A Reversal of Trends in the LWR Fabrication Market.
---A 2005 Update---

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23rd UI Symposium

Summary 1998

- Limited "available" market
- Supply >>> Demand
- Prices declining rapidly
- Vendor cost cutting options limited

Industry consolidation inevitable!

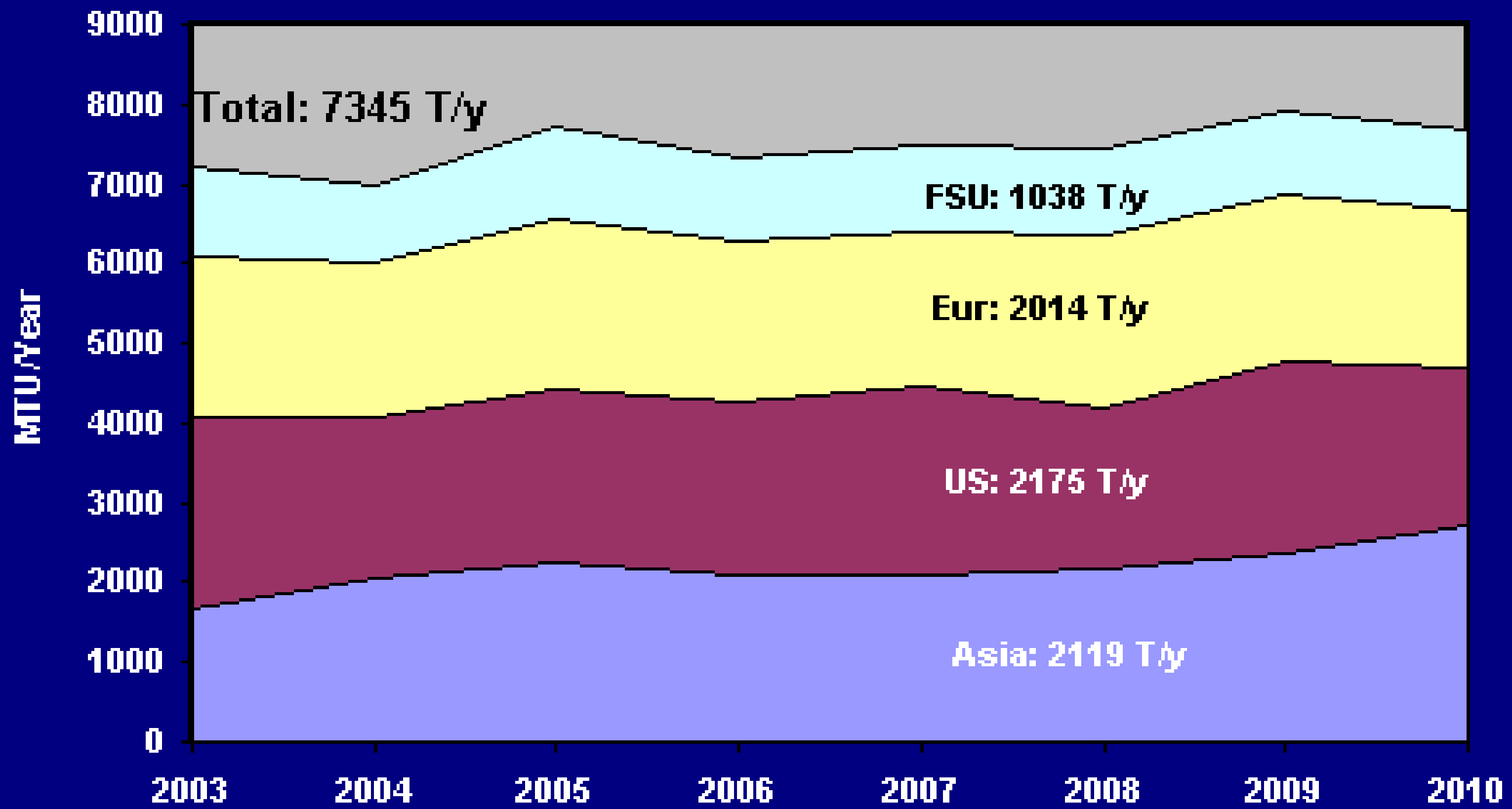
Best and largest facilities

Global balance considerations

All of these conditions have changed!

Changes in Market Demand

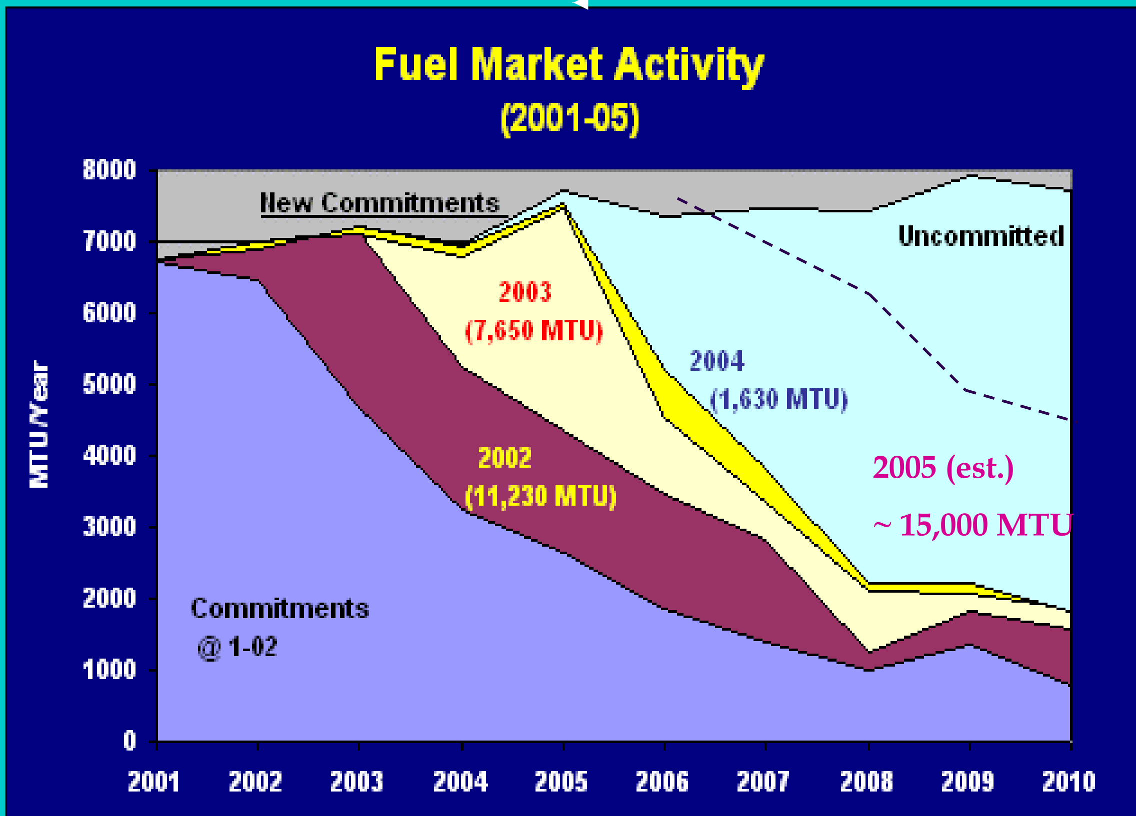
Some Growth Indicated: ~ + 100 MTU/Year



* Excludes: HWR, AGR, Magnox & RBMK

Changes in Market Share

Significant Activity; Negligible Change



Net Changes (Excl. EdF ??):

FANP: +6 GNF: - 5 WH: -1

BWR Changes

Exelon (4): GNF --> WH

Energy NW (1): WH --> FANP

PSEG (1): WH --> GNF

TVA(2): GNF --> FANP

Brunsbuttel (1): FANP ---> WH

Phillipsburg 1 (1): FANP ---> WH

Oskarsham 2 (1): FANP ---> WH

PWR Changes

EdF (1-12?): FANP---> WH

Duke(4): WH --> FANP

Ghronde(1): WH--->FANP

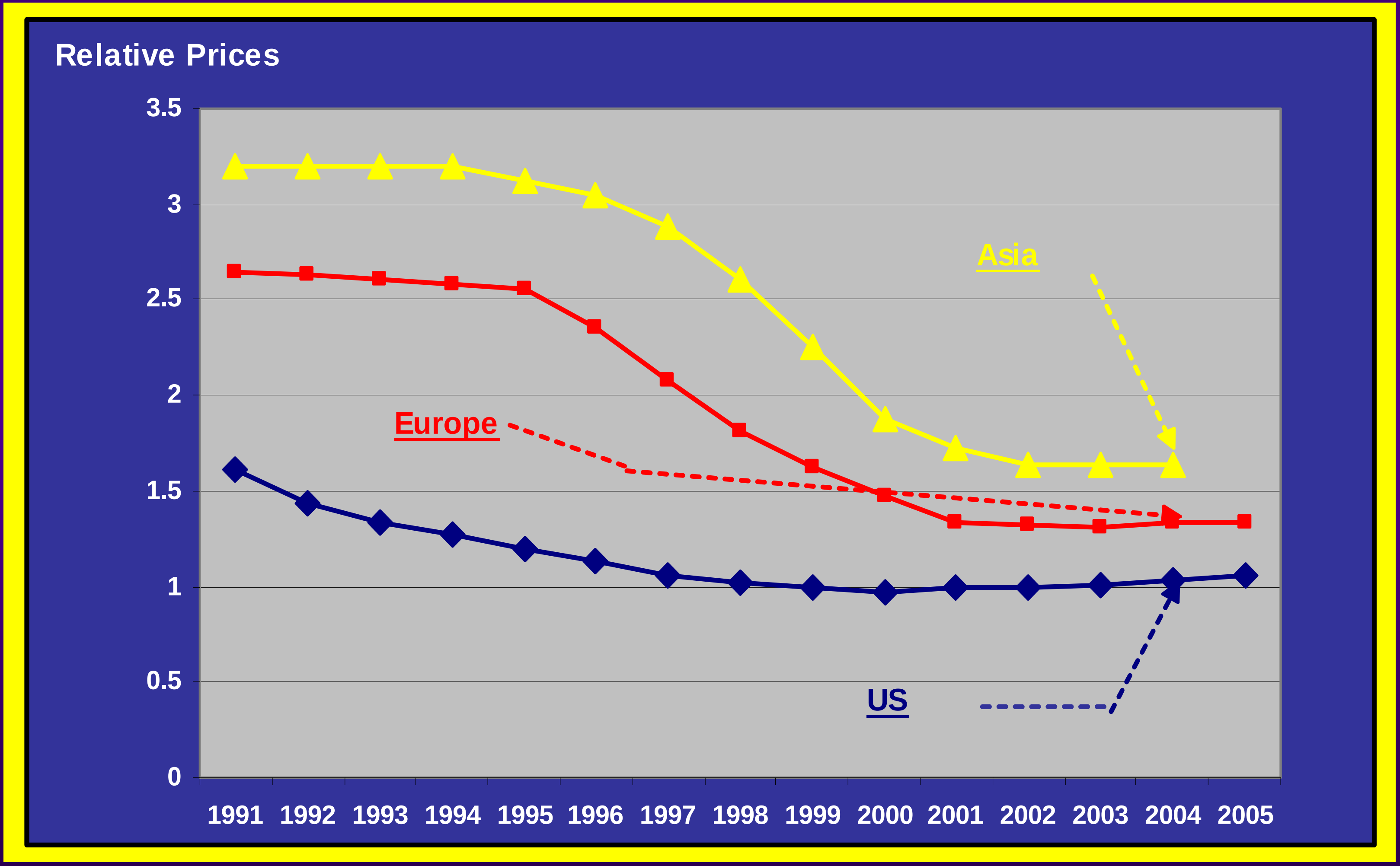
ISAR 2 (1): FANP----> WH

Ringhals 2 (1): WH--->FANP

Emsland (1): WH--->FANP

Changes in Price Trends

Europe & Asia: Stable, US: Increasing ~2%/ year



Changes in Supply

Few Supply Options in most Regions

BNFL (100%)
- Westinghouse
- ABB

→ **Westinghouse** → ?

PWR & BWR
Two (one large) powder facilities

Areva (66%)
Siemens (34%)

→ **Framatome ANP**

PWR & BWR
Two large powder facilities

GE Nuclear Fuel (60%)
Hitachi (18%)
Toshiba (22%)

→ **GNF**

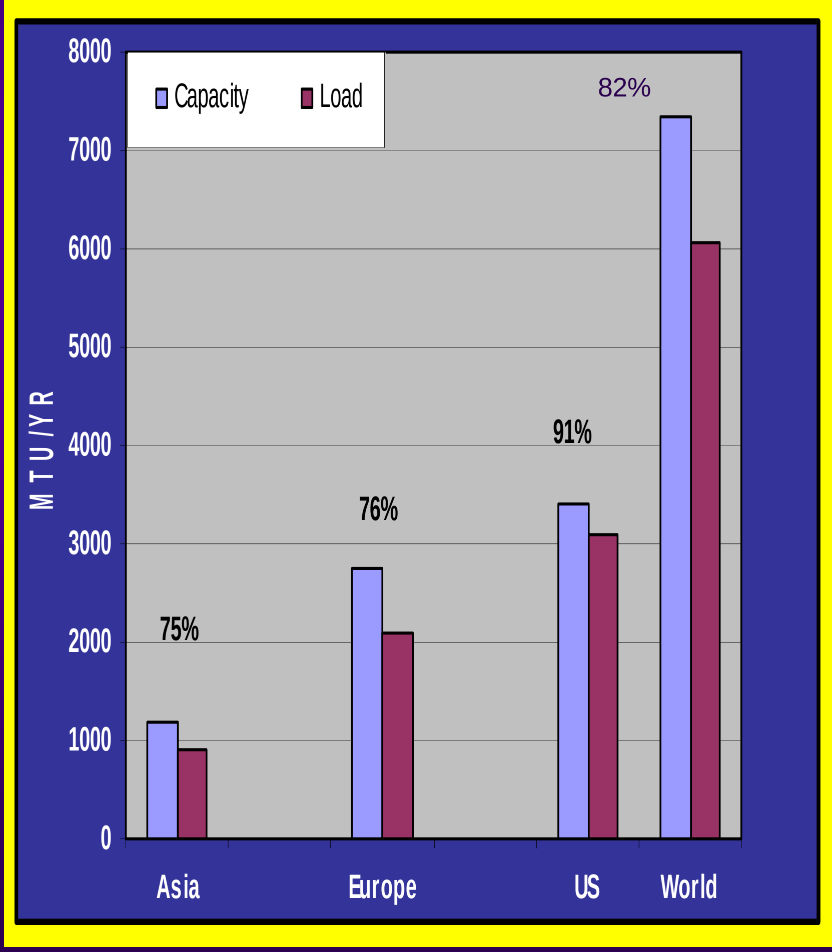
BWR only
One large powder facility

Vendor viability (reliability) is a related issue!

Changes in Supply/Demand

Marginal; Even Without New 1st Cores

- Powder Limited Industry
- Japan Situation Bad
  - Demand = 3 Supply
- US Situation Marginal
  - Demand > 90% of Supply
- Europe Situation Satisfactory
  - Pending New 1st Core Demand
- Asia (ex-Japan) Situation OK
  - KNFC Expansion

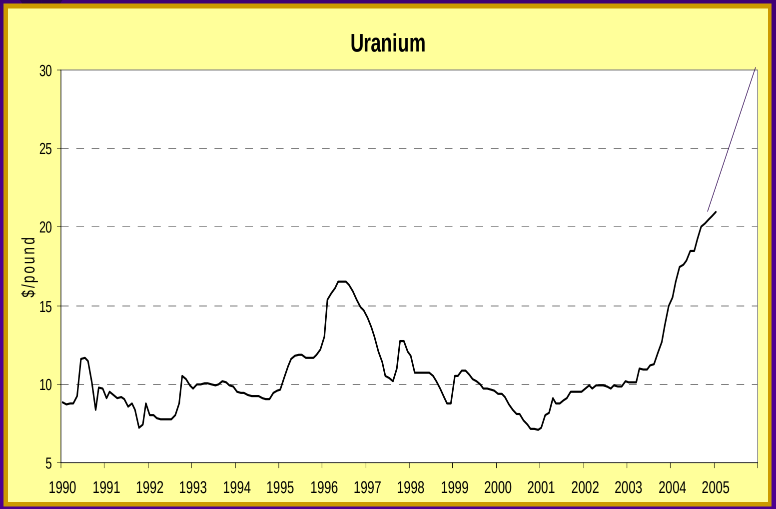


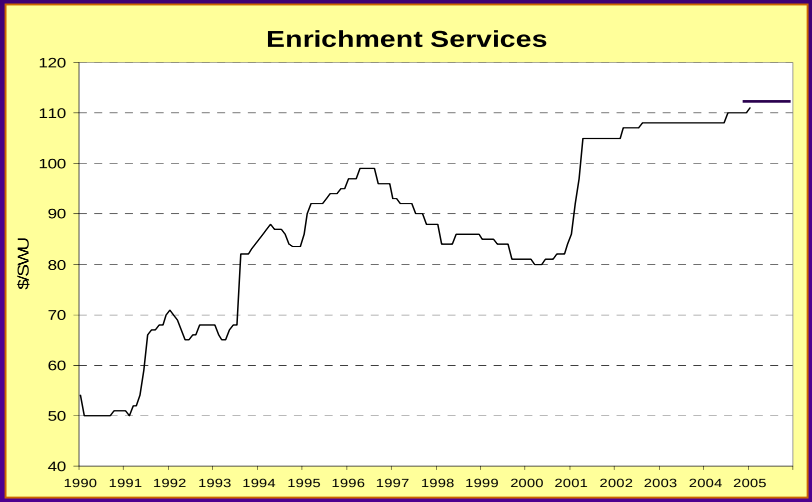
Multiple New 1st Cores are a Threat!

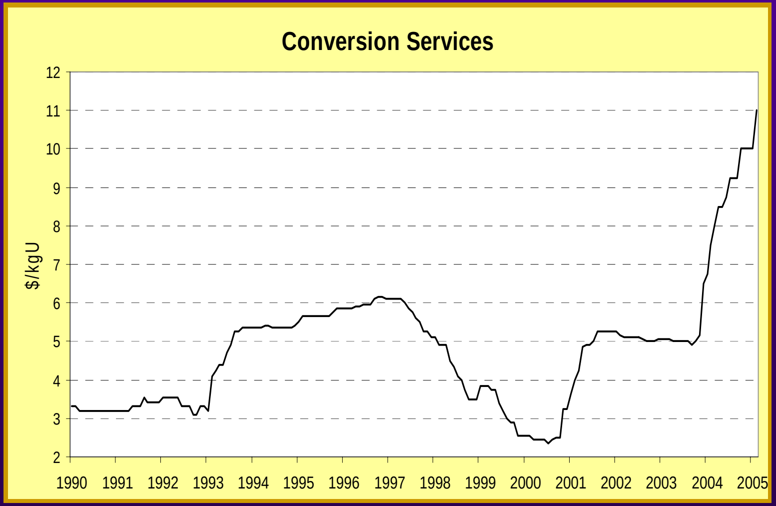
- Limited <u>Interchangeable</u> Capacity
- @ FANP, KNFC, TVEL

High Commodity Prices

New commercial paradigm for vendors!







Assembly Design Features

Optimal Cycle Length

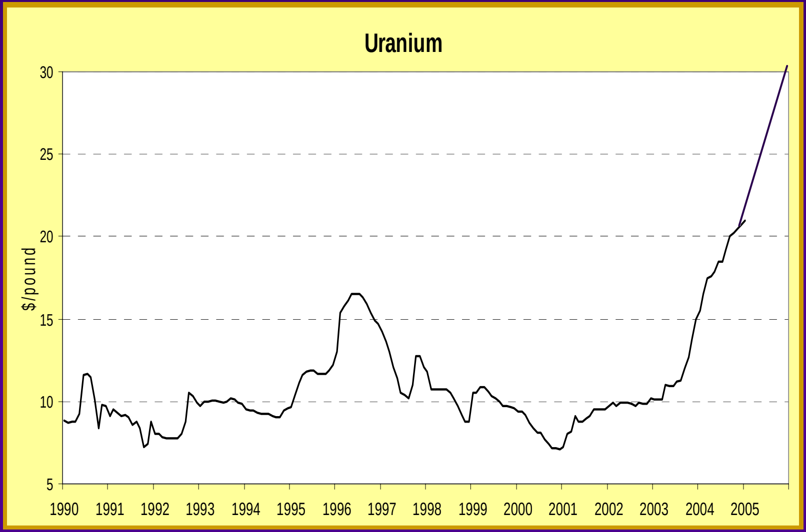
- High Burnup Issues
- High Enrichment Issues
- Burnable Poison Issues

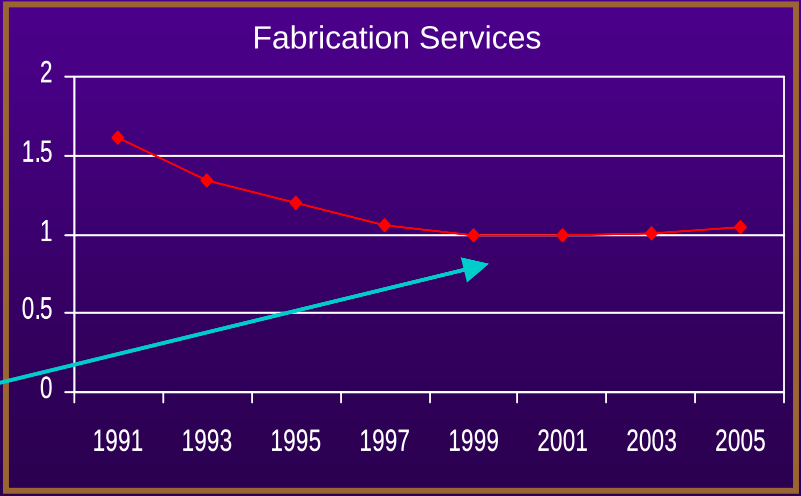
Alternative Feed Sources

(RepU, RecU, MOX)

Comprehensive Fuel Packages

- Commodities :
  - Prices Volatile and (now) High!
  - High %: Non-Asset Based, Spot Market
- Fabrication :
  - Prices Stable and (Relatively) Low
  - 100% Production Asset Based
  - Stable Long Term Commitments
  - Flexible, Long Term Planning
- Could Facilitate Introduction of:
  - Alternative Feed Materials
  - New Suppliers
  - ***Fabrication market type discipline.***





30th WNA Symposium

Summary 2005

- 1990s conditions are gone!?

  Fabrication segment is stable with good future prospects

- Nuclear renaissance creating some new issues!?

  Unanticipated new 1st core demand

- Commodity price rise creating operations review

  Product re-optimization

  Alternative Fuel Sources: Manufacturing capability

- Reliability of Limited Supply Industry

  Impact of Westinghouse Sale

  New supplier development