

International Atomic Energy Agency

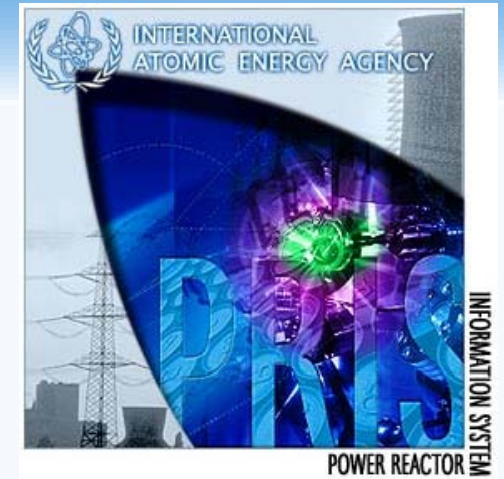
Power Reactor Information System Statistics

Jiri Mandula, IAEA-NPES

World Statistics Day,
14 October 2010, Vienna, Austria

What is IAEA-PRIS?

- Databank on nuclear power reactors
- Reference data source used worldwide
- 40 years experience in data collection
- Reactor status and performance oriented data model:
 - Reactor status, specification and design information
 - Performance data
 - Energy production including NEA
 - Reactor unavailability and energy losses
 - Outage records with type/cause/system codes
 - Decommissioning information
- Set of internationally accepted PI
- Tool for NPP monitoring and performance analyses
- Modern on-line communication with nuclear industry
- Team of collaborators



What PRIS supports?

- NPP status overview
- Historical development of nuclear power
- Technical details and milestones of individual reactors
- NPP performance evaluation using well defined performance indicators
- Outage cause and system reliability analyses
- Benchmarking
- Trend analyses
- Progress reports on reactor decommissioning



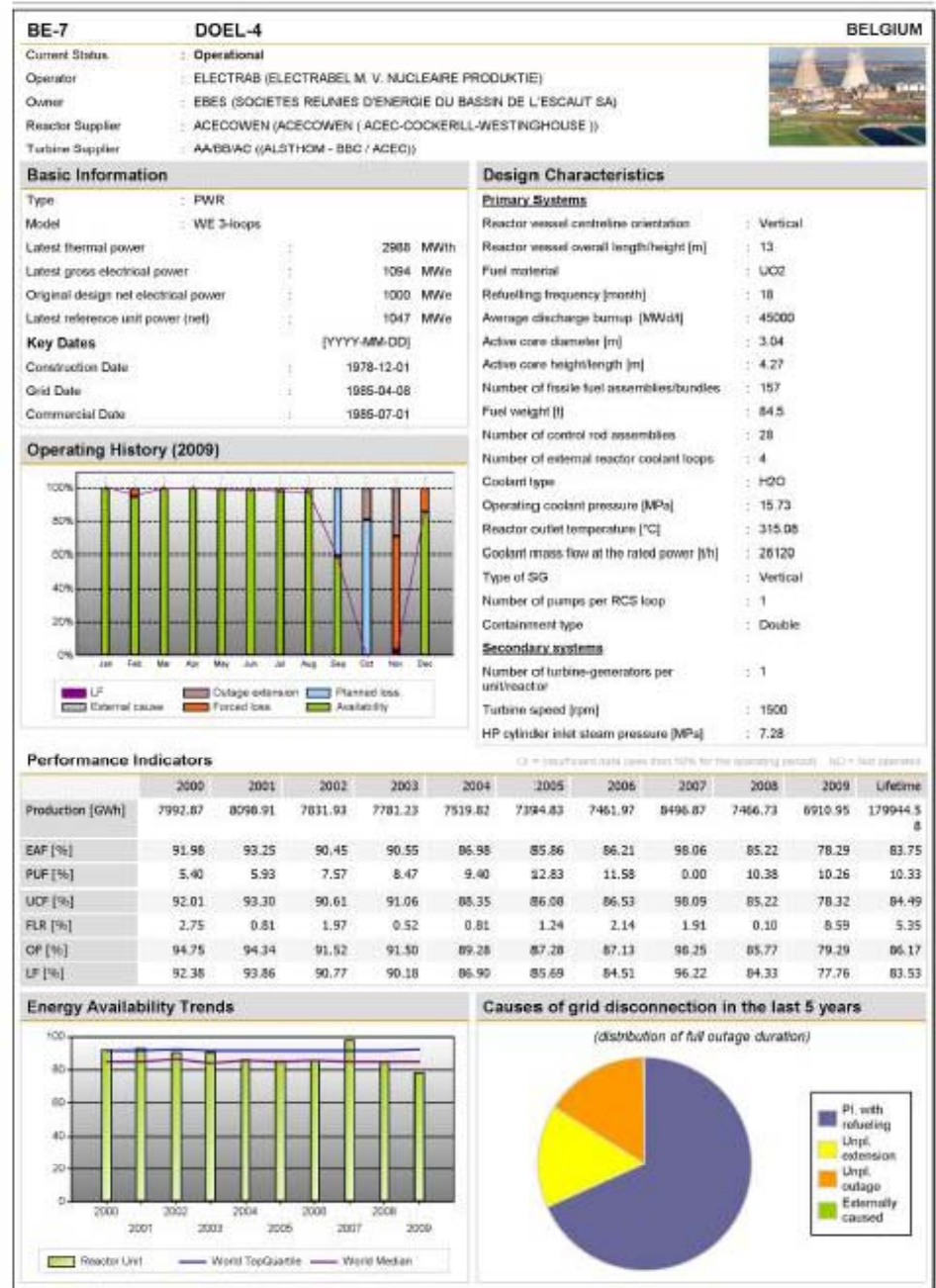
OUTPUT ILLUSTRATION



Reactor dashboards

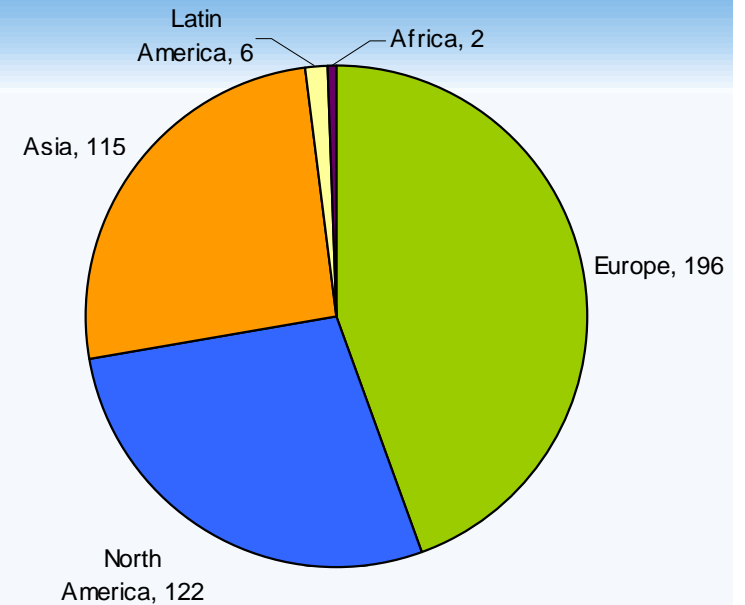
Integrated information for operating power reactors

Source: Power Reactor Information System

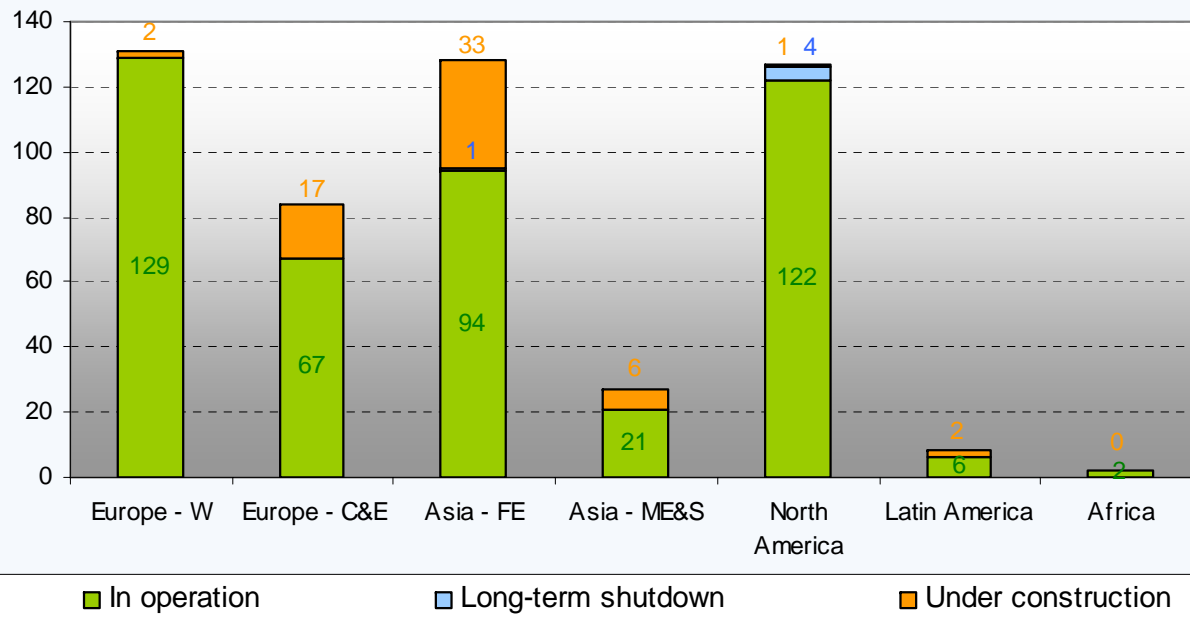


Reactors overview

- 441 reactors in operation (375 GW_e)
- 5 reactors in long-term shutdown (3 GW_e)
- 61 reactors under construction (60 GW_e)



Reactors by region

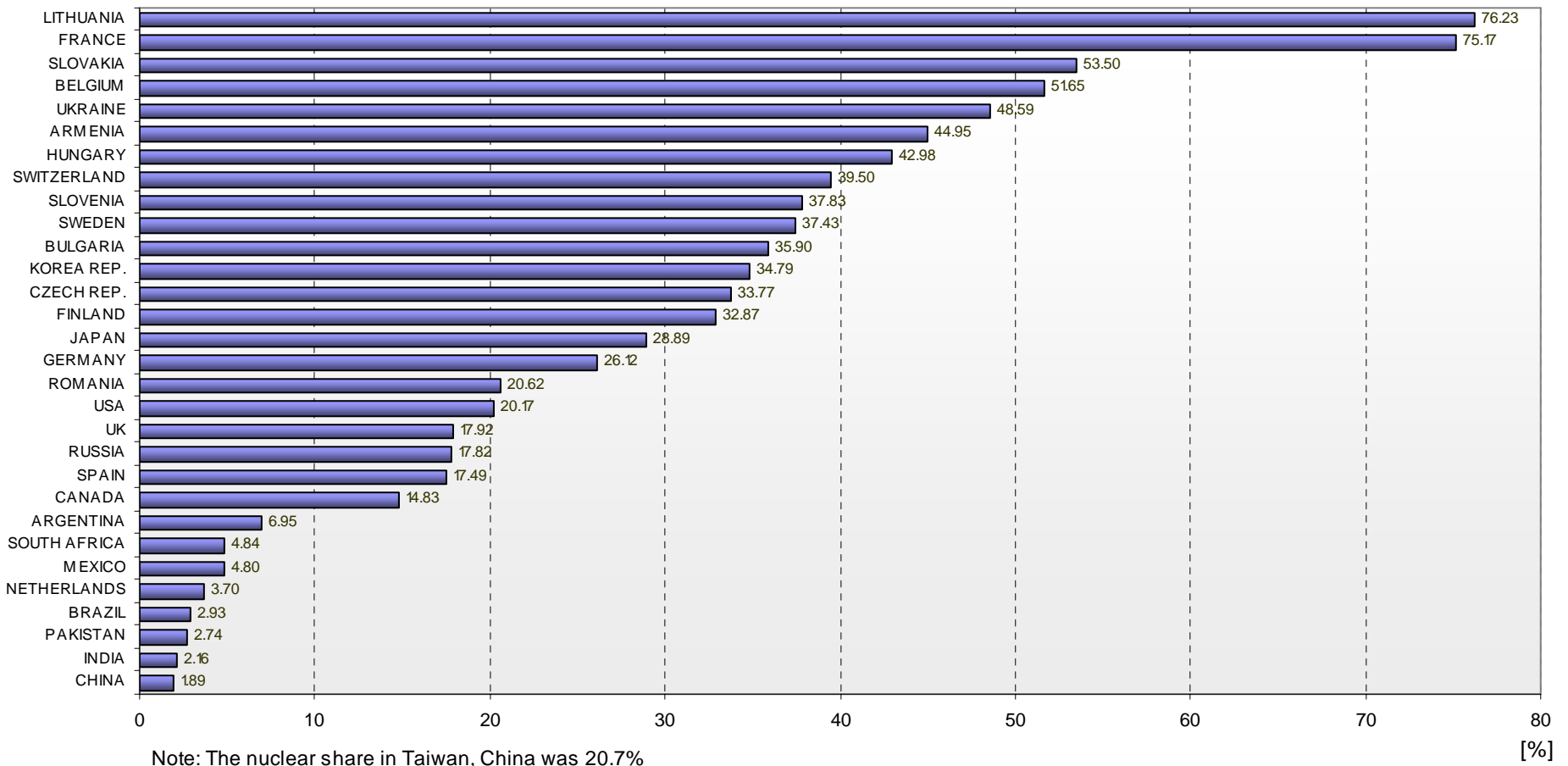


Mapping system of PRIS

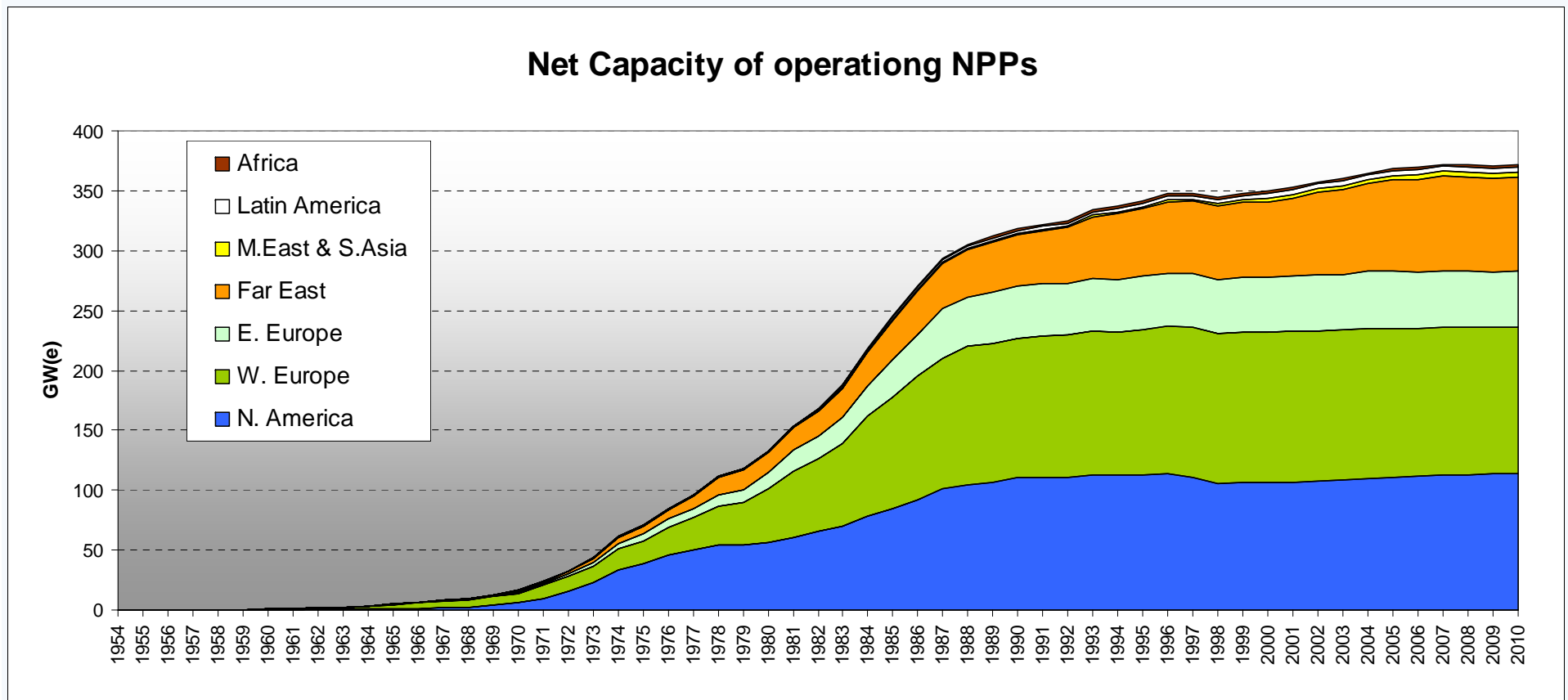


Nuclear share

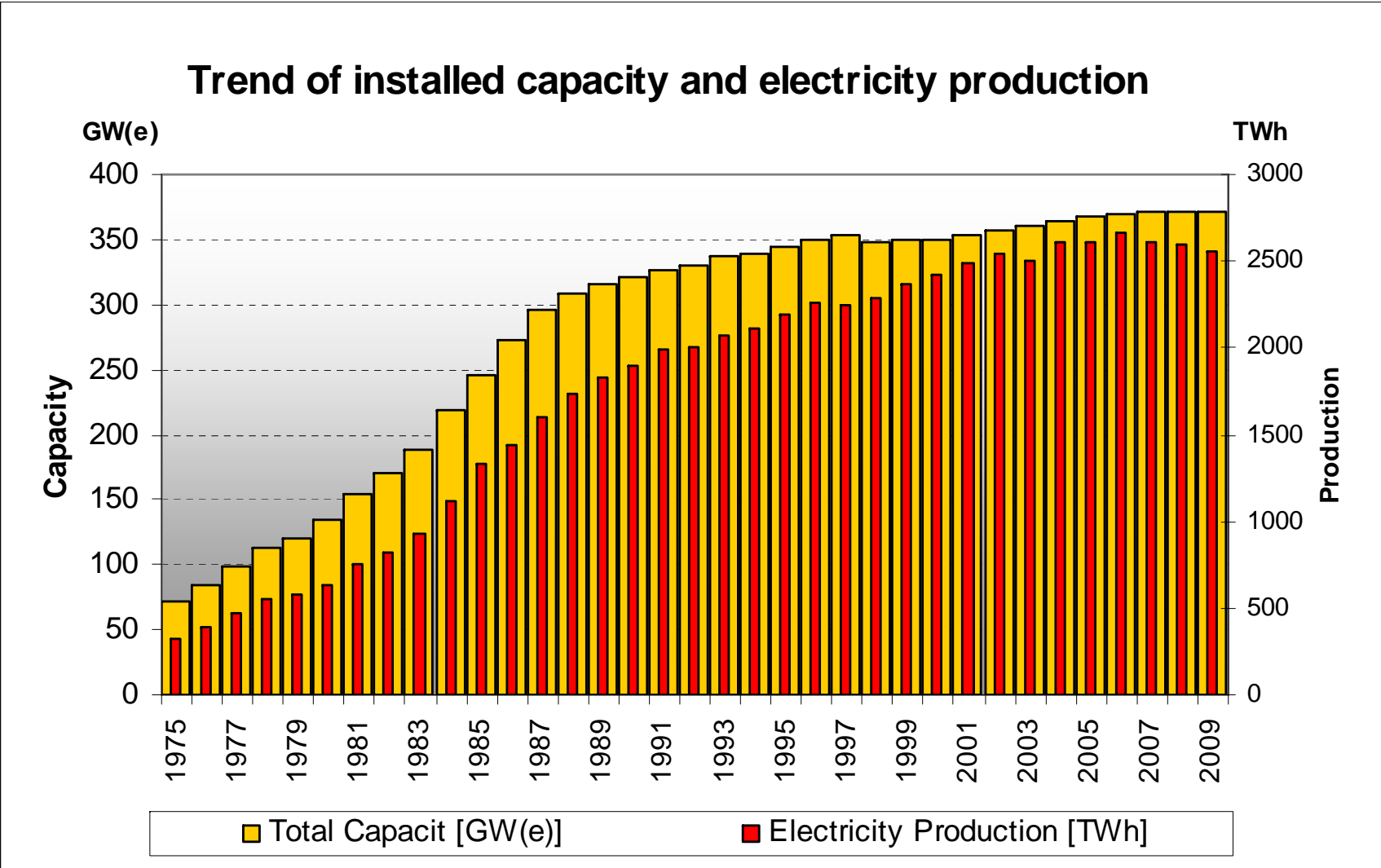
Nuclear Share in Electricity Generation in 2009



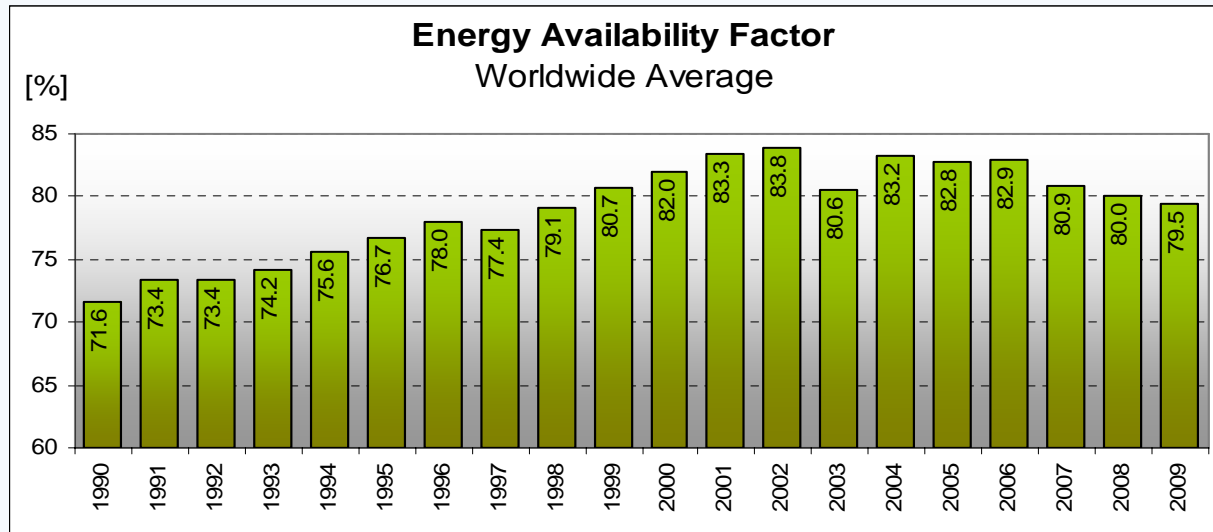
Net Capacity by region



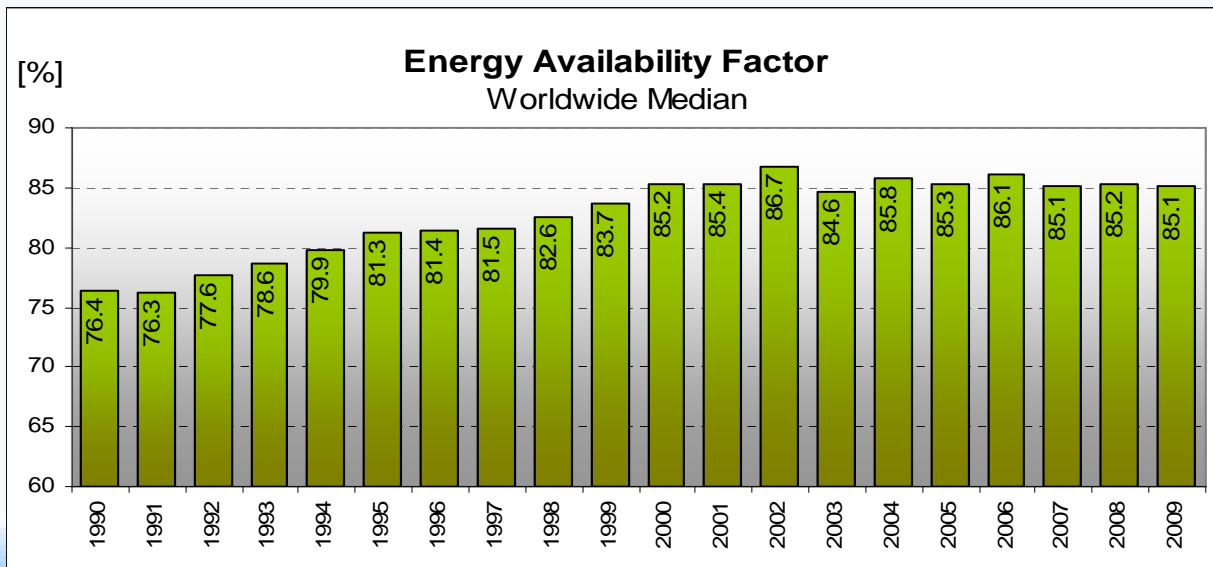
Nuclear energy production



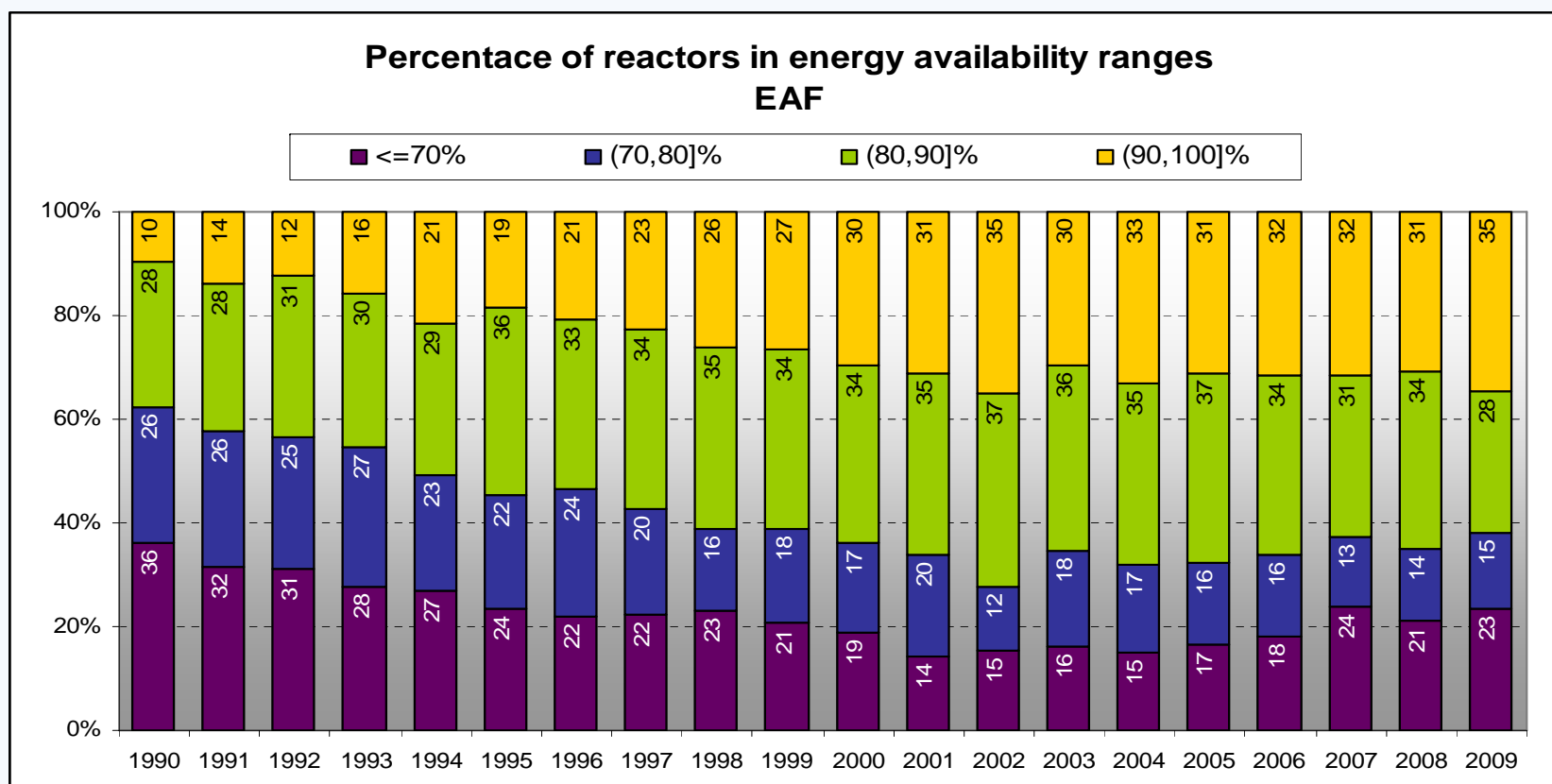
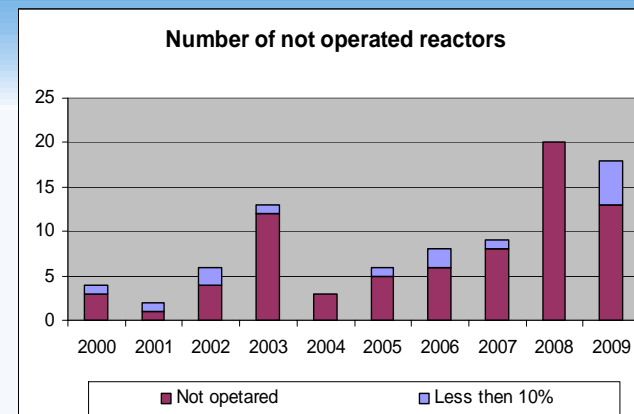
Installed Capacity Utilization



- Continuous increasing trend during 1990s has reversed in last years
- In 2009 the Energy Availability Factor (EAF) was 79.4% on average. Half of nuclear reactors operated with EAF above 85%.

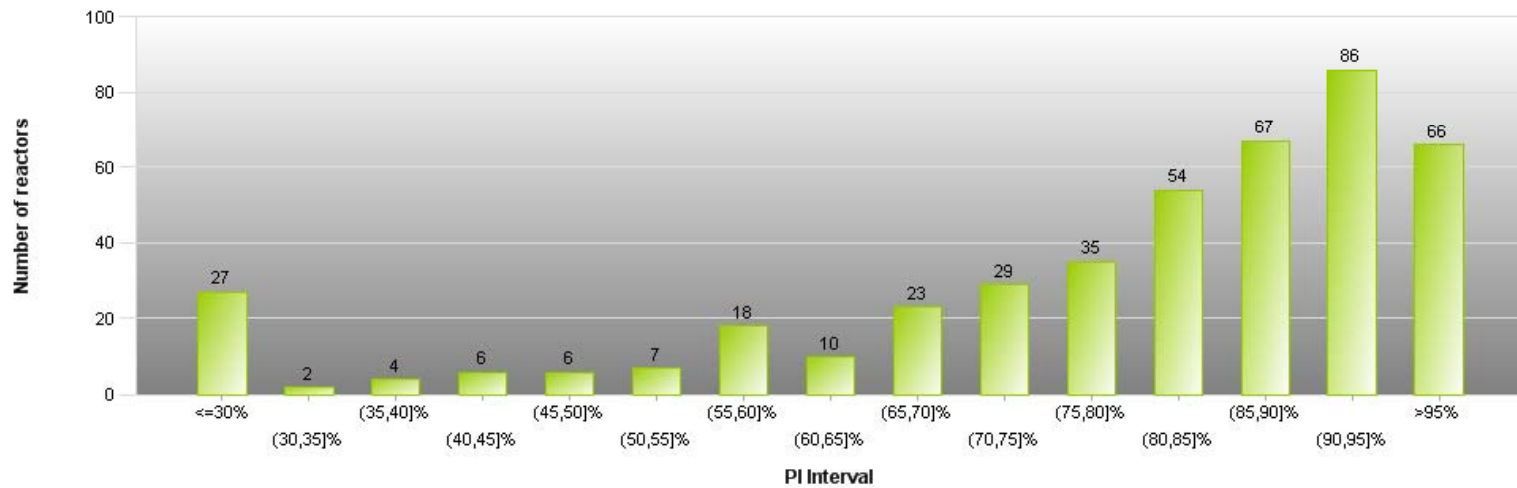


EAF in intervals

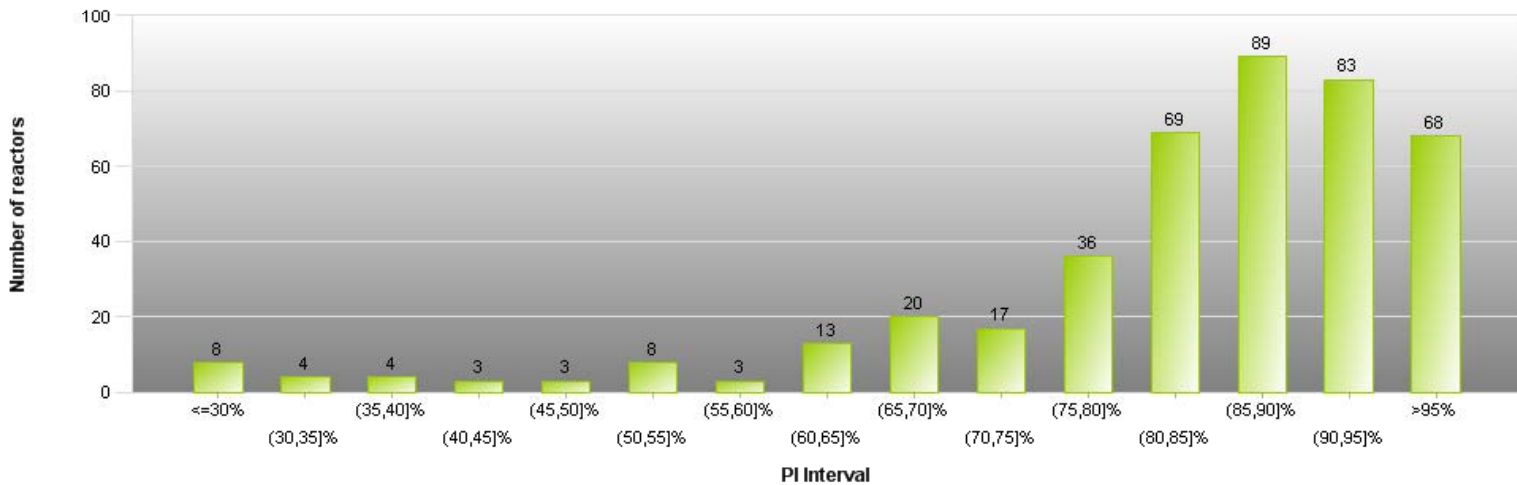


EAF histograms

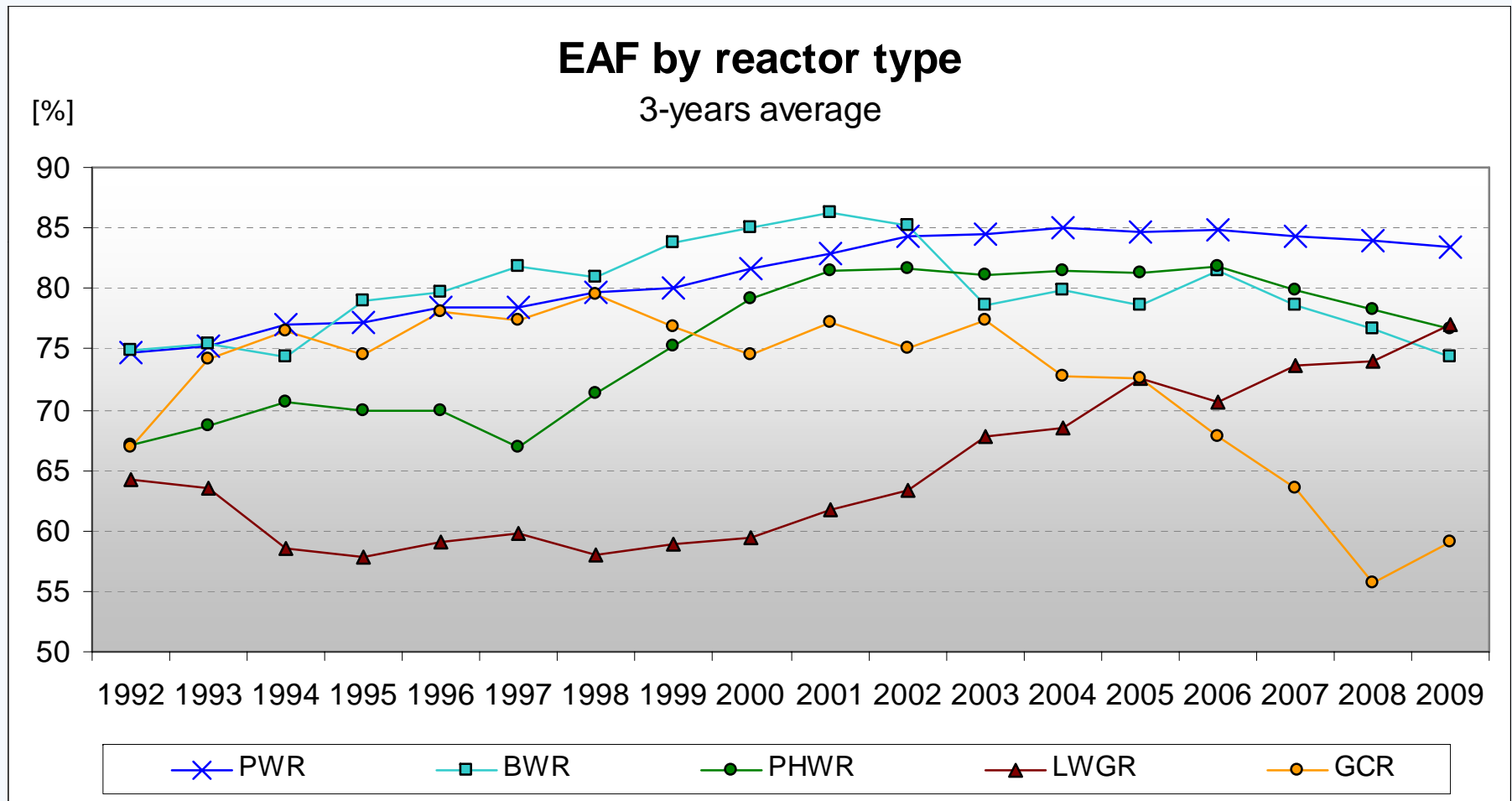
2009



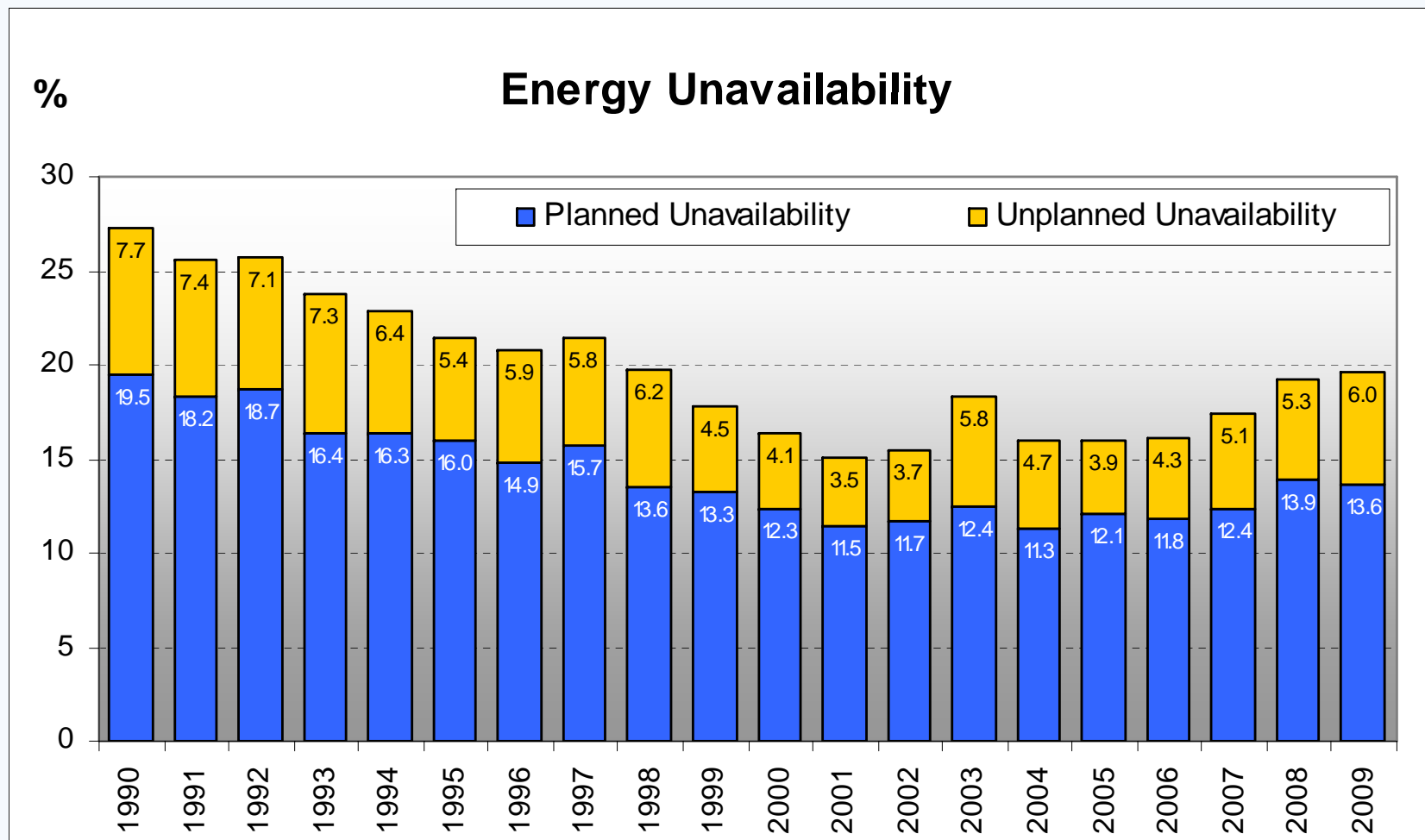
2002



Technology

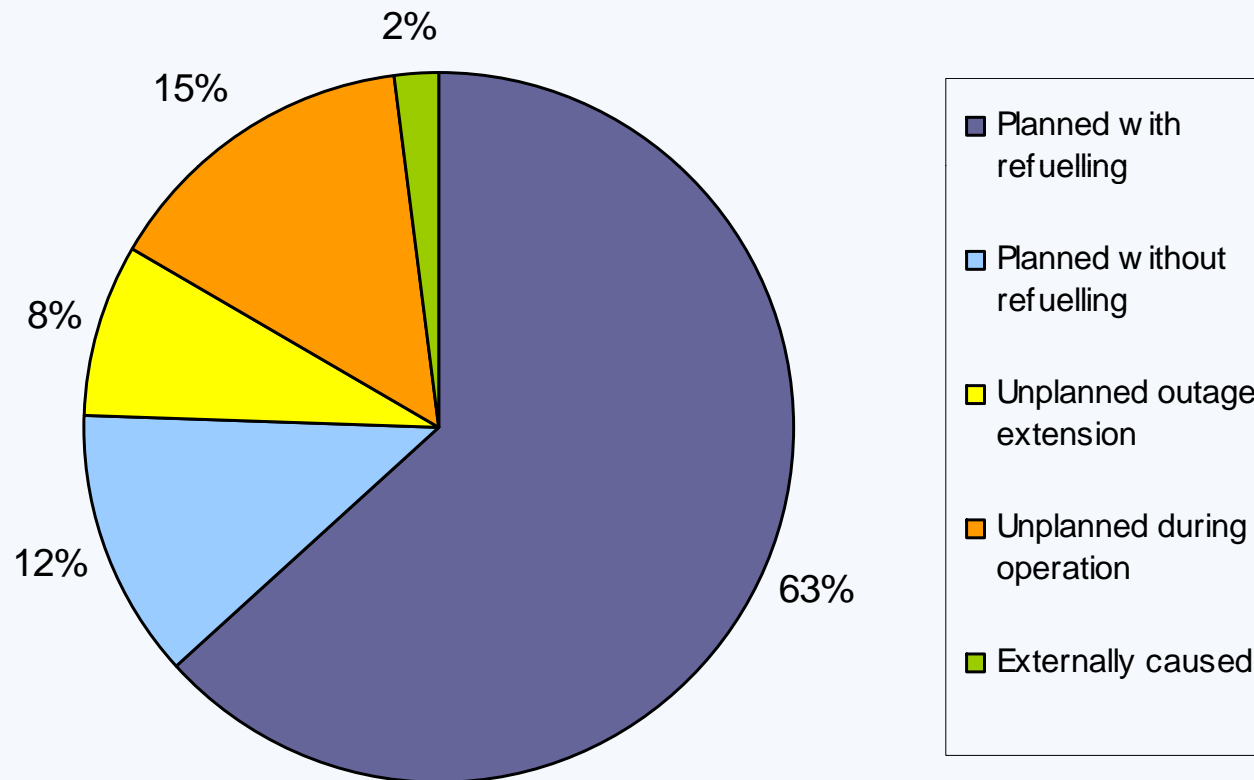


Unavailability

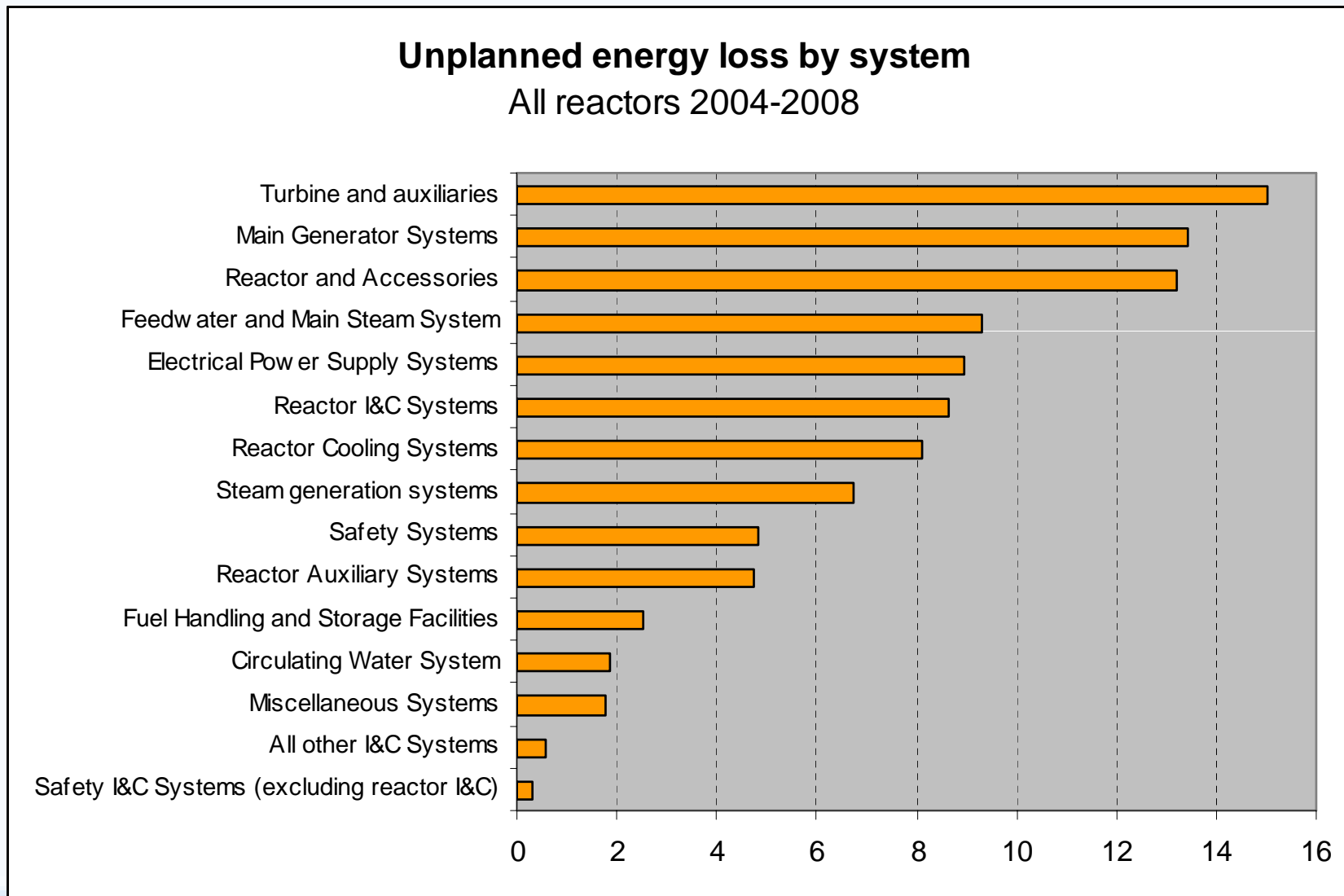


Outages by type

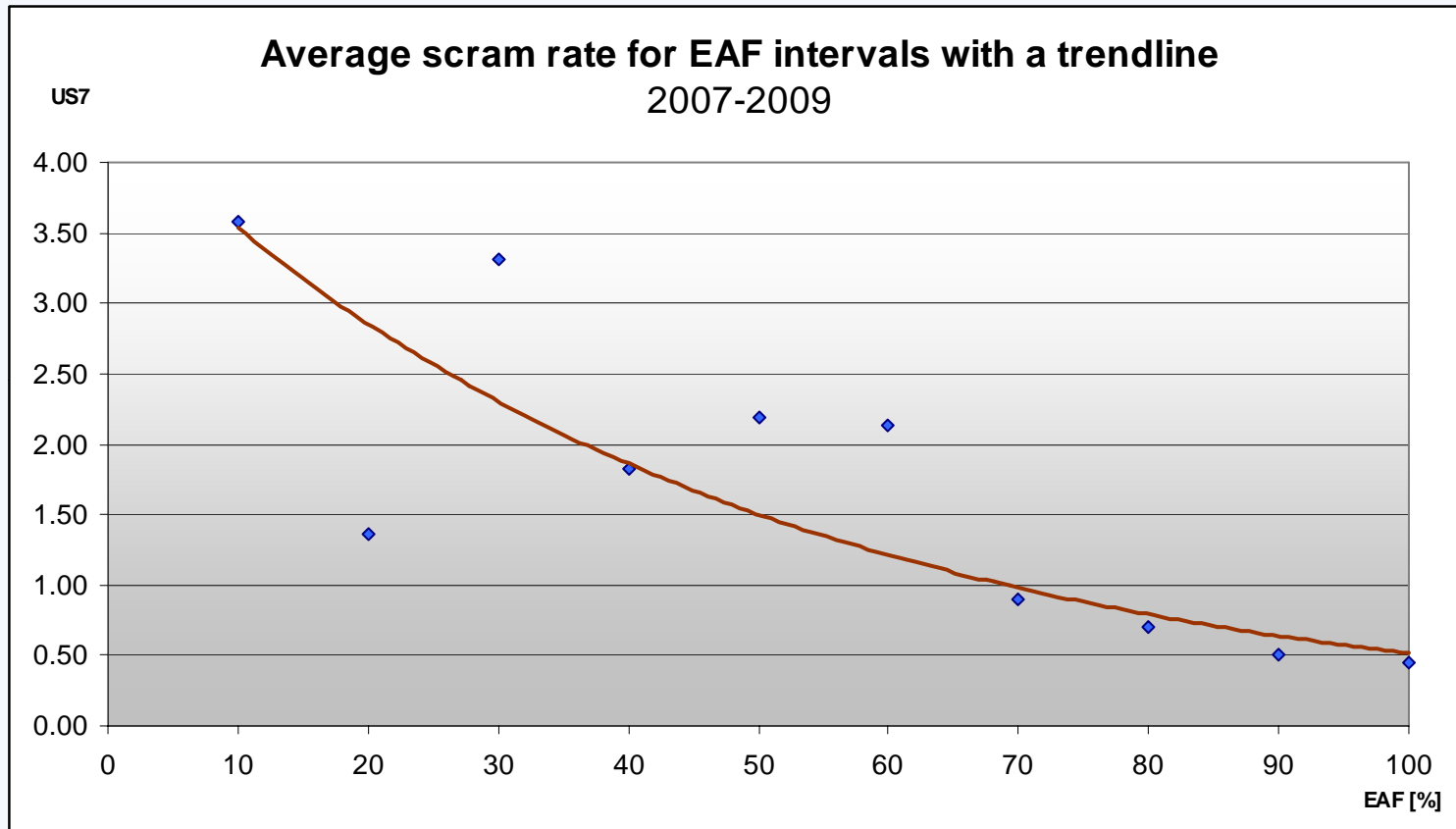
Grid disconnection break-down World



Unplanned energy loss



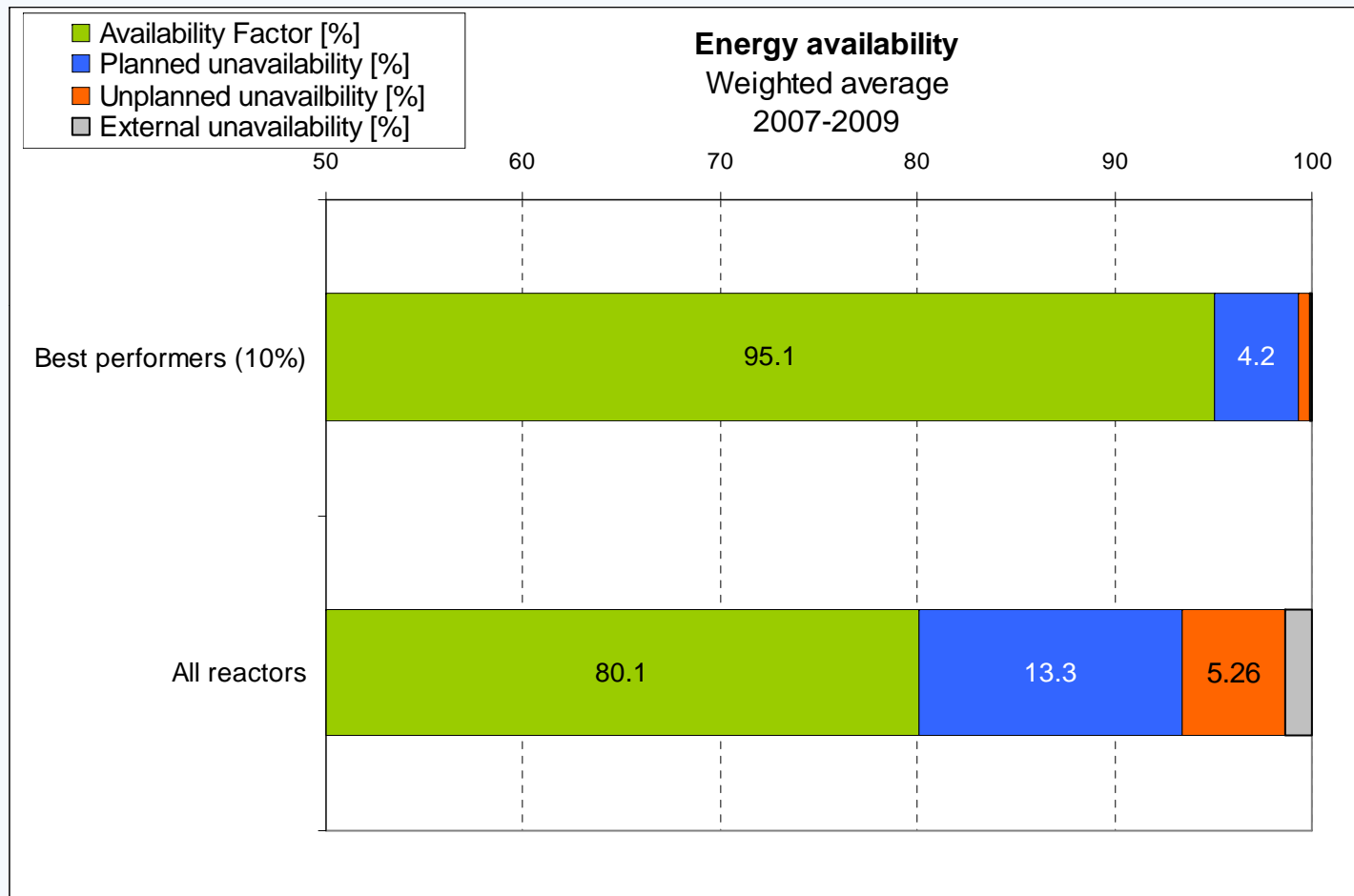
Operational and Safety Performance



Better operating performance improves competitiveness and safety performance



Benchmarking



- Who are world-class performance leaders?
- Identification of gaps in performance
- Learning by sharing information and experience



How to get information?

- Annual publications:
 - [Nuclear Power Reactors in the World](#) (since 1981)
 - [Operating Experience with NPP](#) (since 1970)
- Public website
www.iaea.org/pris
- Web-based on-line system “PRIS-Statistics” for registered users
prisweb.iaea.org/statistics



How to get an access to PRIS?

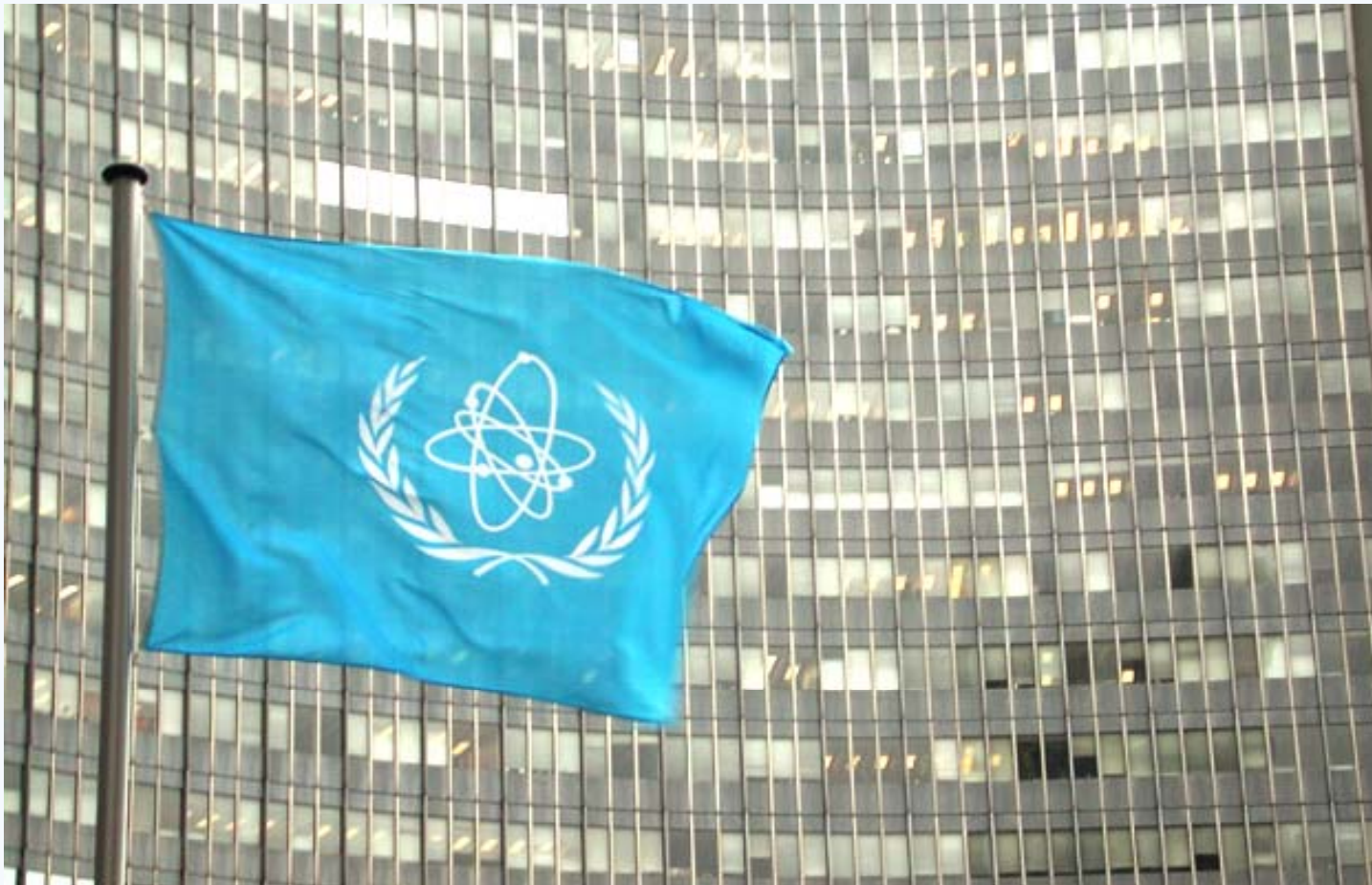
- PRIS Contacts:

PRISadmin@iaea.org

- Subscription form – PRIS website or on request
- Governmental organizations and NPP operating utilities – directly to IAEA
- Other organizations and individuals – through Permanent Missions



IAEA



...atoms for peace.

