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WORLD ENERGY OUTLOOK 2020

and

Global Electricity Investment Challenges

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World Energy Outlook Series

- World Energy Outlook 1998
- World Energy Outlook 1999 Insights: *Looking at Energy Subsidies: Getting the Prices Right*
- World Energy Outlook 2000
- World Energy Outlook 2001 Insights: *Assessing Today's Supplies to Fuel Tomorrow's Growth*
- World Energy Outlook 2002 (2nd edition issued)
- World Energy Outlook 2003 Insights: *Global Energy Investment Outlook*

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WEO 2002: Key Strategic Challenges

- security of energy supplies
- investment in energy infrastructure
- threat of environmental damage caused by energy use
- uneven access of the world's population to modern energy.

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Global Trends

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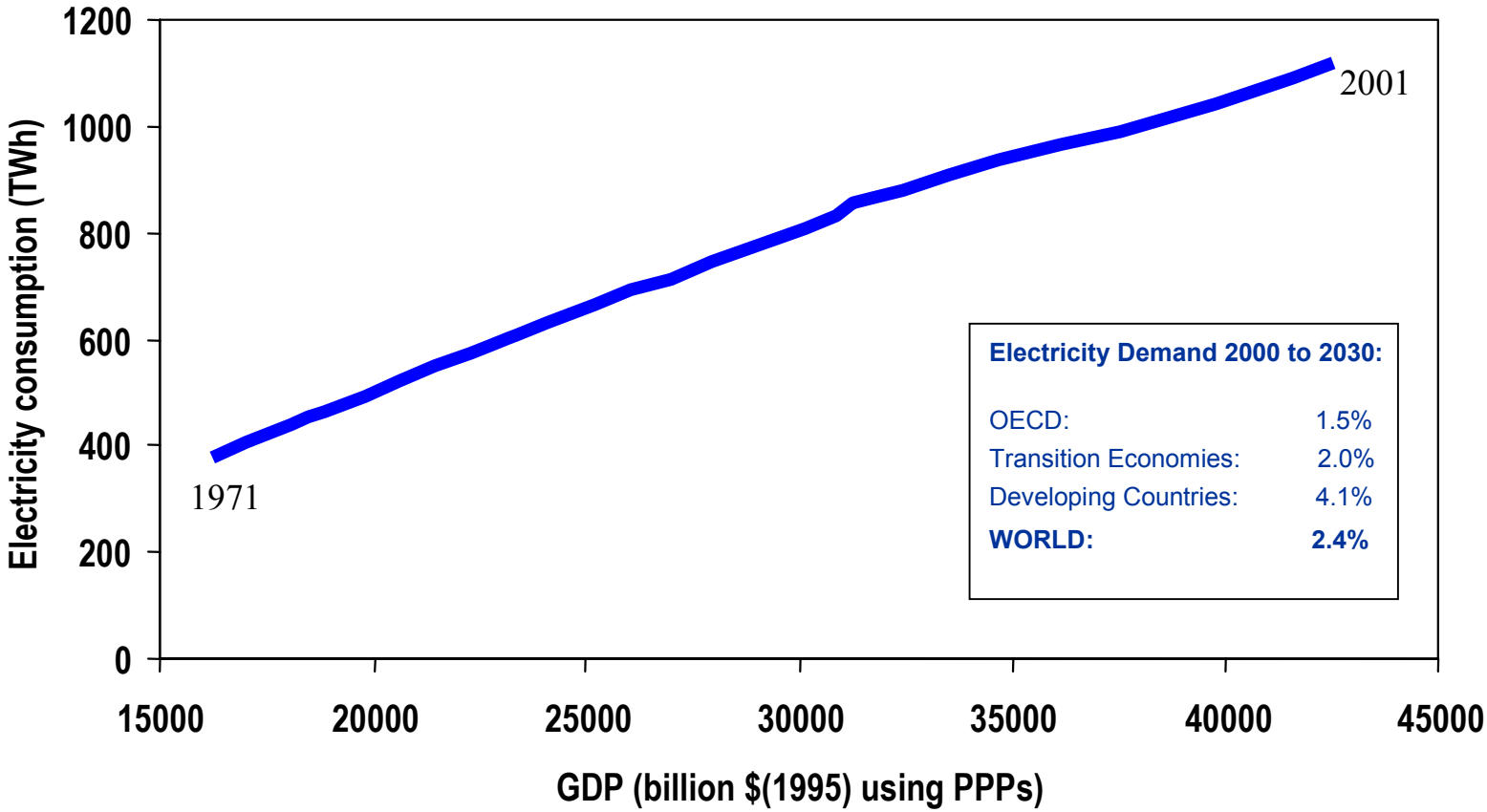
World Electricity Consumption vs. GDP 1971-2000



World electricity demand is set to increase rapidly

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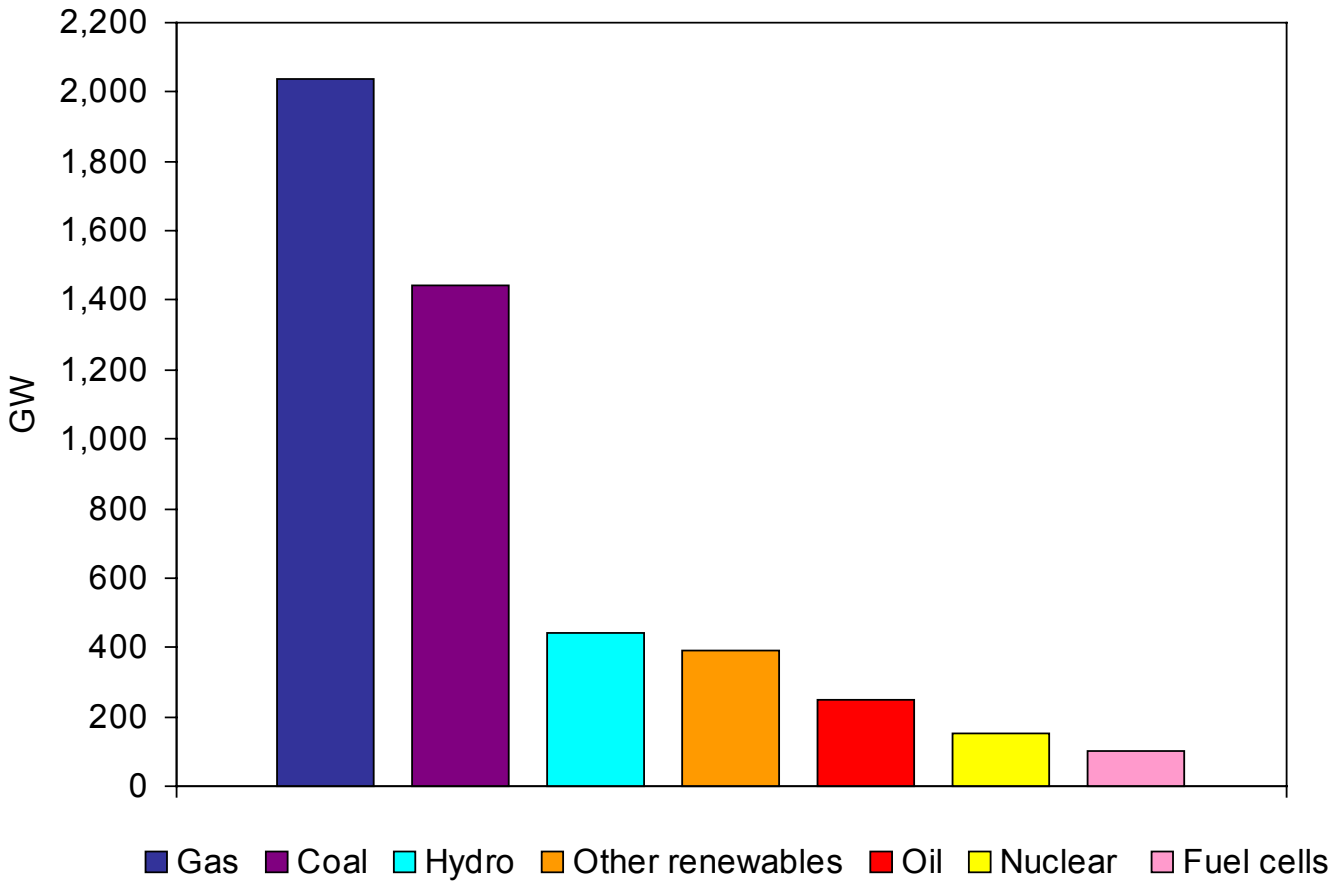
World Power-Generation Capacity Additions, 2000-2030



More than 40% of new capacity worldwide is gas-fired

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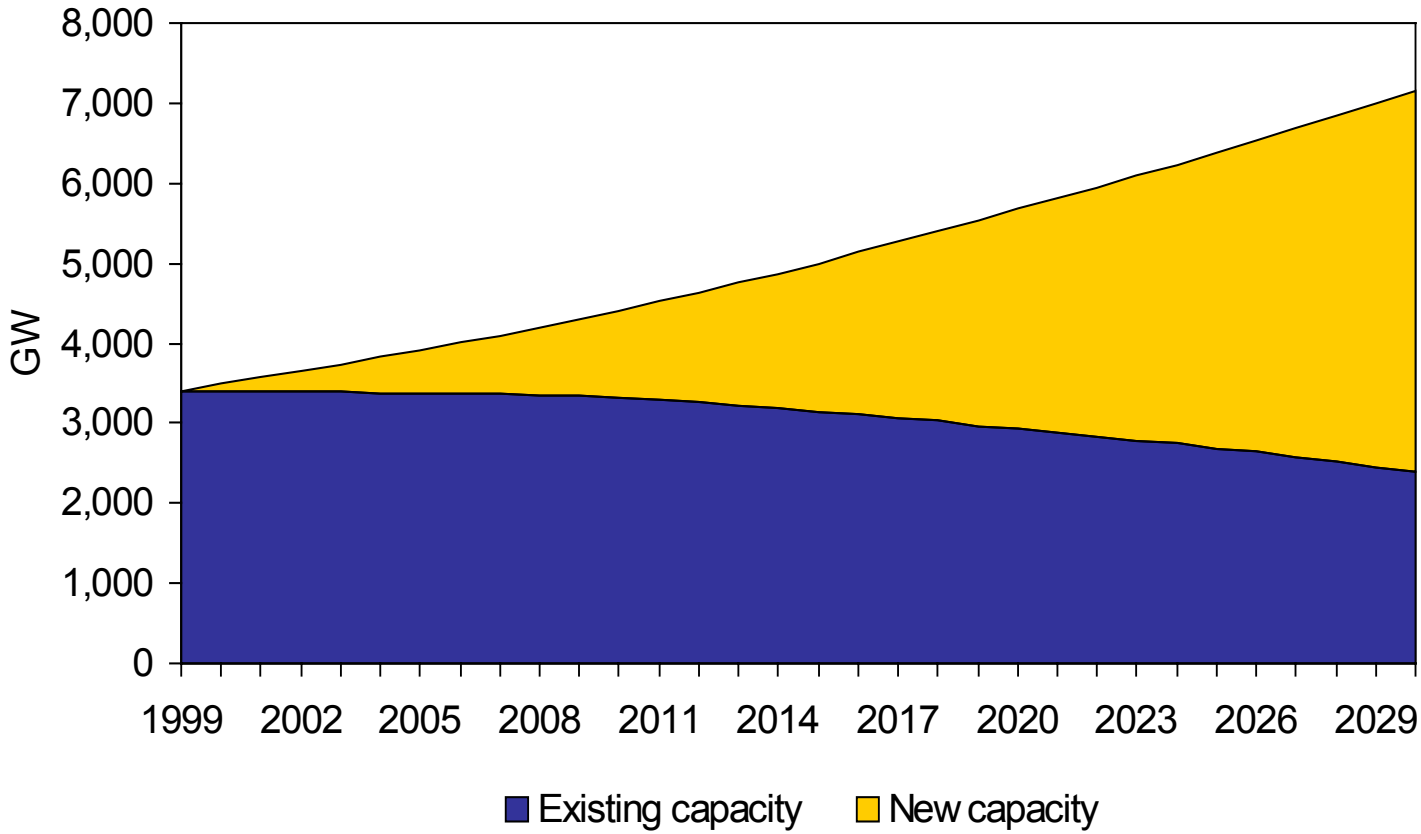
World Installed Power-Generation Capacity



Nearly 5,000 GW of capacity is built in 2000-2030, almost half in developing countries

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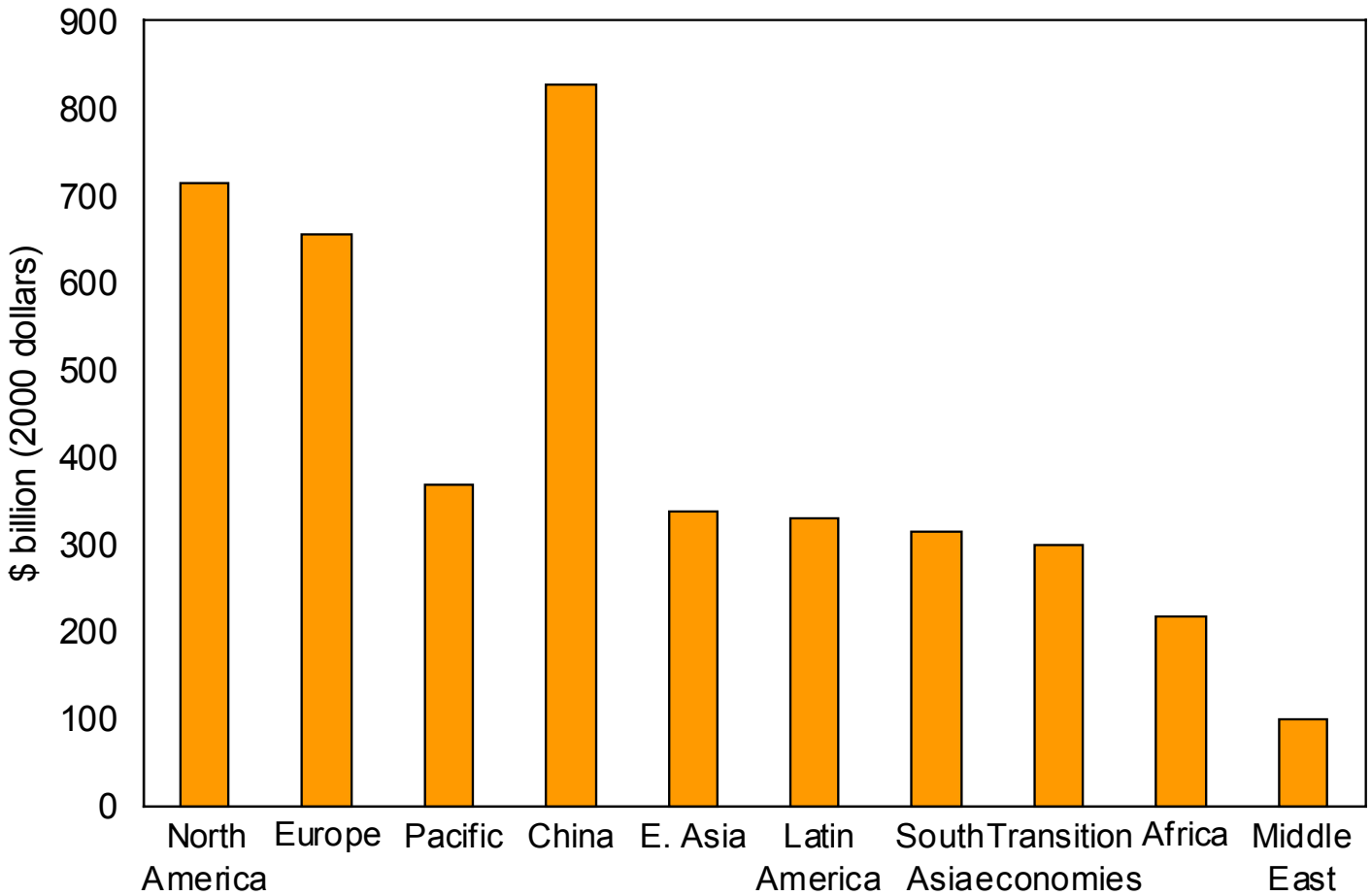
World Power-Generation Investment, 2000-2030



Cumulative worldwide investment in new power plants amounts to $ 4.2 trillion, more than half in developing countries

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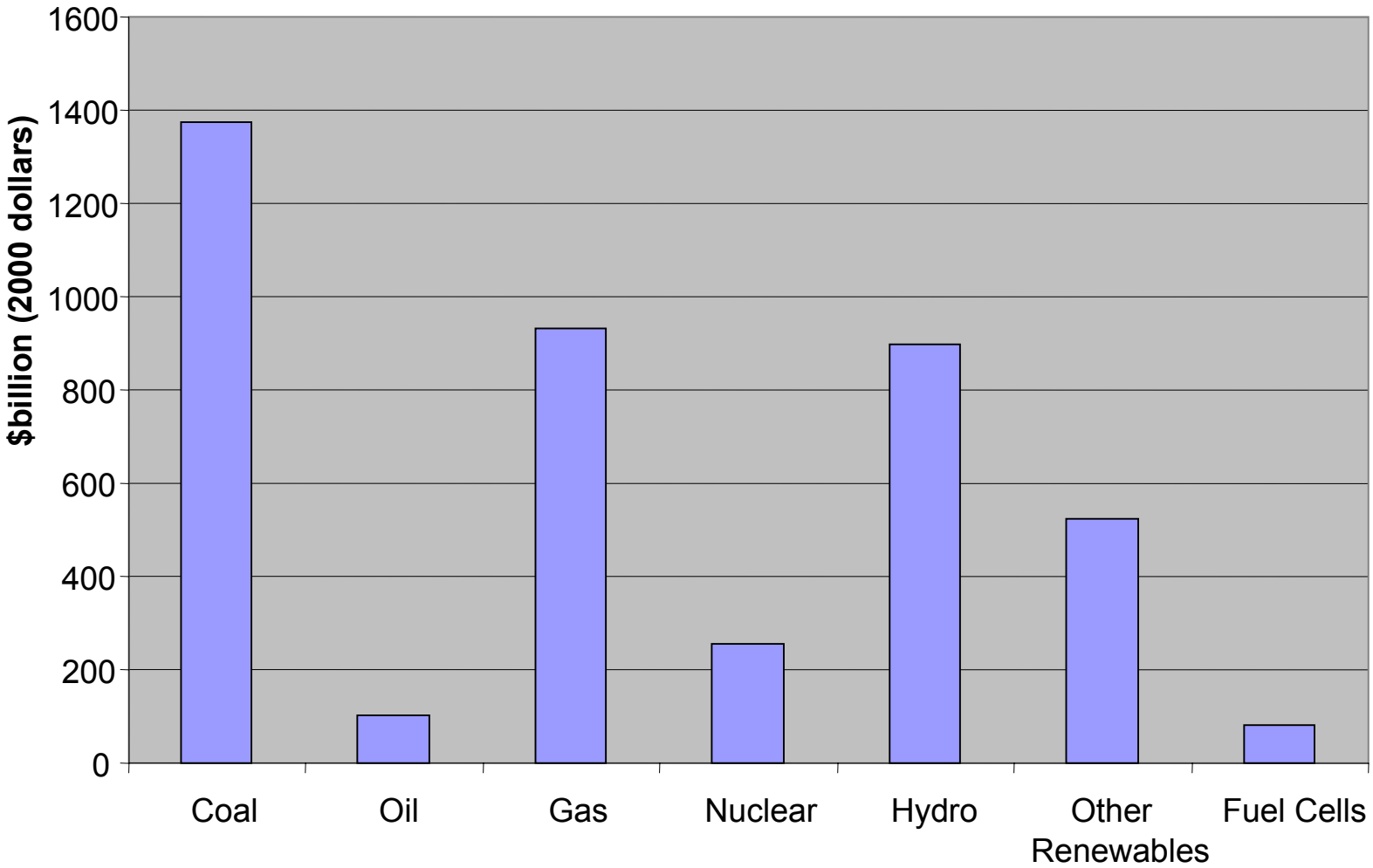
World Power Generation Capacity Investments 2000-2030



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OECD

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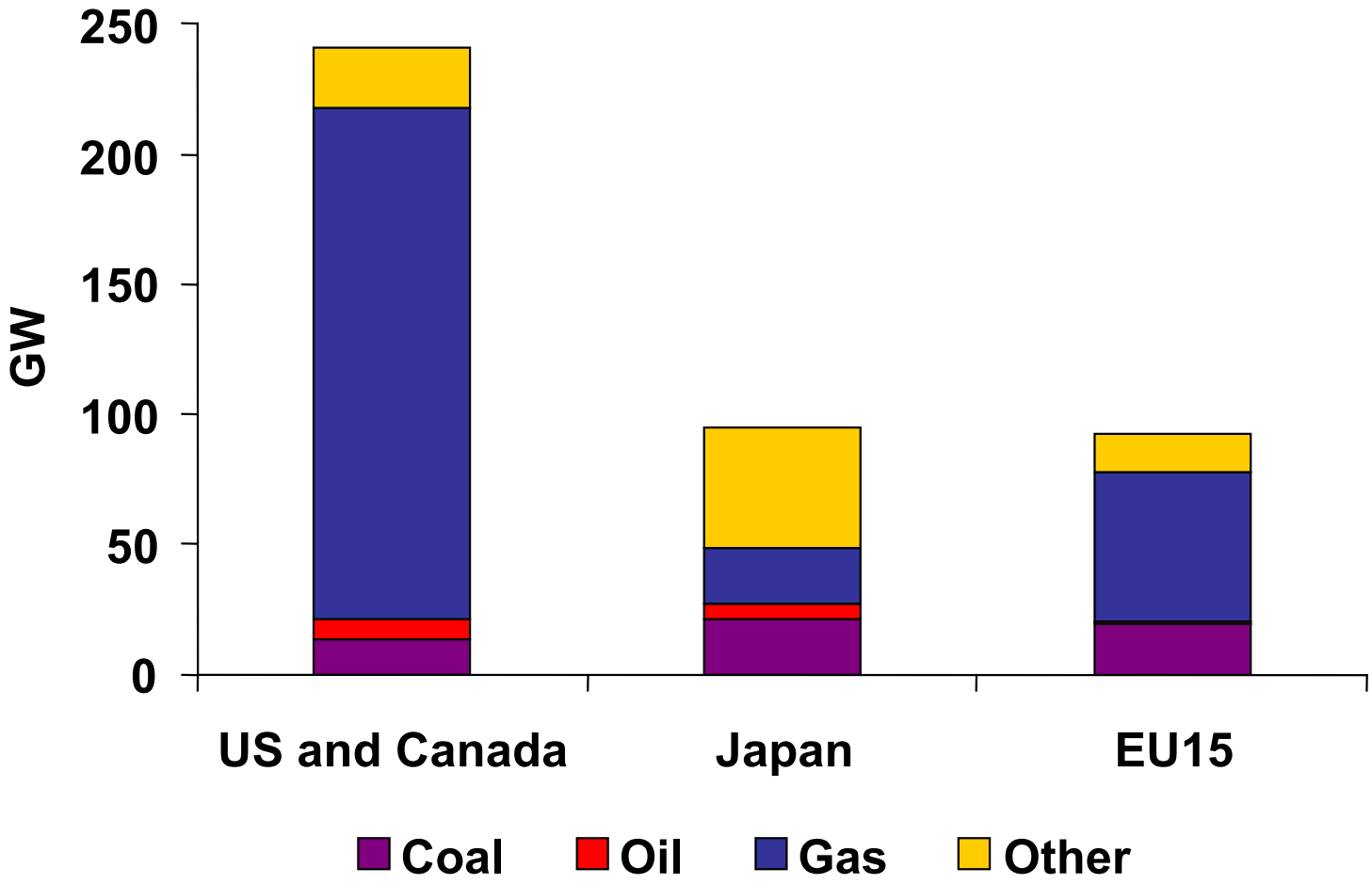
Ordered Power-Generation Capacity Additions to 2010



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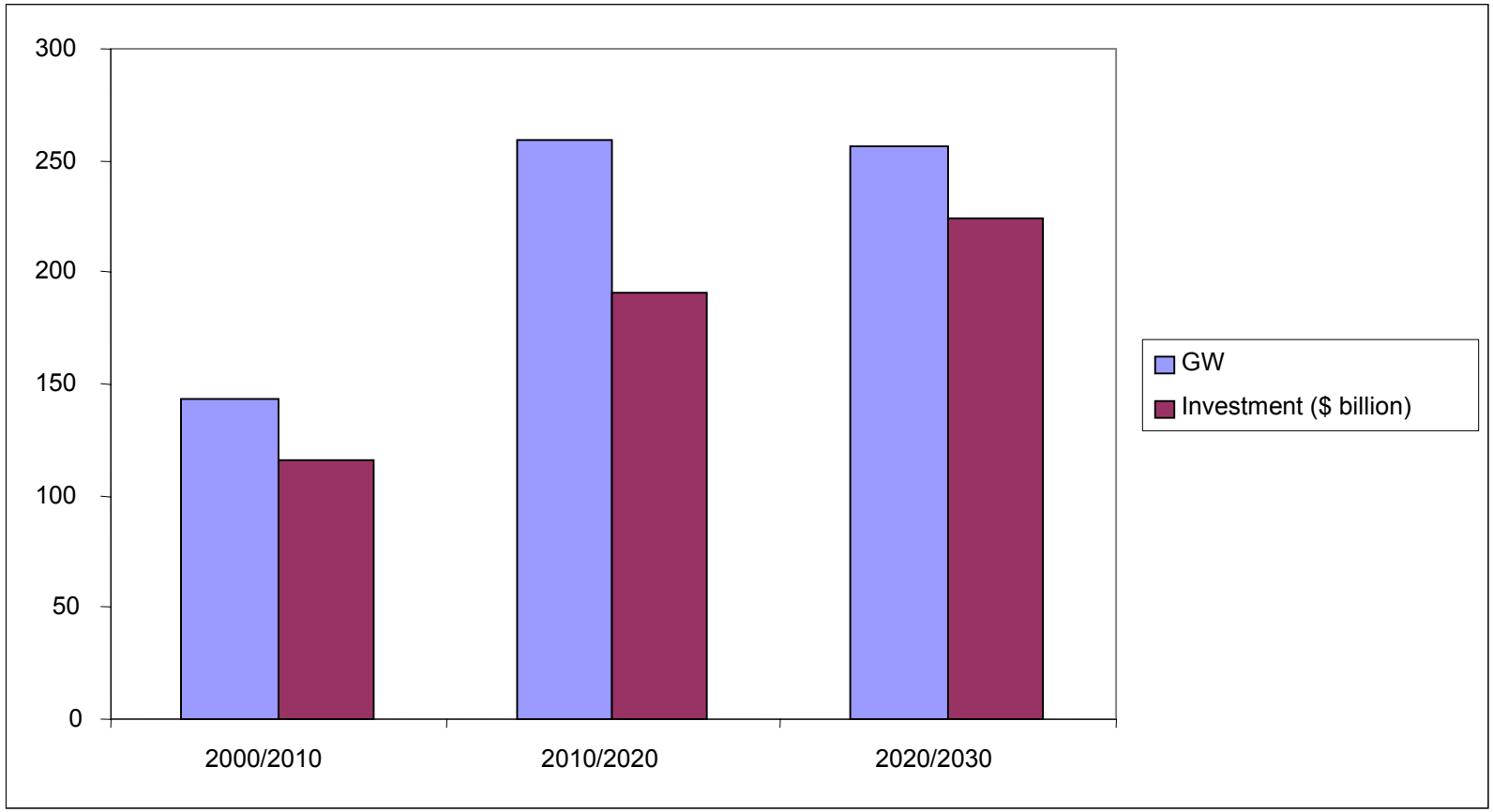
EU Capacity Additions and Investment



EU investment needs will increase over time in both GW and $ terms

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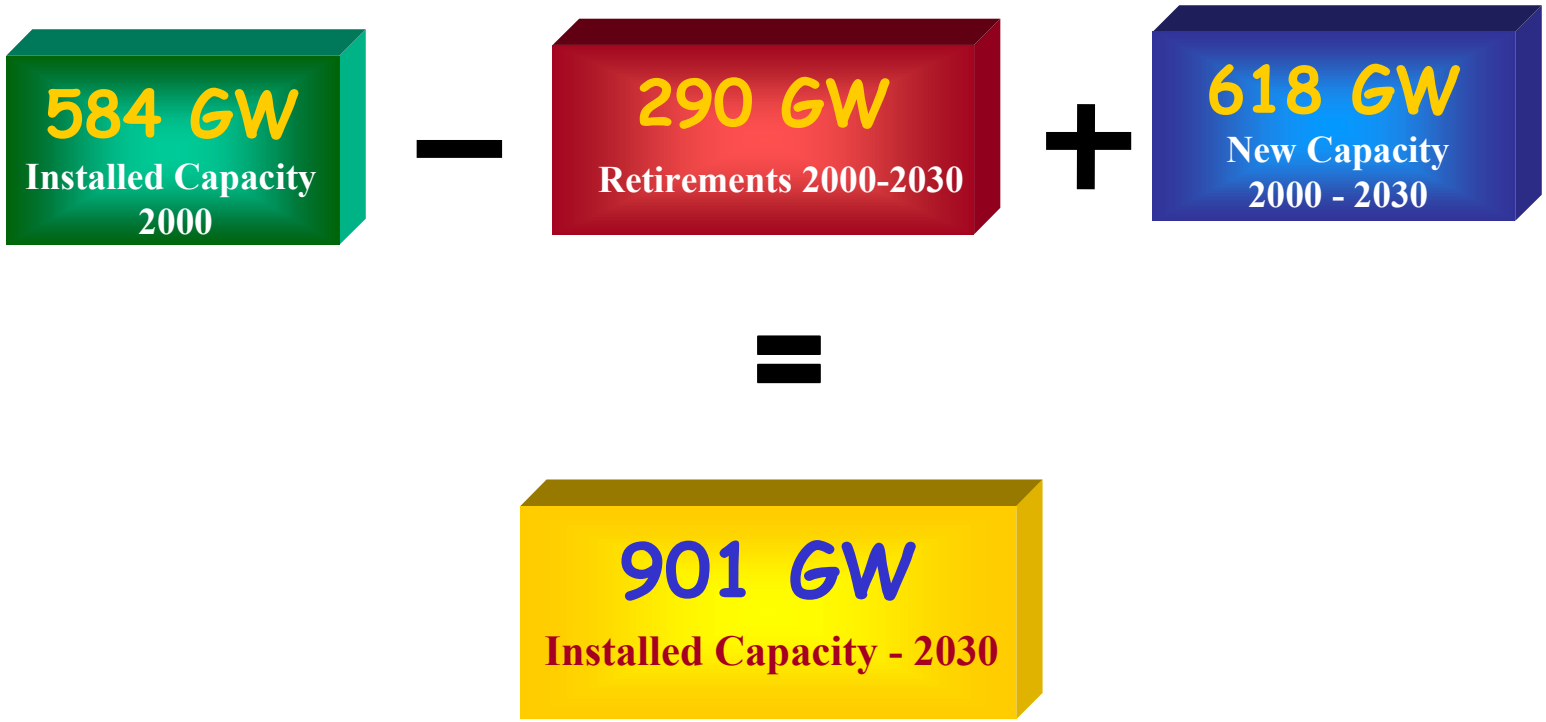
Installed Capacity in EU-15



Capacity additions over the next 30 years will be larger than today's installed capacity

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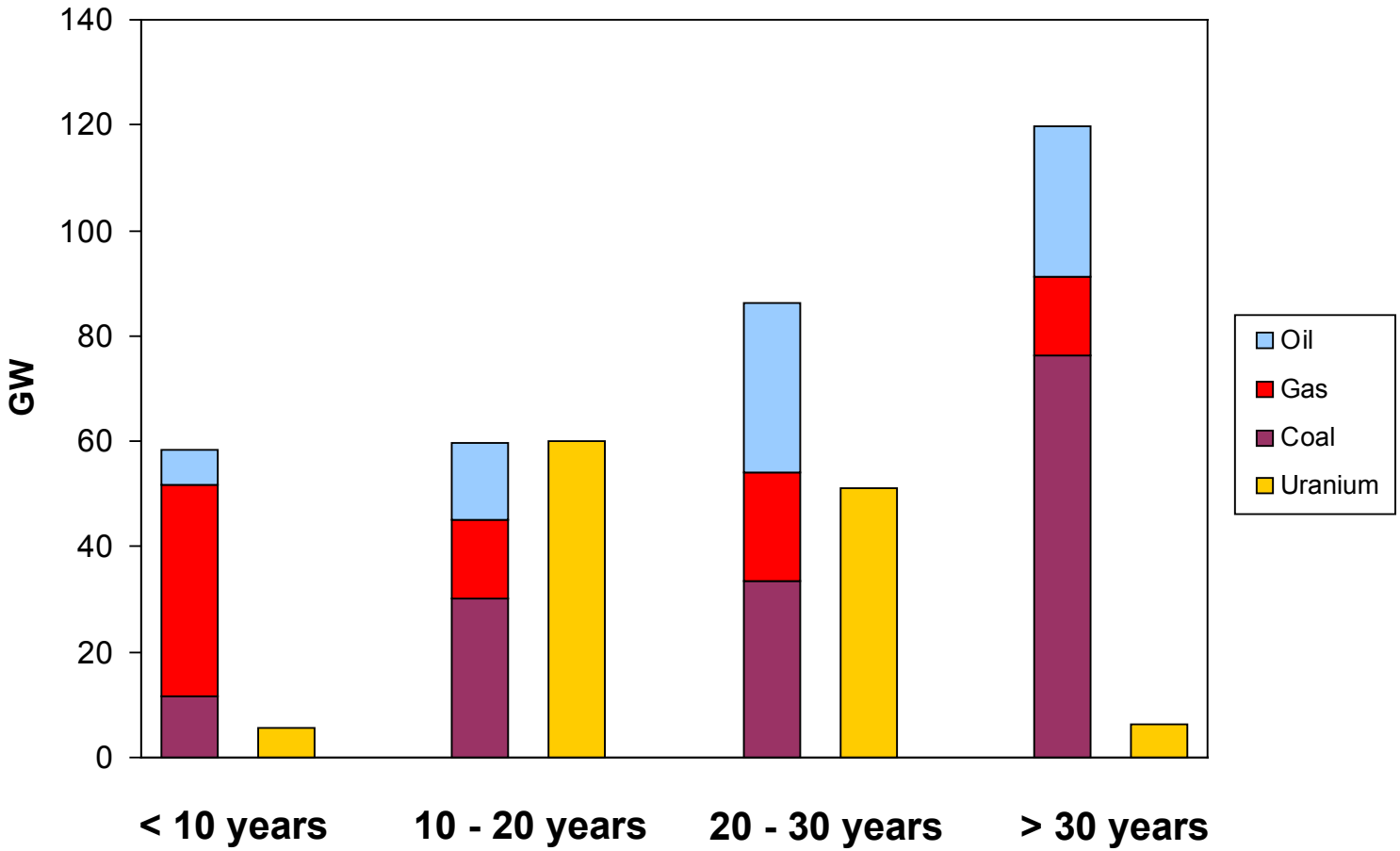
Age of Installed Capacity in EU-15



Europe's power plants are ageing: half current capacity - mostly coal-fired - could be retired by 2030

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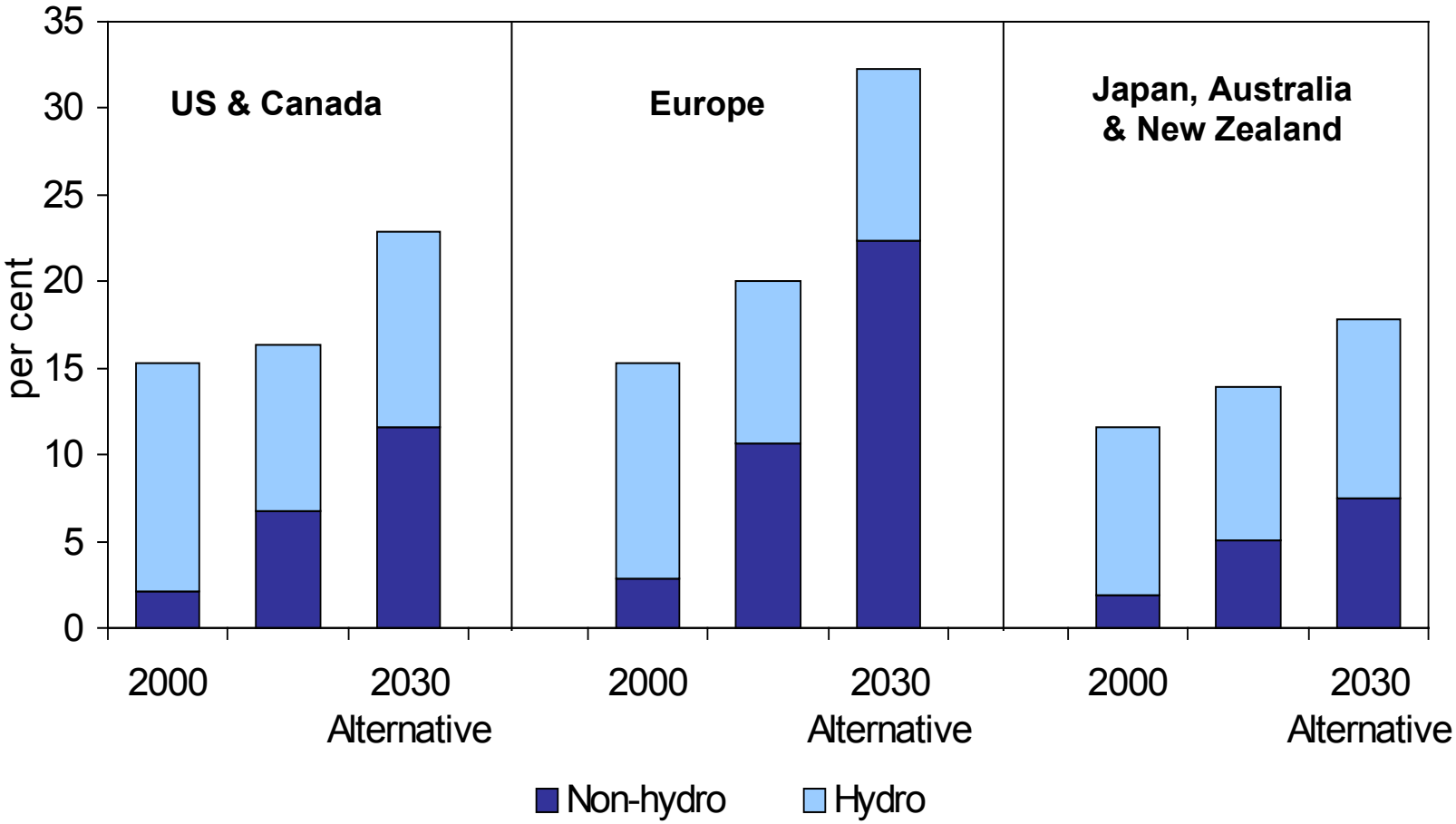
Share of Renewables in Electricity Generation



The role of non-hydro renewables is much greater in all OECD regions, especially Europe

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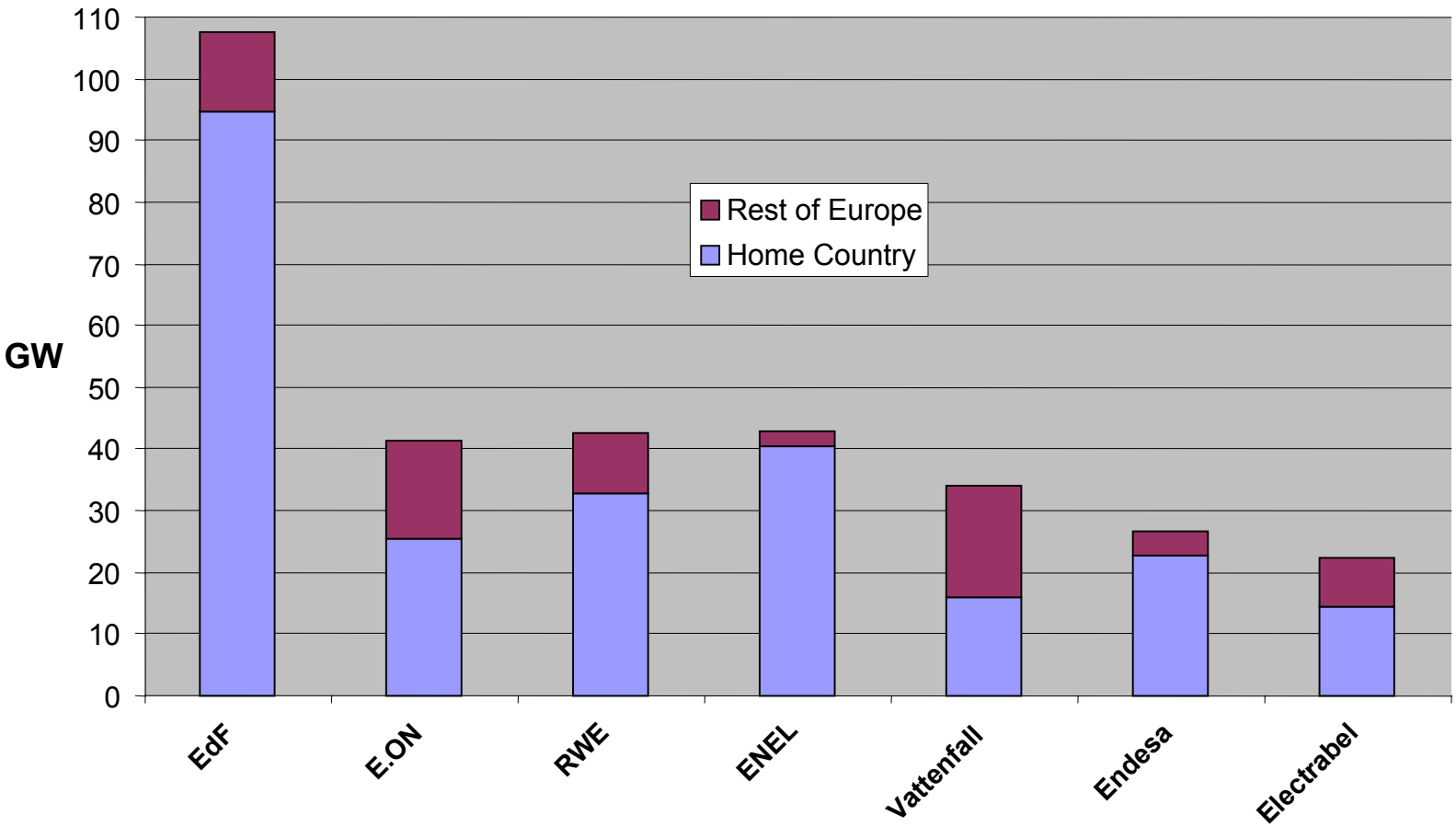
Capacity in EU 7 Major Utilities (2002)



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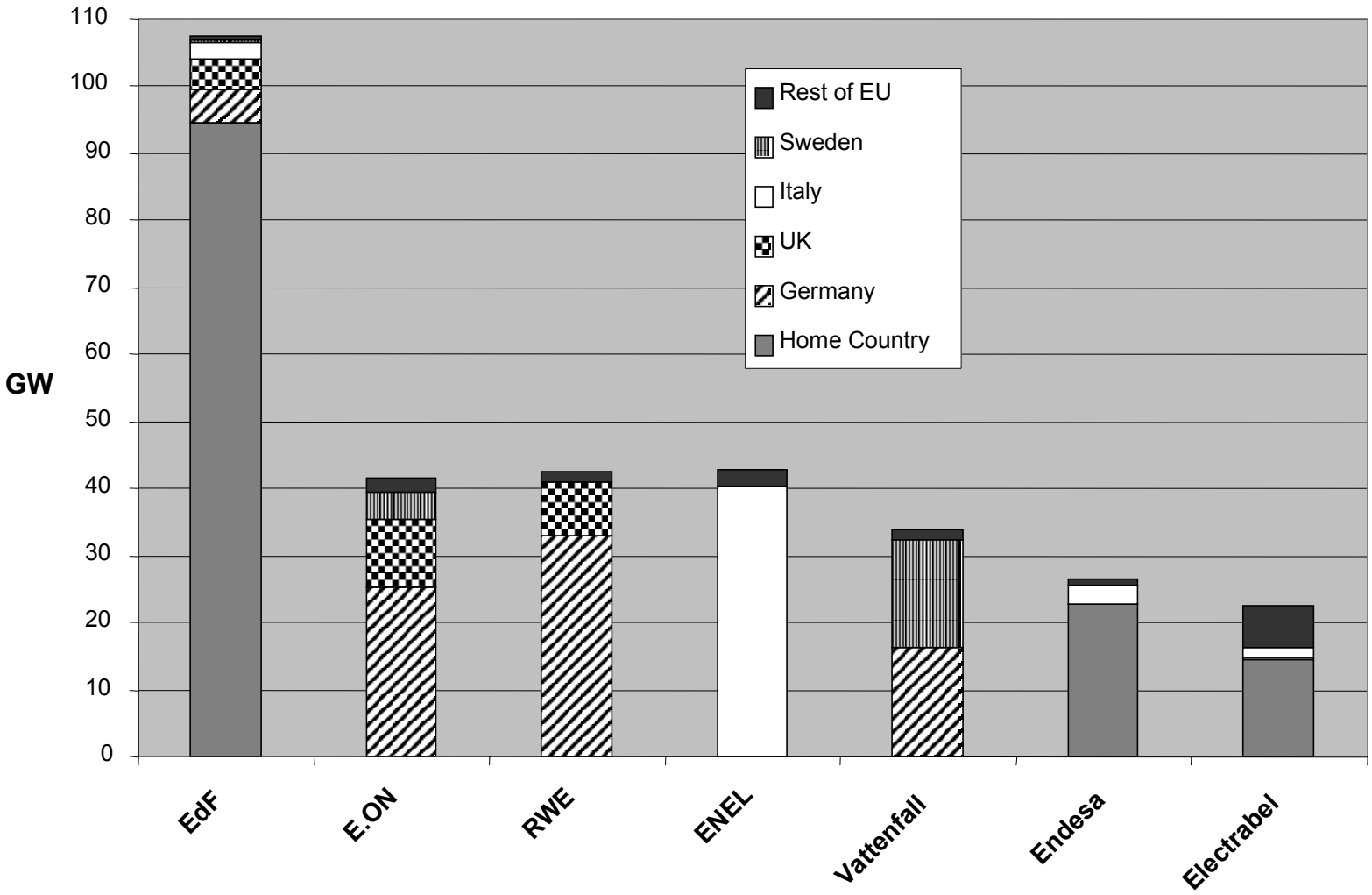
Capacity in EU15
7 Major Utilities (2002)



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Developing Countries

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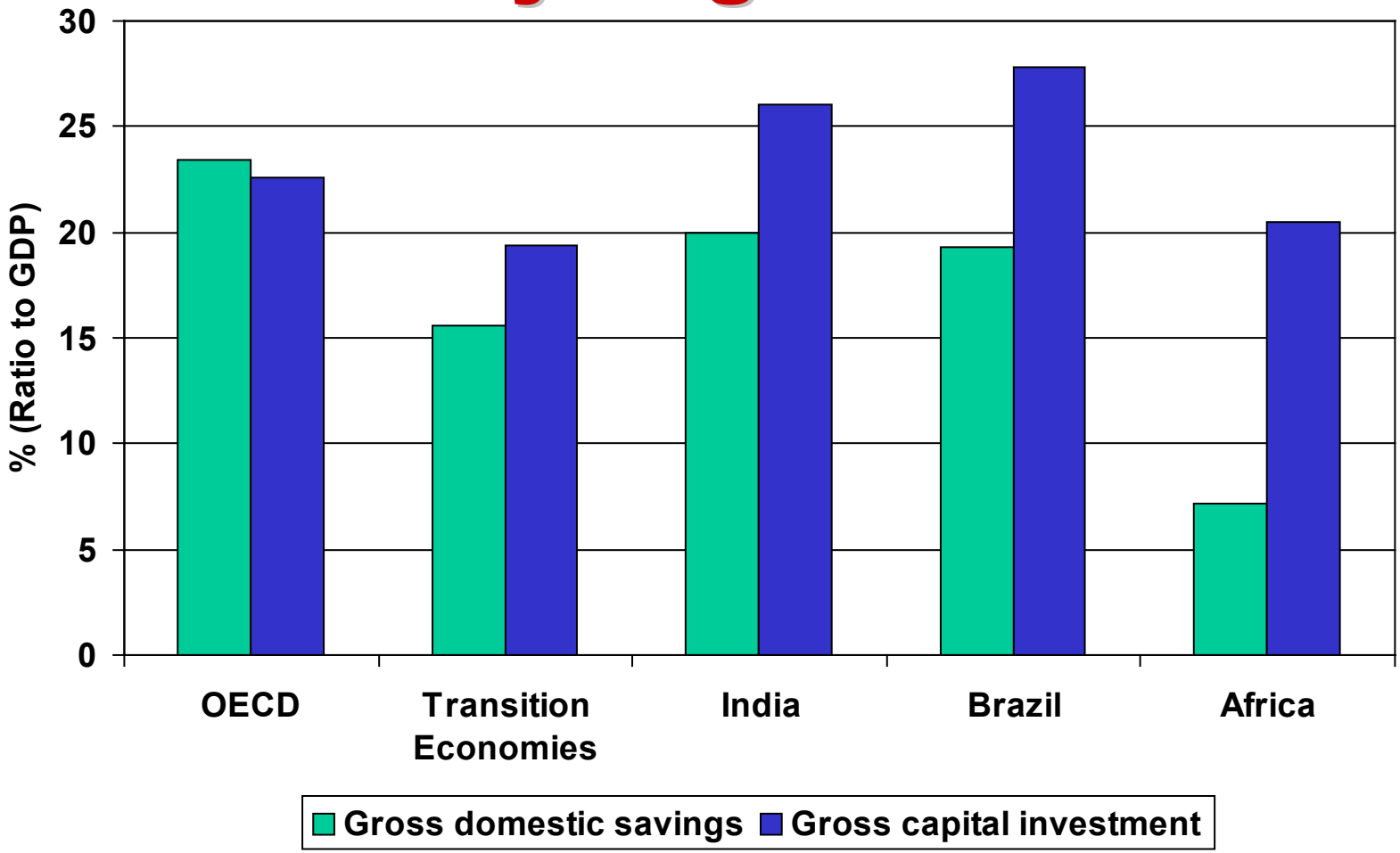
Investment vs.Saving Balance by Region



Foreign capital flow needs to meet the gap between domestic financial resources and investment in most of non-OECD regions.

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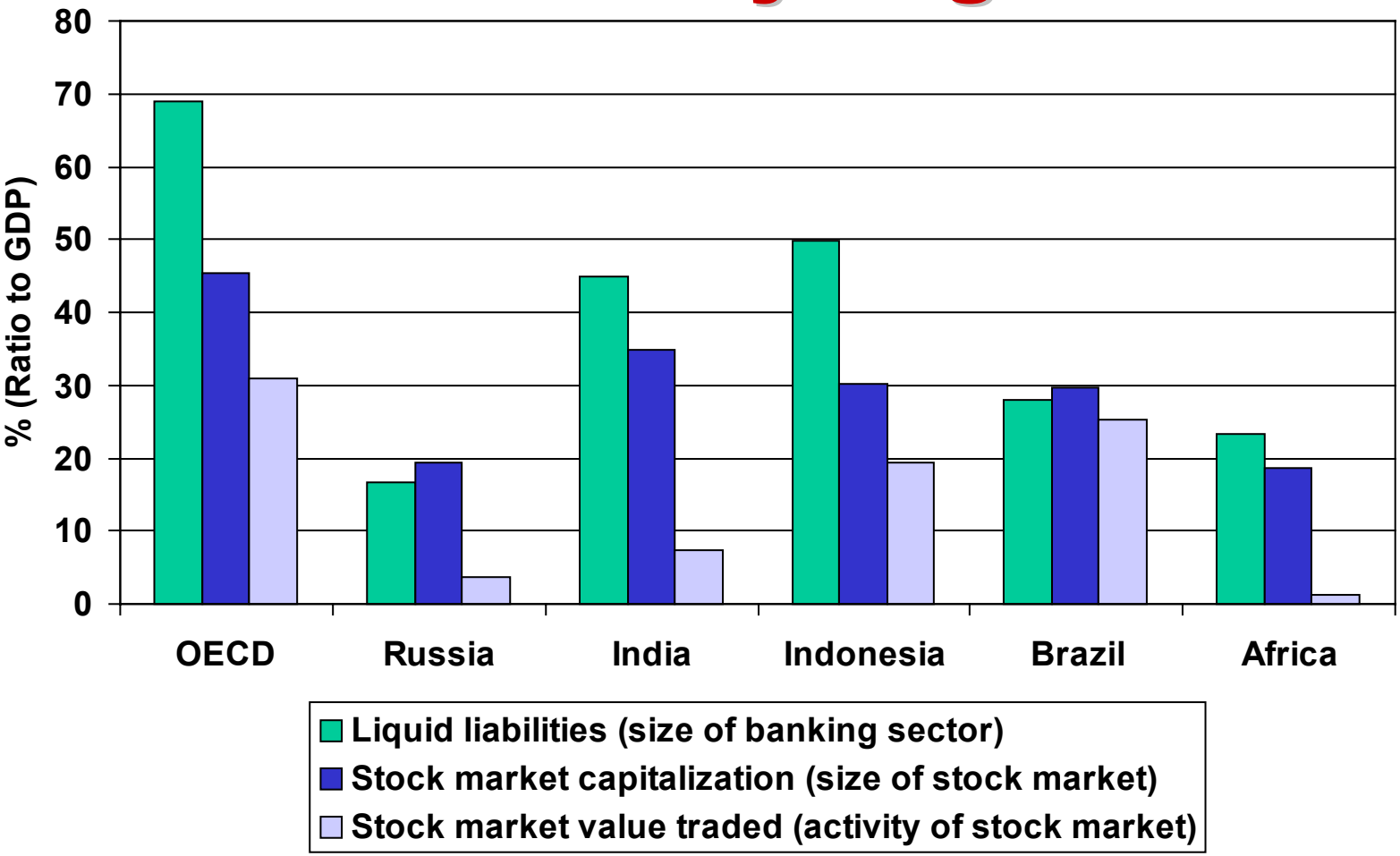
Size and Activity of Financial Markets by Region



Financial markets in non-OECD regions are smaller, less active,and less efficient.

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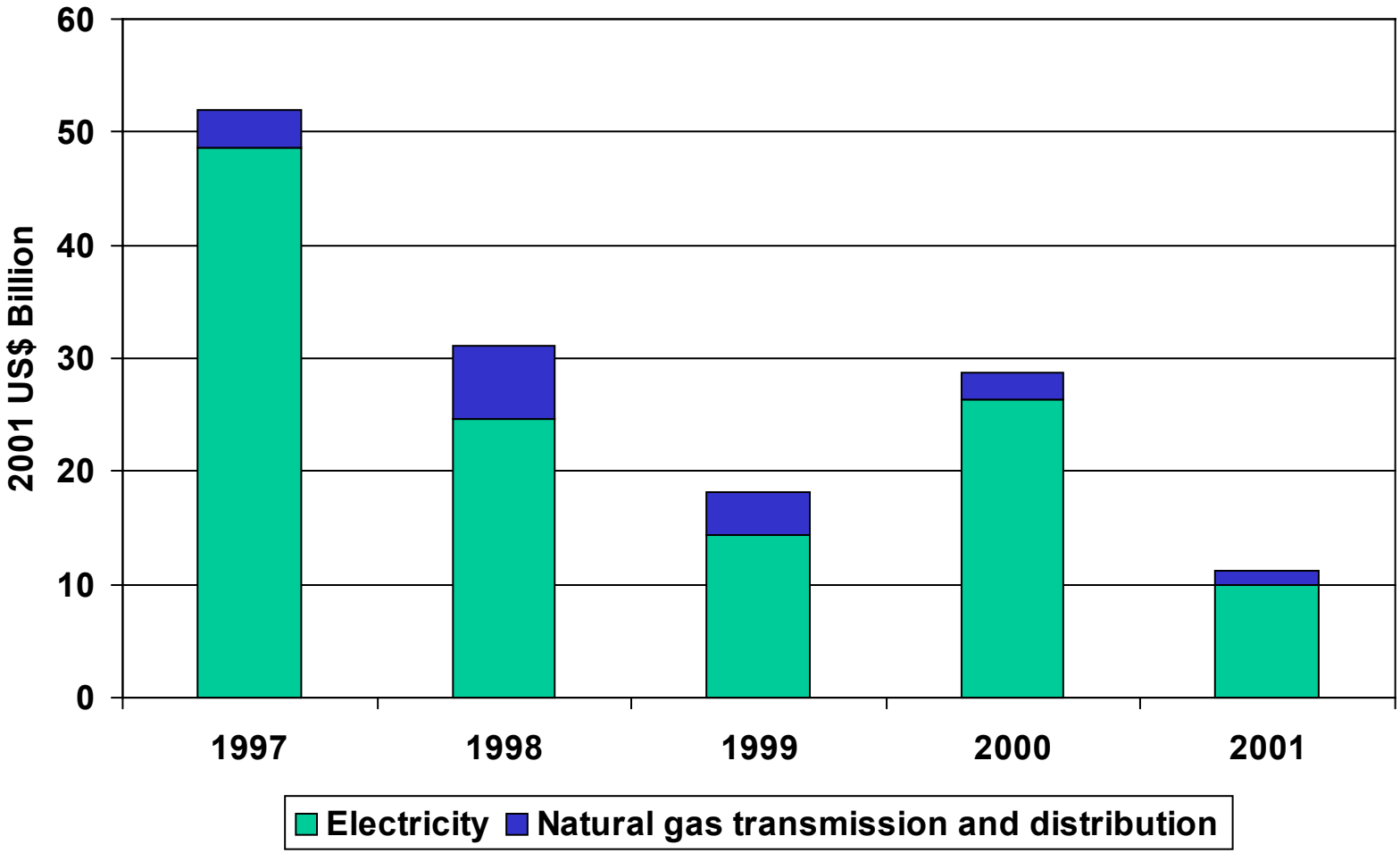
Investment Flows into Energy Projects with Foreign Private Participation



Sound macroeconomic management and legal/regulatory framework are needed to secure the availability of foreign capital to energy projects.

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Concluding Remarks

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Summary

- World electricity demand is set to grow rapidly
- Gas is likely to be the preferred fuel
- Ageing: a key issue in OECD countries
- Developing Countries: higher demand growth - scarce resources

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Surrounding Issues

- What are obstacles to investment?
- Is investment climate changing?
- What are the (new) risks introduced by liberalisation of electricity markets?
- How do challenges vary across energy mix / technology?
- How will the capital markets be convinced to invest in Developing Countries?
- What role for governments?