"NMC New Fuel Supplier Development Initiative"

NUCLEAR MANAGEMENT COMPANY, LLC

PARENT UTILITY OPERATOR FOR CONSUMERS ENERGY, ALLIANT ENERGY, XCEL ENERGY, WISCONSIN PUBLIC SERVICE, WE ENERGIES

5/7/2004

NMC Reactors

- Prairie Island 1&2; Monticello
- Point Beach 1&2
- Kewaunee
- Duane Arnold
- Palisades

NMC Objectives

- Develop and Maintain Viable Fuel Supply Alternatives for all NMC plants
  - Security of Supply
  - Technical Innovation
  - Competition
- Improve Internal Capabilities and Operations
- First Emphasis: PWRs
- Extend to BWRs

Nuclear Supplier Consolidations

- **BNFL** (100%)
  - Westinghouse
  - ABB

→ *Westinghouse* → *(?)*
(PWR & BWR)

- **Areva** (66%)
- Siemens (34%)

→ *Framatome ANP*
(PWR & BWR)

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

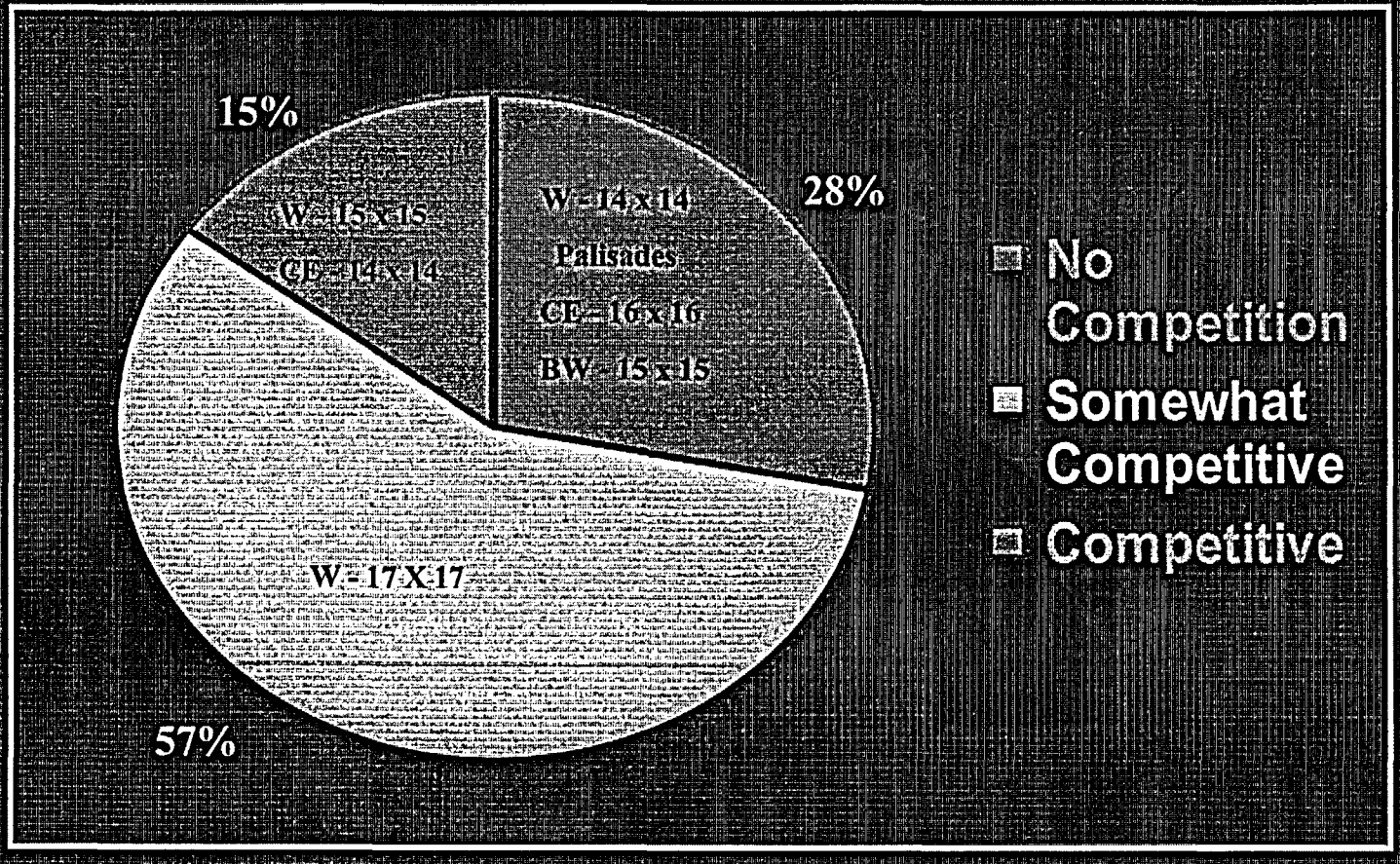
→ *GNF*
(BWR only)

US PWR Segmentation

Segment	% of Market	Share*
W 14x14	*4*	*West (100)*
W 15x15	9	West (47),FANP(33)
W 17x17	57	West (73),FANP(12)
B&W 15x15	10	FANP(100)
CE 14x14	6	FANP(54),West(35)
Palisades	*1*	*FANP(100)*
CE 16x16	13	West (92)

* Balance is uncommitted

US PWR Market Level of Competition



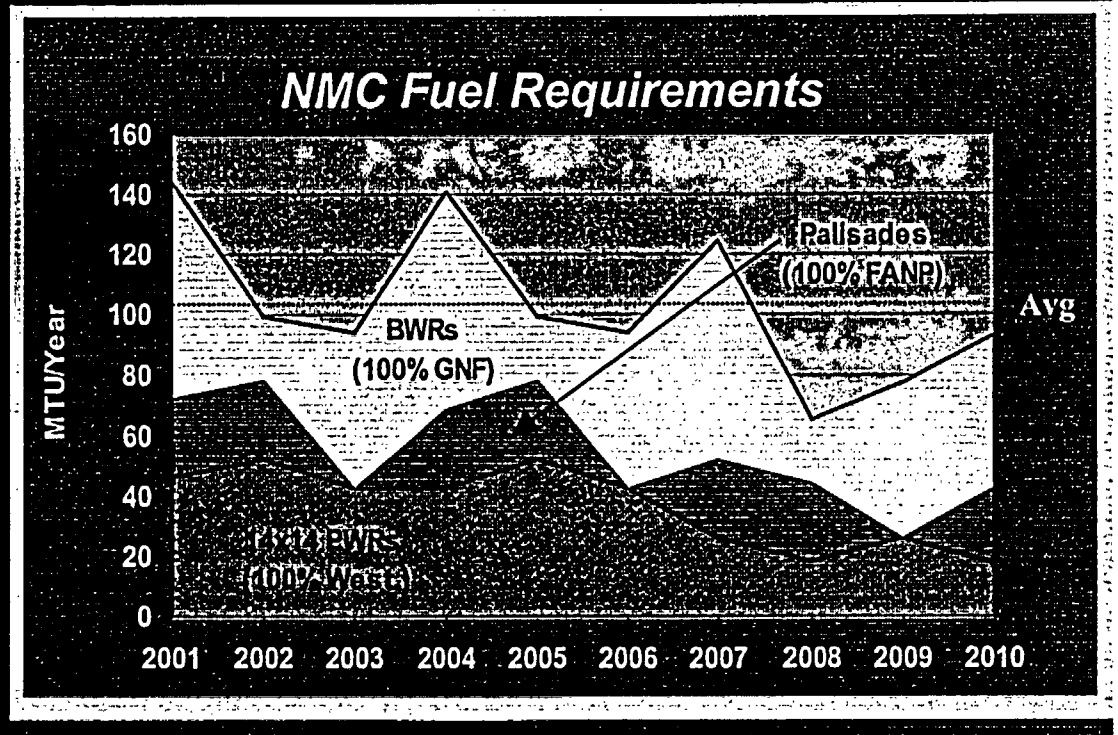
C-01

New Supplier Entry Barriers:
NMC Plant Specifics

- All NMC Plants (except Kewaunee) with same supplier (OEM) for more than 20 years (Negative Inertia !)
- Westinghouse 14x14 Reactors (Two Loop)
  - WX is Only Current US 14x14 Fuel Supplier
  - WX has Only Approved Upper Plenum Injection Analyses
  - WX has strong commercial advantage over new suppliers
- Palisades (Totally Unique Reactor)
  - Unique Fuel Design
  - Cruciform Control Rods
  - Unique Analytical/Licensing Issues
  - FANP is only Current Fuel Supplier

NMC Fuel Supply Issues (Going Forward)

- Already Pay **High Prices** ($40-50/KgU above market)
- **Monopoly** Status **Firming**
  - "Captive Customer"
  - Supply Interruptions (?)
  - Vendor Viability (?)
- **Entry Barriers** Increasing
- Competitive **Interest Waning**



Situation not likely to improve (without action)

C-02

TVEL Experience Base

- 100% State Owned Fuel Fabricator Since 1996
- ~ 750 million USD in Sales (2002)
- ~1750 MT/year Capacity at two facilities
  - Electrostal (near Moscow)
  - Novosibirsk
- ~ 1000 MT/year Production
  - VVER 440, 1000
  - RBMK, BN 600
  - ~100 MT/year LWR (with FANP-Siemens to Europe)
    - > 600 Fuel Assemblies delivered since 1997 (10 Reactor)
    - Orders for 1000 more through 2008
- Specific W14x14 Experience
  - Beznau: 60 FA since 2002 (164 more under contract)

TVEL Experience Base (cont.)

- Quality to Western Standards
  - New rod assembly line (1997)
  - Gadolinia Rod Line (2001)
  - New Dry Conversion Facility (2003)
  - IAEA regulations and standards
  - ISO 9000
  - Country Specific (Germany, Sweden, Switzerland, etc.)
- Zero defects in LWR Experience Base
- Capability to Fabricate Reprocessed Uranium

TVEL Facilities-Elecktrostal (later)