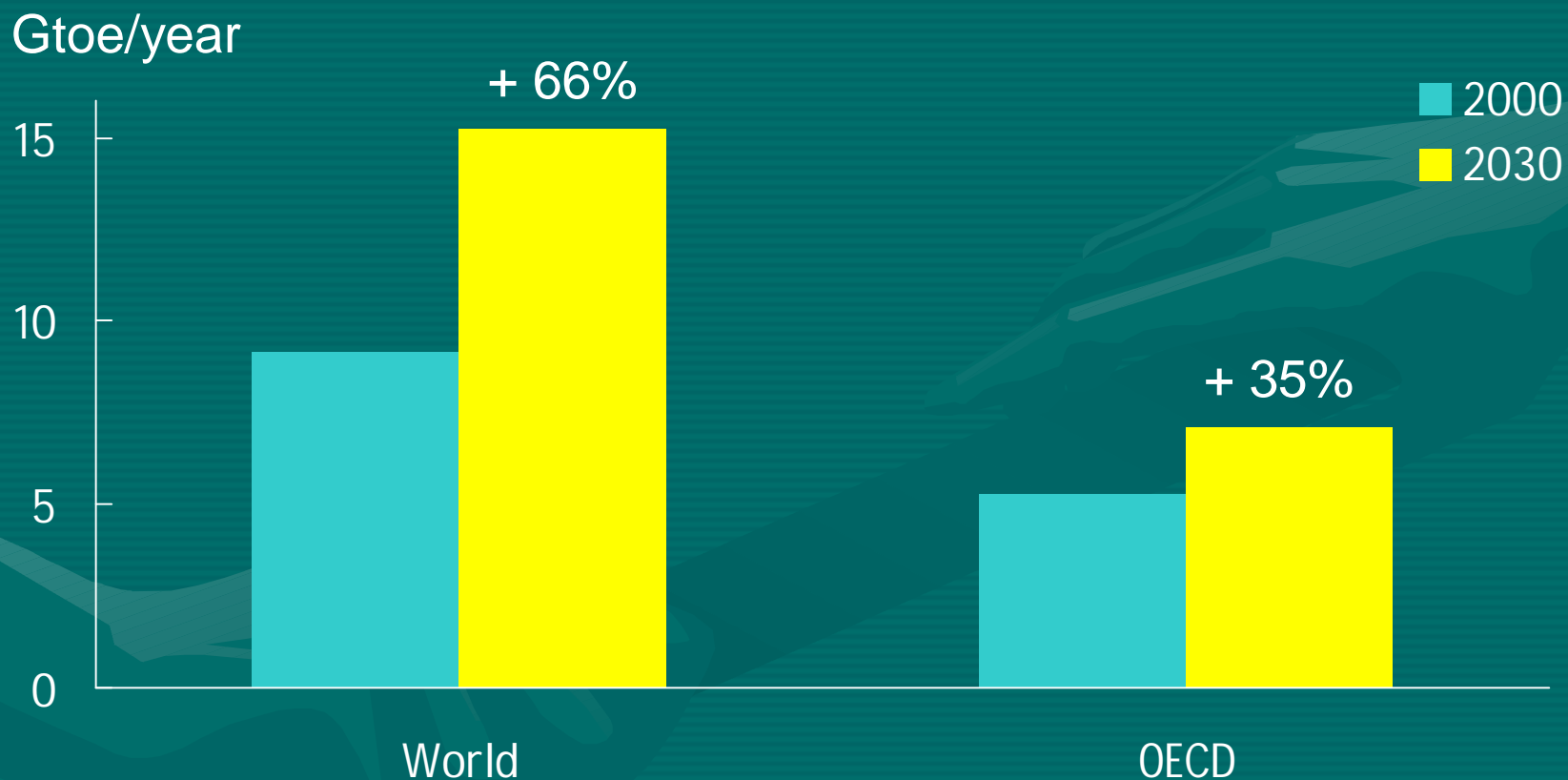
# Nuclear Share in Electricity Generation of OECD Countries in 2002 (%)



# Energy Policy Challenges

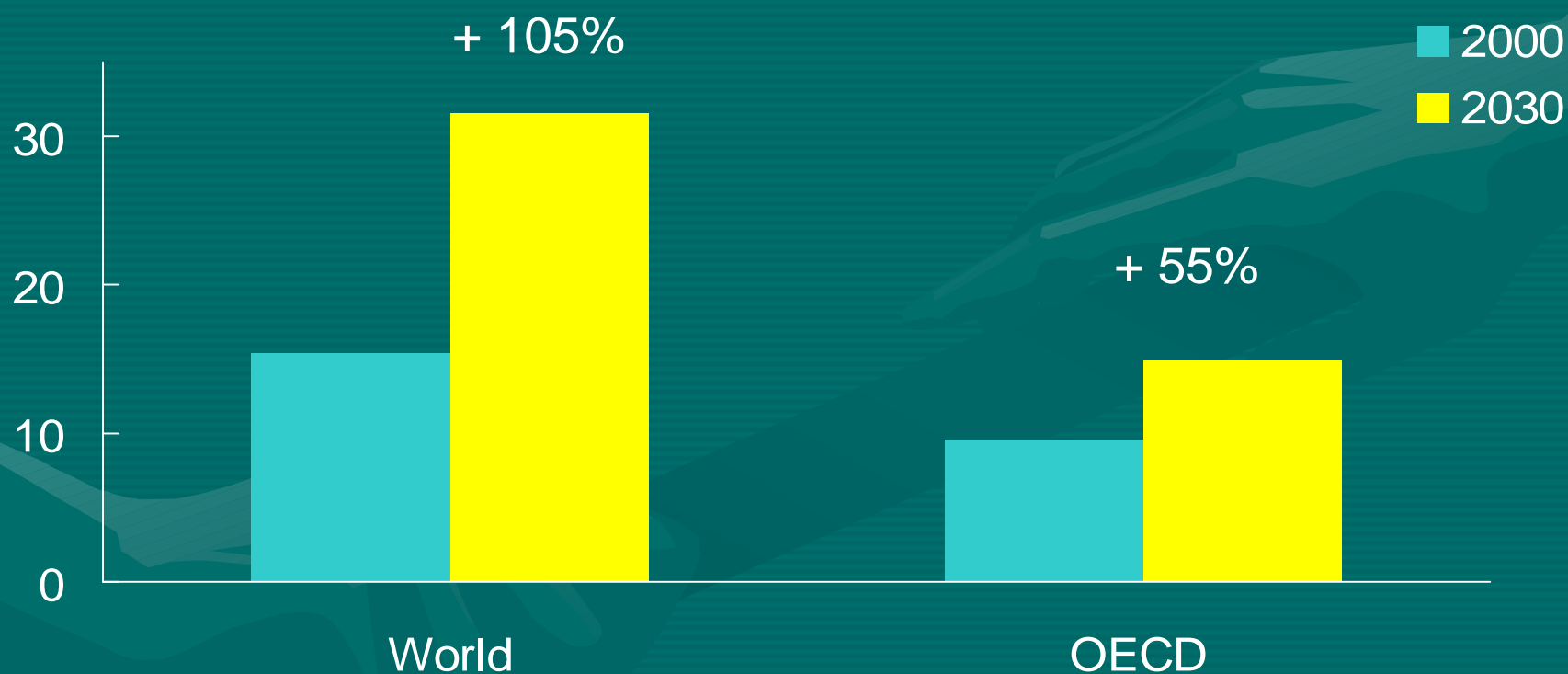
- Adequacy and security of supply
  - Increasing demand
  - Increasing imports
- Environmental protection
  - Local pollution
  - Climate change
- Market competition

# Energy Demand Growth



# Electricity Demand Growth

TWh/year

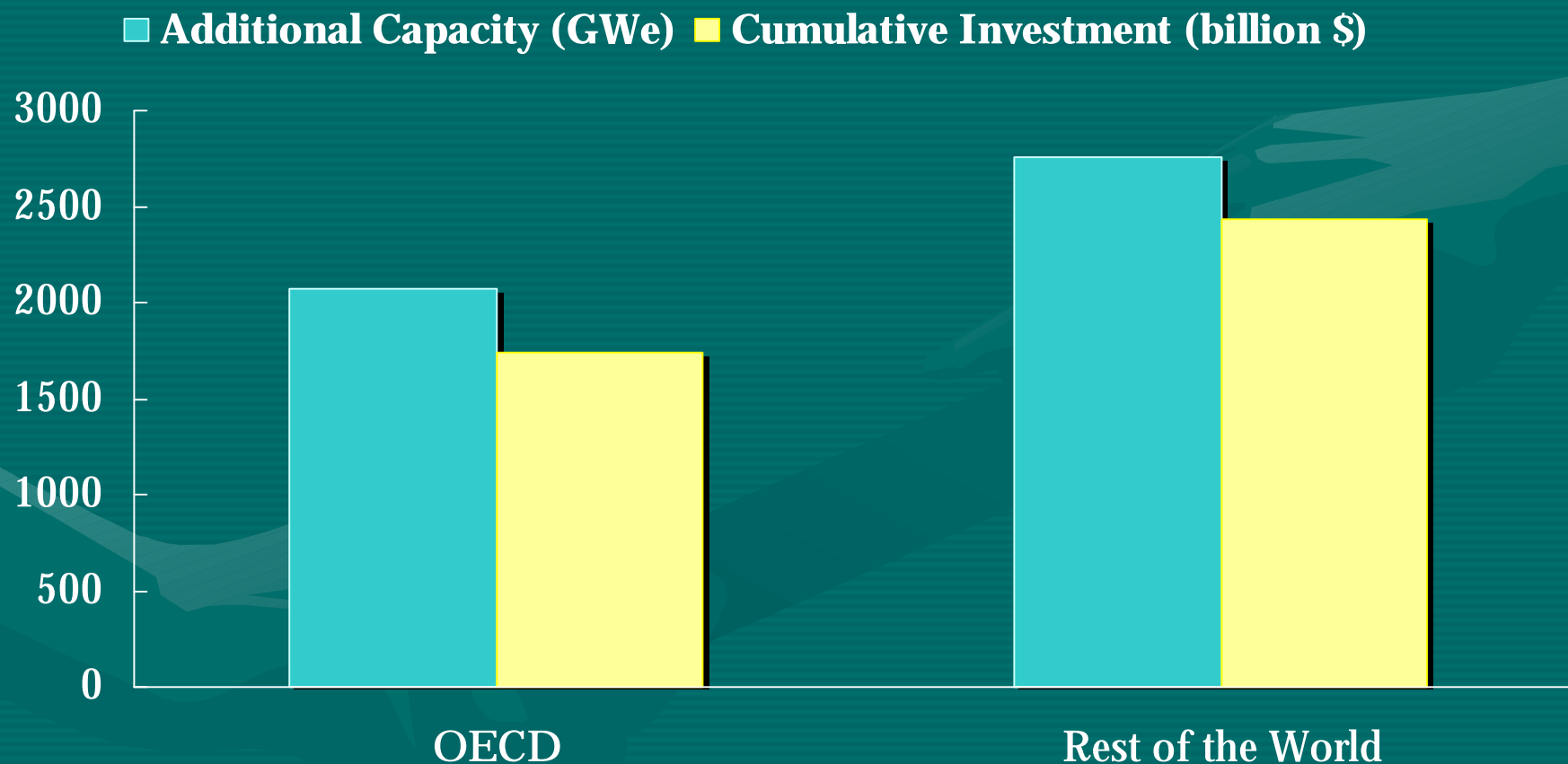


Source: IEA/WEO 2002

# Other Energy Product Demand

- Process and district heating
- Desalinated potable water
- Motive power
  - *Hydrogen*

# New Electricity Generation Capacity 2000-2030

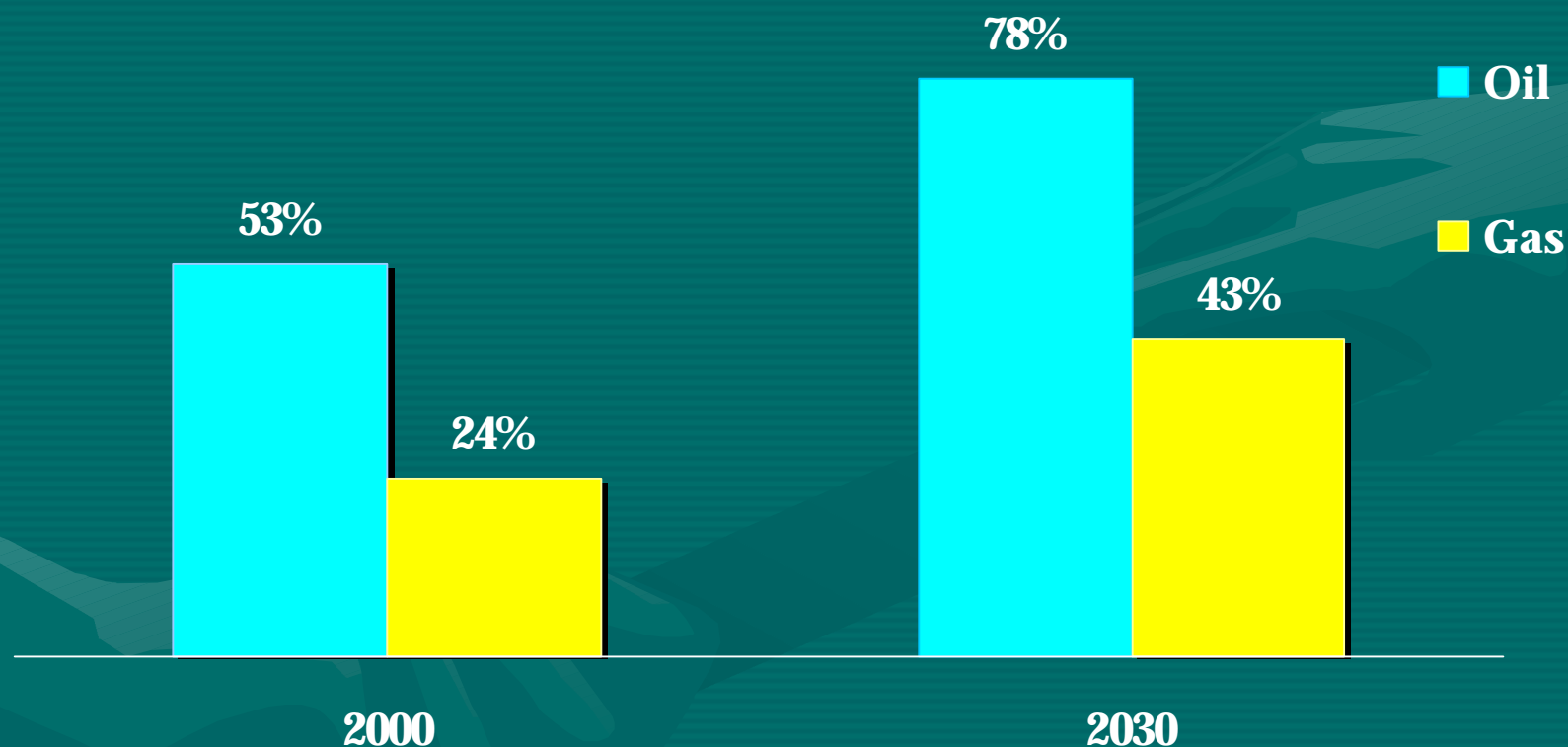


Source: IEA/WEO 2002



# Oil and gas dependence in OECD

[Import/Consumption in %]



# Global Climate Change Threat

- Greenhouse gas emissions are growing
- Energy consumption is a major cause of GHG emissions
- Concentration of GHG in the atmosphere is increasing
- Increased GHG concentration may cause global warming

# Role and Future of Nuclear Energy

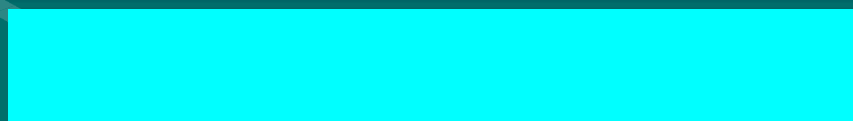
- Strengthen energy security and diversity of supply
- The only large scale carbon-free source
- Can be competitive in deregulated markets when efficiently managed
- Innovative concepts are under development for the future

# Additional CO<sub>2</sub> Emissions 1990-1999 (million tCO<sub>2</sub>/year)

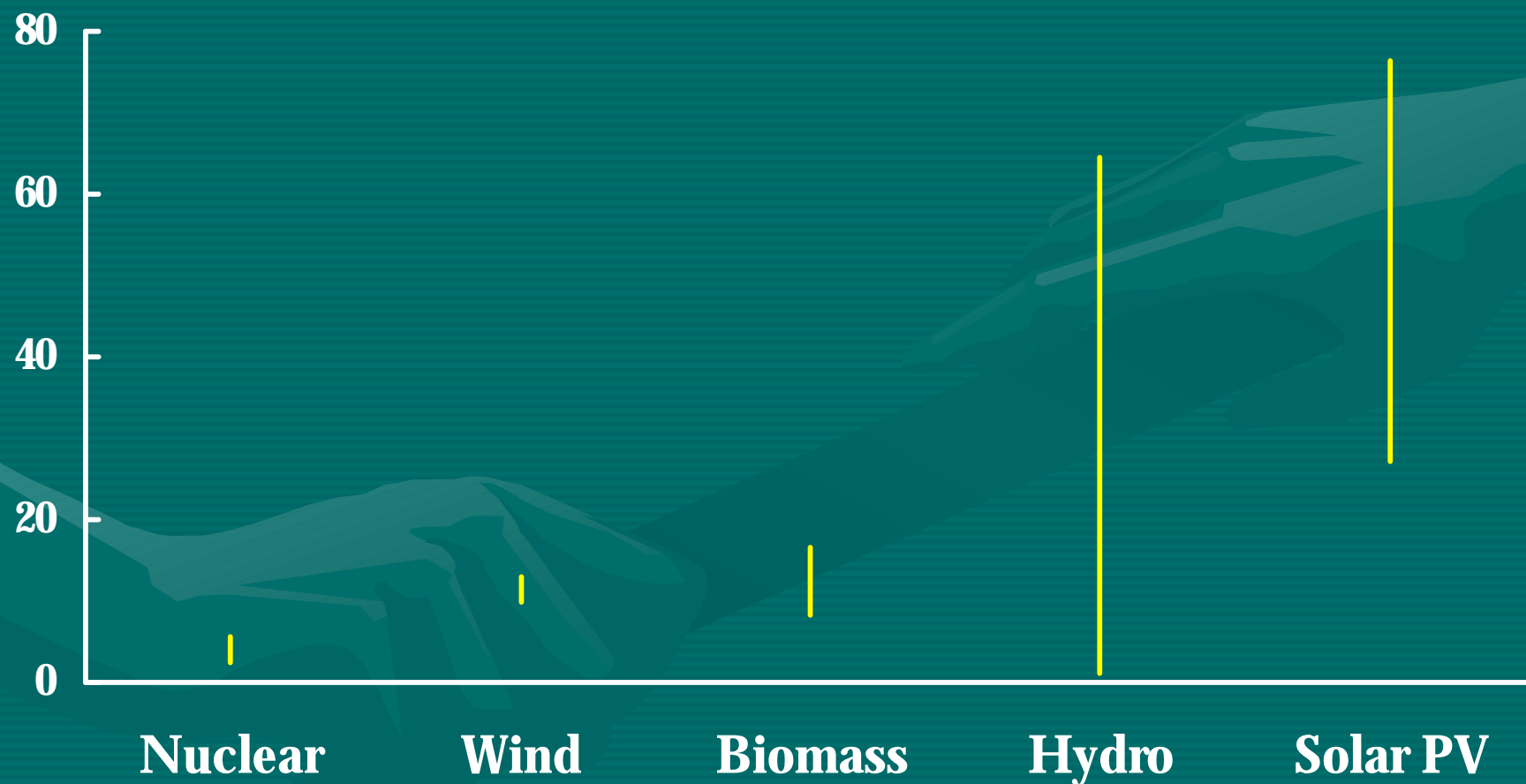
**Without nuclear energy**



**Actual with nuclear energy**



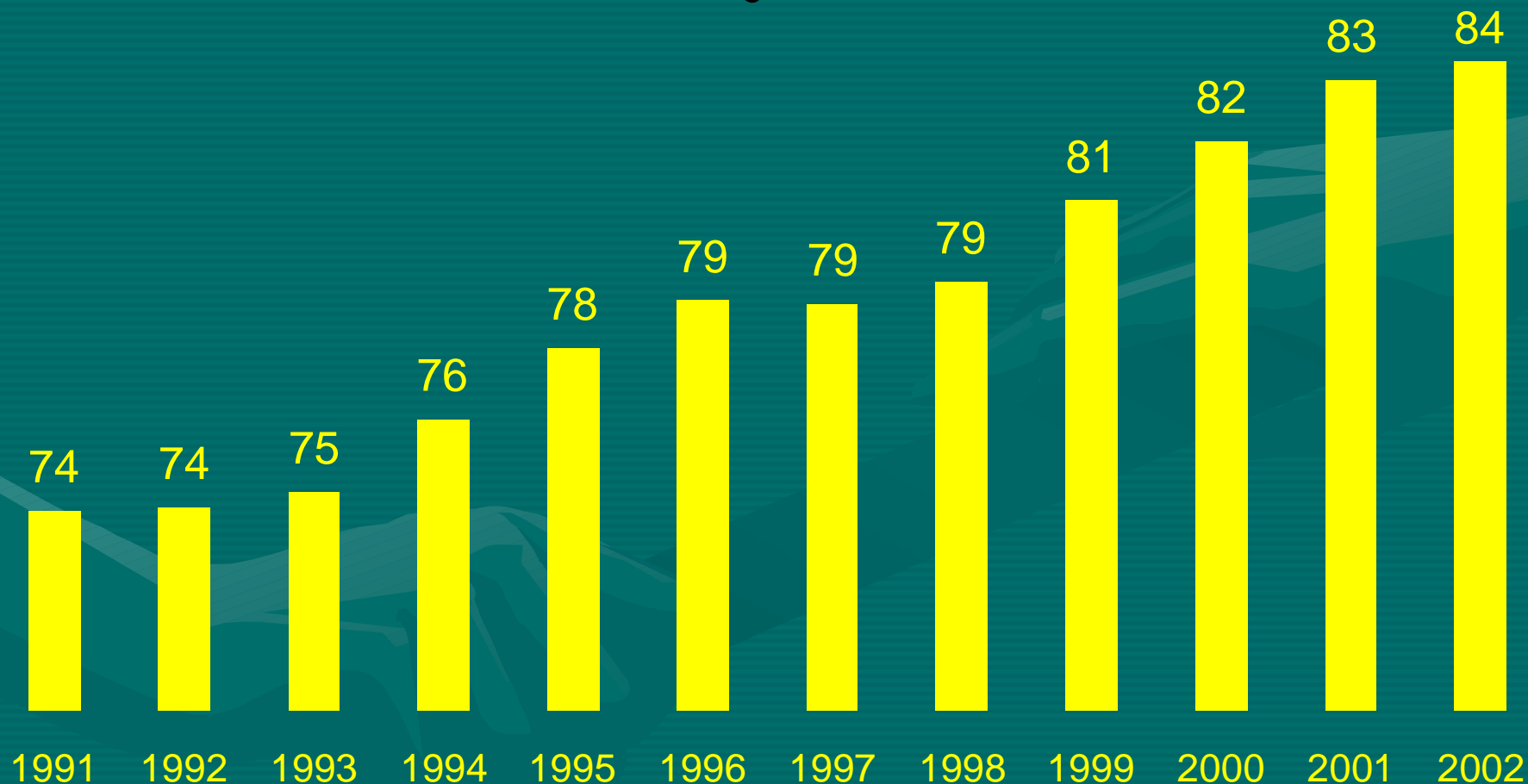
# Range of GHG emissions from electricity generation (gC/kWh)



# Market deregulation

- Existing nuclear power plants are competitive in deregulated markets
- Technical, safety and economic performance of nuclear units have improved with market competition
- Deregulated markets are not favorable to investments in any new baseload power production capacity

# World Average Nuclear Power Plant Availability Factor (%)



# Nuclear Energy Challenges

- Economic competitiveness, particularly in deregulated environments
- Need to satisfy public concerns about safety
- Need to address waste disposal
- Need to assure proliferation resistance

**These challenges can be met through a variety of technical developments and institutional mechanisms.**



# OECD Role in Nuclear Energy

- Assist member countries who have or choose to implement nuclear programs
- Foster international cooperation and information exchange on a broad range of technical and institutional issues
- Facilitate collaborative R+D on current reactor issues and advanced technologies to address challenges
- Provide assessments useful to government decision makers

# Concluding remarks

- Nuclear energy is an important option for the 21<sup>st</sup> century
- Decisions on the use of nuclear technology are up to each country
- OECD's role is to assist member countries who choose nuclear power to enable them to utilize nuclear power safely and efficiently