Nuclear Power: Status and Outlook

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International Atomic Energy Agency

Three take-aways

- Rising expectations
- One size does not fit all
- “It’s the economics!”

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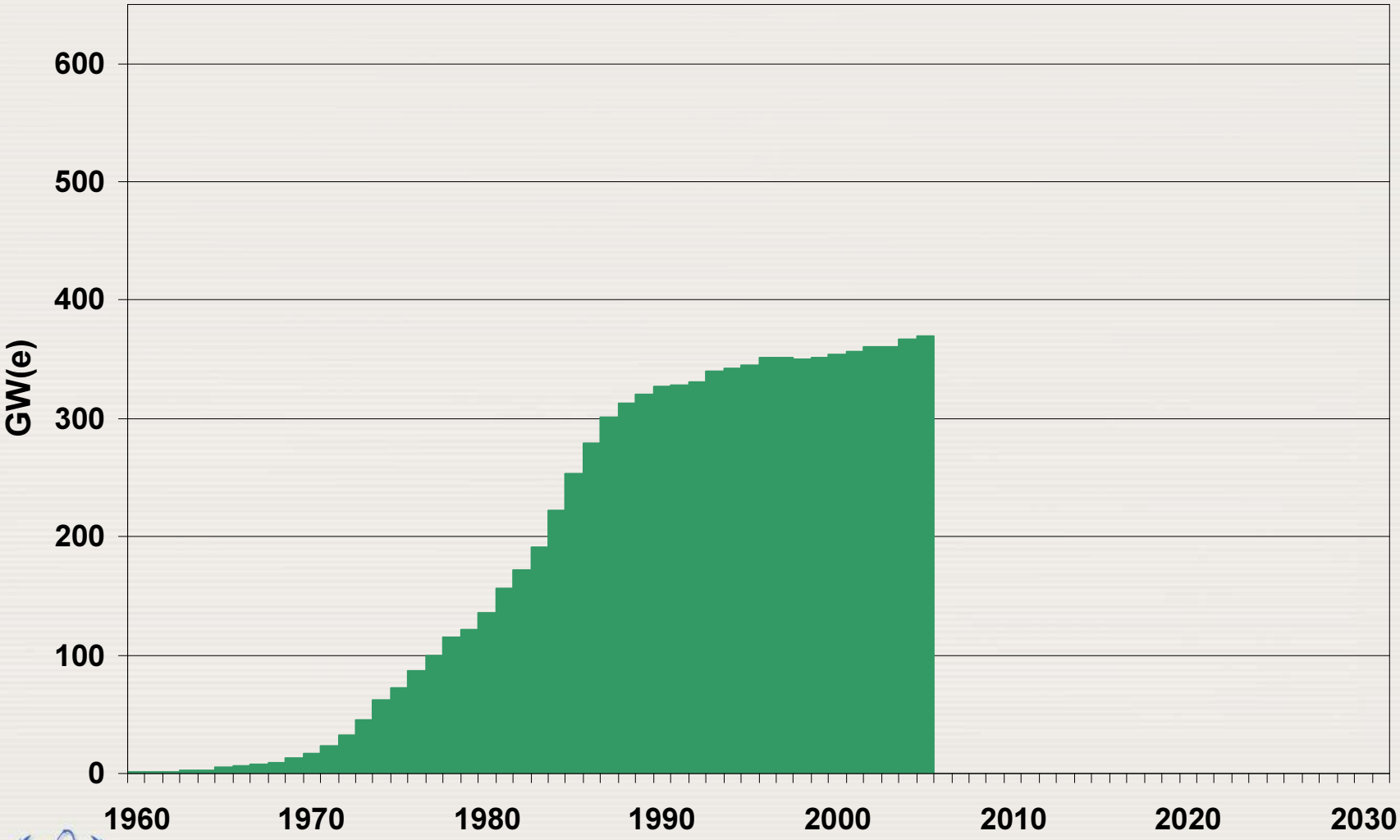
Global nuclear capacity (1960-2005)



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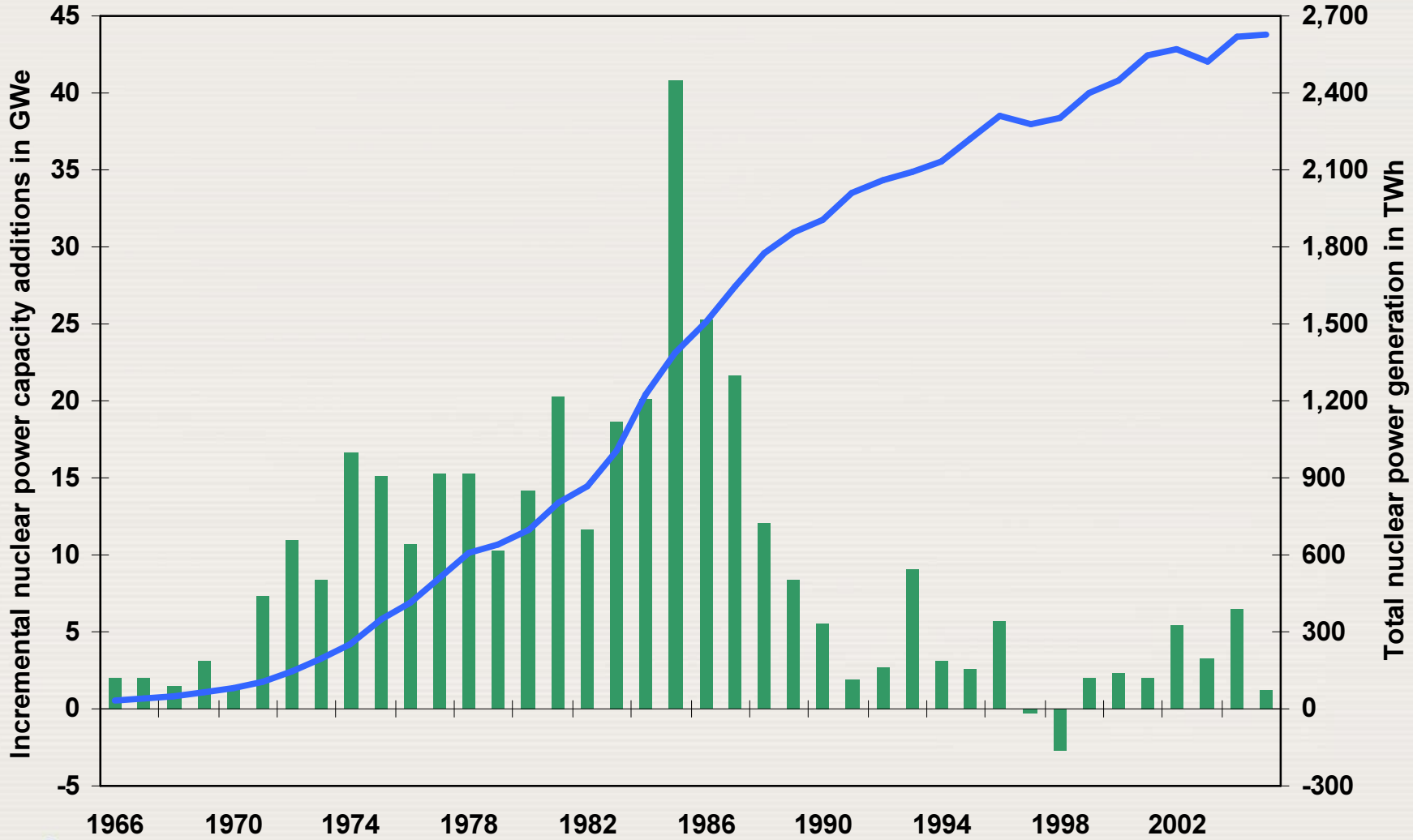
New capacity and generation growth



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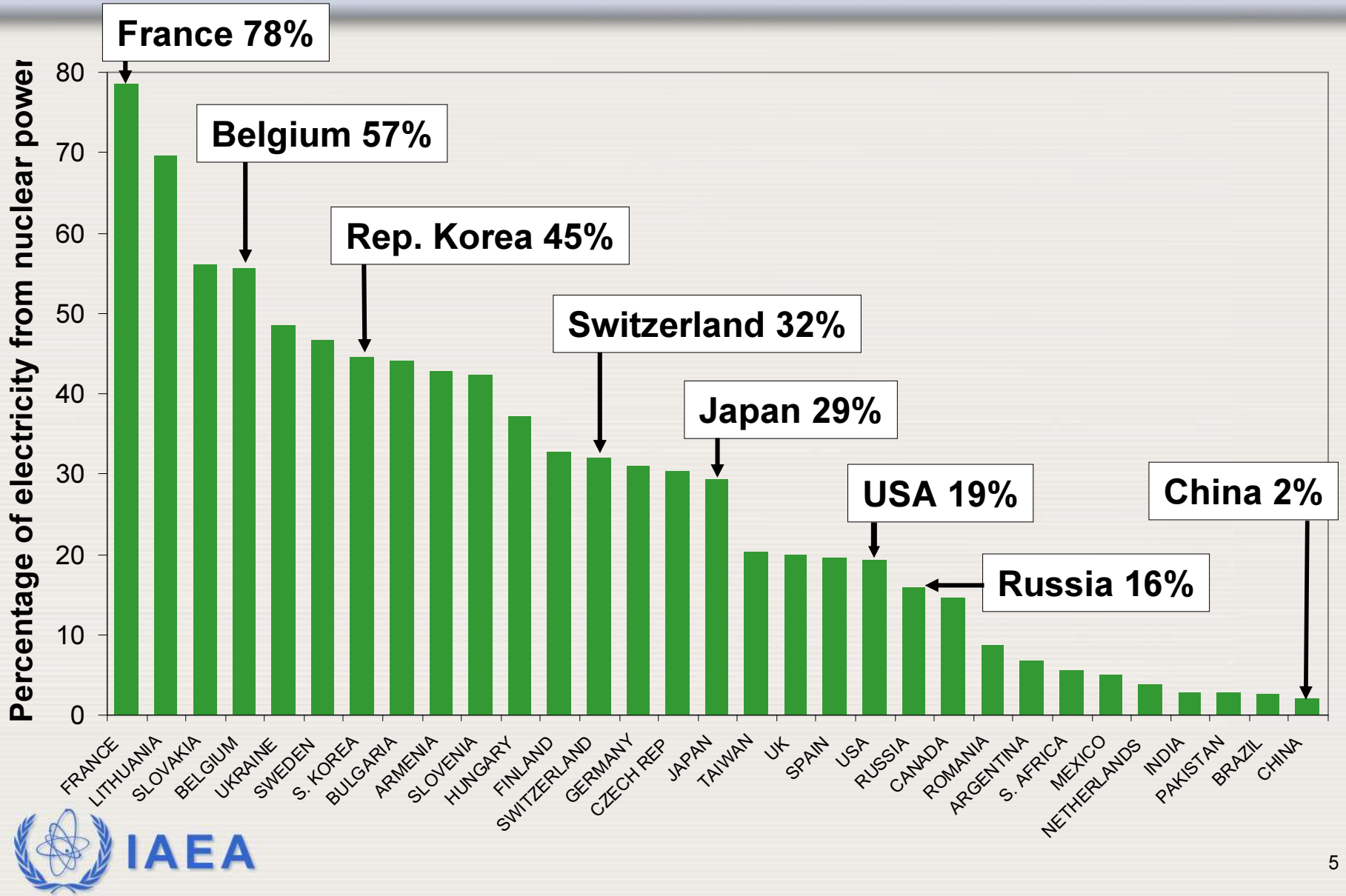
Nuclear share of electricity (2005)



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Current status

- 442 nuclear power plants
- 28 under construction
- USA 103
- France 59
- Japan 55 (1)
- Russia 31 (4)

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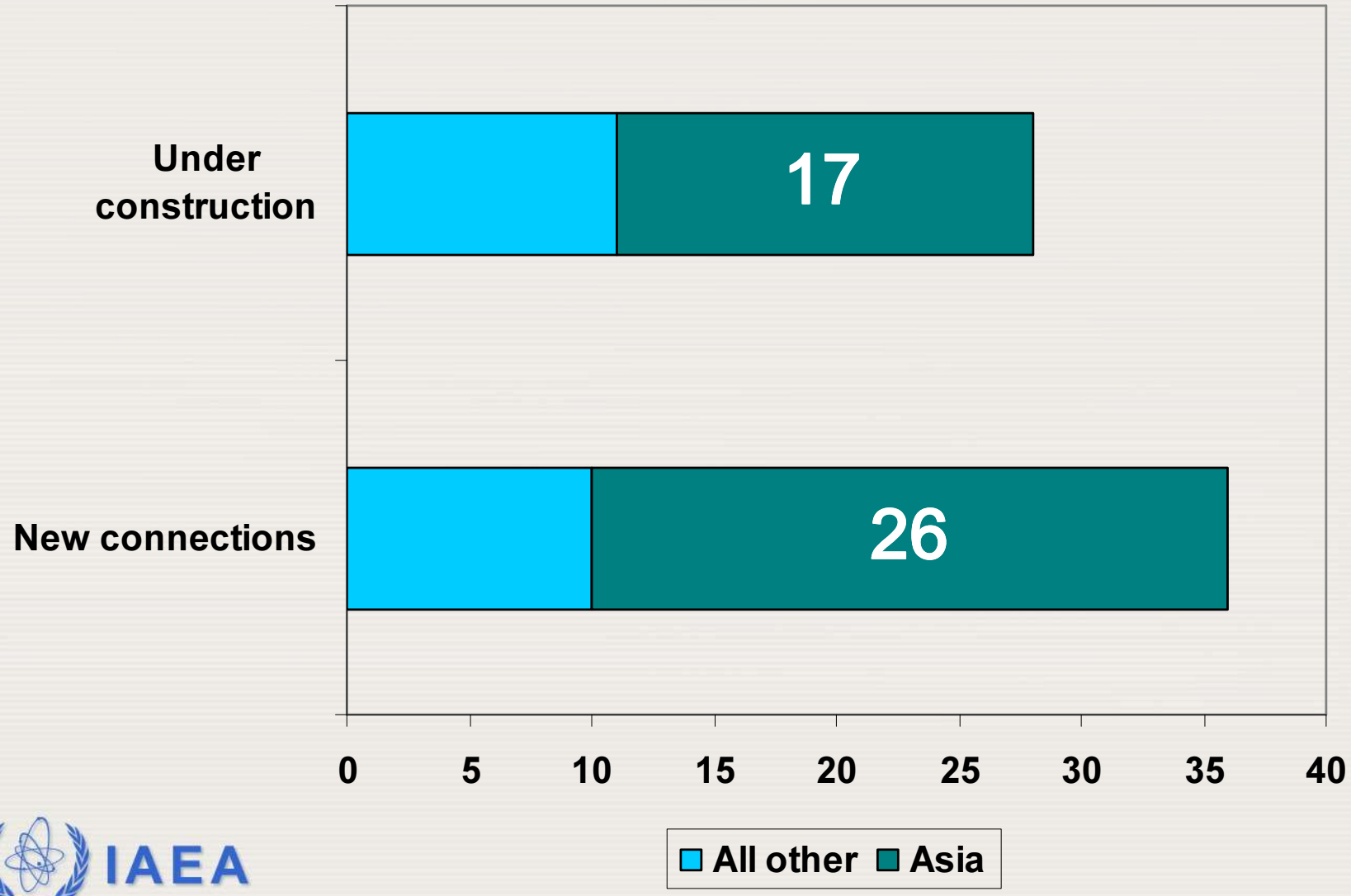
Expansion centred in Asia



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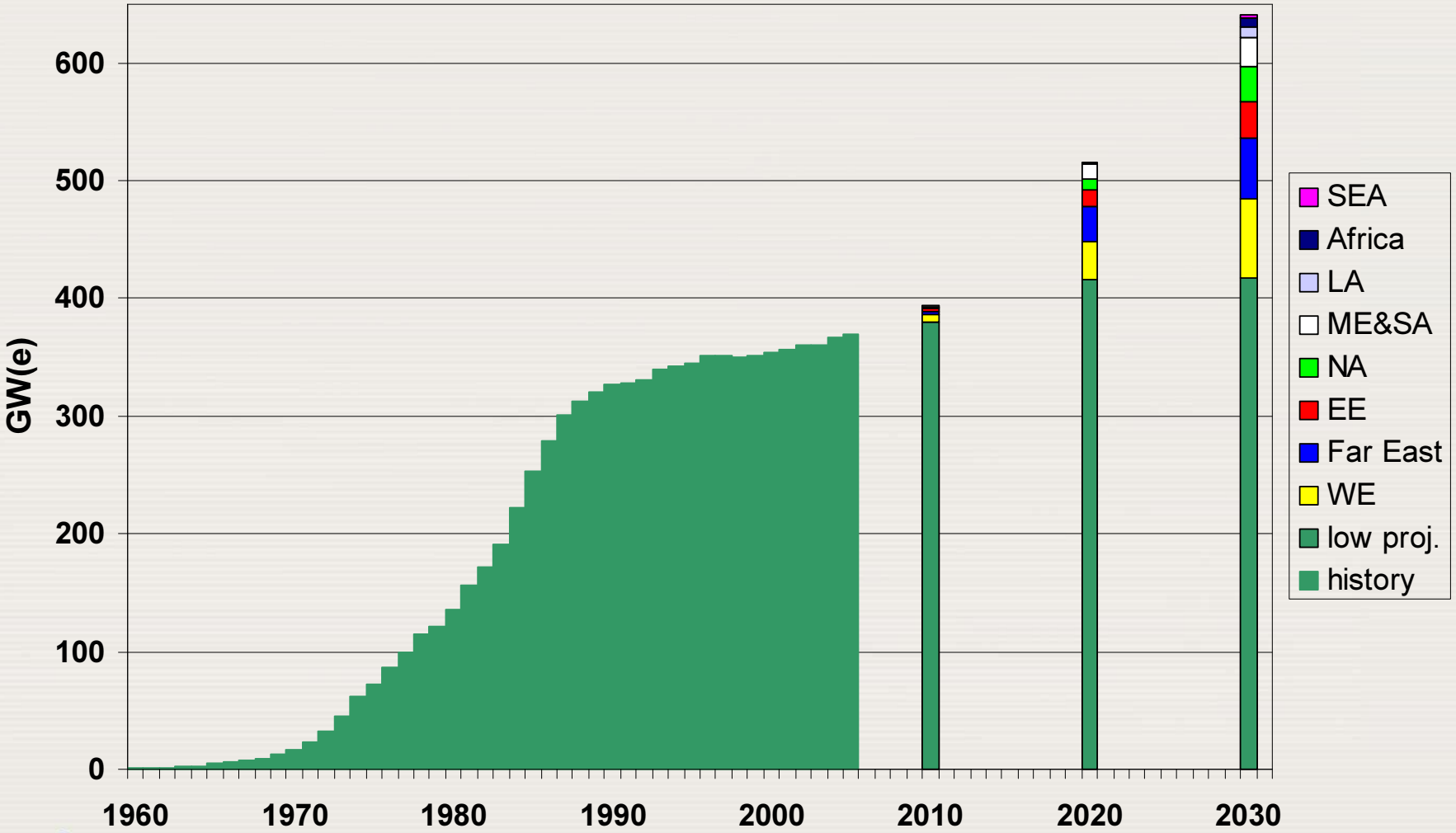
Rising expectations



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Rising expectations

- A good and lengthening track record
- Growing energy needs
- Security of supply
- Plans for expansion in a number of countries
- New environmental constraints

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One size does not fit all

- Countries differ with respect to
  - energy demand growth
  - alternatives
  - financing options
  - weighing/preferences
    - accident risks (nuclear, mining, oil spills, LNG…), cheap electricity, air pollution, jobs, import dependence, climate change
- All countries use a mix. All are different.

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India

- Nuclear now 2.8% of electricity
- 7 reactors under construction
- 10-fold growth planned 2002-2022 (10%)
- 100-fold growth planned 2002-2052 (26%)
  - = 9.2% per year
  - Global growth 1970-2004 = 9.2% per year

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China

- Huge energy growth
- 4 reactors under construction
- 5-6 fold growth planned by 2020
  - 4% of electricity
- Potential Asian supplier

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Russia

- 31 reactors
- 4 under construction
- aspiring ‘full fuel cycle services’ provider

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Round-the-world tour cont.

- Japan
  - 55 reactors
  - 1 under construction
  - 29% of electricity
- Republic of Korea
  - 20 reactors
  - 1 under construction
  - 45% of electricity

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Europe

- Europe
  - prohibition countries
    - Austria, Italy, Denmark, Ireland
  - phase-out countries
    - Sweden, Germany, Belgium

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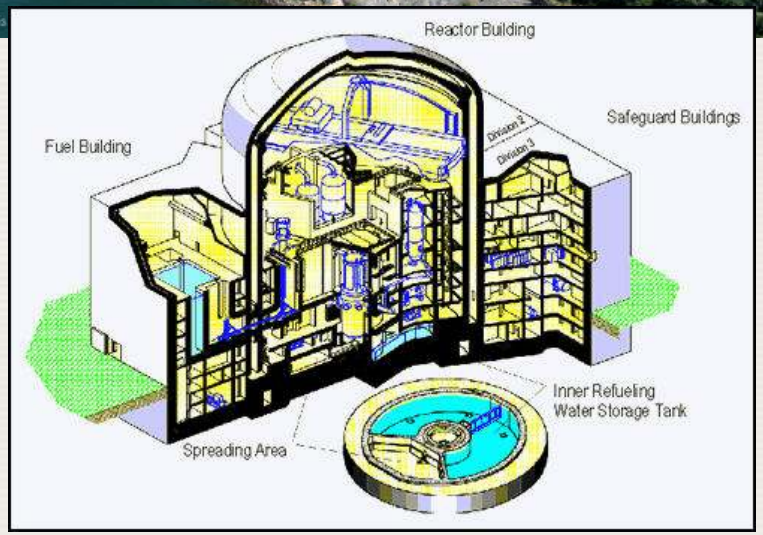
Europe cont.

- Europe
  - expansion countries
    - Finland, France, Bulgaria, Ukraine
  - others with nuclear
    - UK, Spain, Switzerland
  - considering nuclear
    - Poland, Turkey



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USA

- 103 operating reactors, 19% of electricity
- Last connection: 1996
- Last construction start: 1977
- 75% of fleet has, is seeking, or plans to seek 20-year license renewals
- New energy legislation
  - Loan guarantees, production tax credits…
- Announced intentions for 18-28 new reactors

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Round-the-world tour cont.

- Canada
- Latin America
  - Argentina
  - Brazil
  - Mexico
- Africa
  - South Africa

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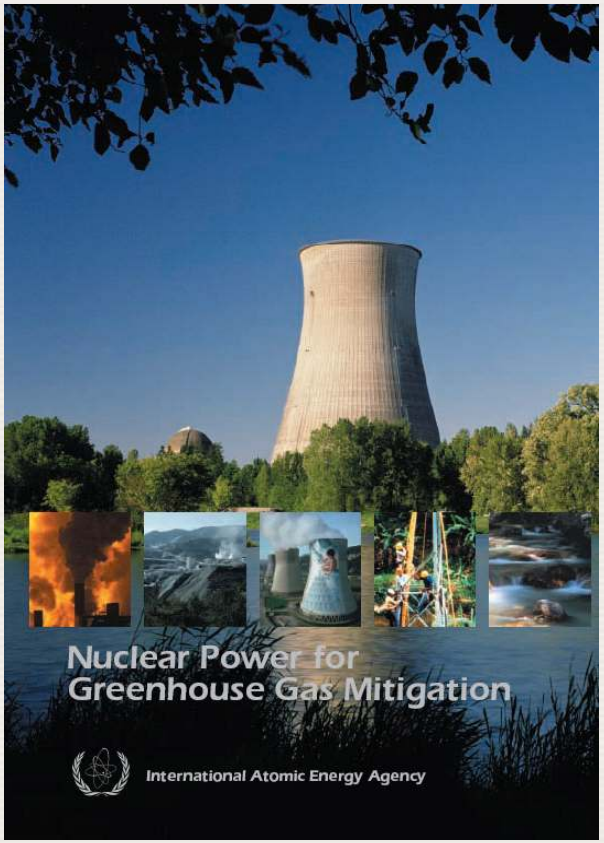
Round-the-world tour cont.

- Iran
  - Bushehr-1

- Indonesia, Egypt, …



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“It’s the economics”

- Nuclear is expensive to build, cheap to run
- New nuclear most attractive where
  - energy demand growth in rapid
  - alternative resources are scarce
  - energy supply security a priority
  - reducing air pollution and GHGs a priority
  - financing can look longer-term
  - low financial risk premium

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…atoms for peace.