

4-8-98

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Bundy Specter

P 7

# The Department of Energy's Tritium Production Technology

## Decision

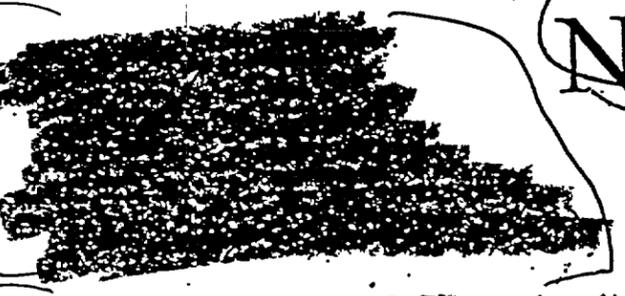
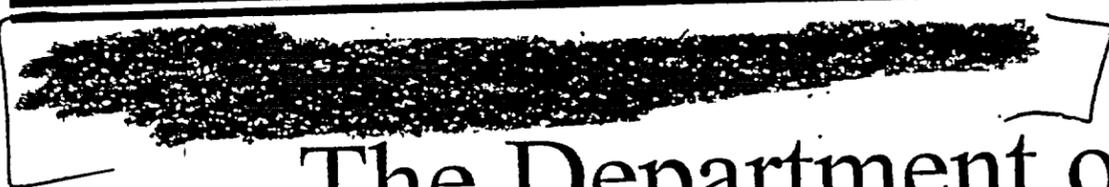
## Non-Proliferation

## Issues

Information in this record was deleted  
in accordance with the Freedom of Informa  
tion Act, exemptions 5  
FOIA-2000-0291

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EXS



# Technology Alternatives

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- **Commercial LWR (CLWR)**

Important Non-Proliferation Issues

- **Fast Flux Test Facility (FFTF)**

Important Non-Proliferation Issues

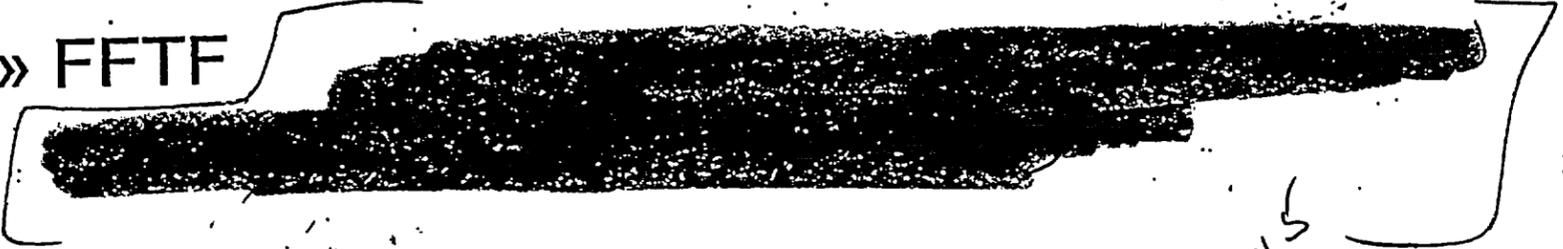
- **Accelerator**

No important Non-Proliferation Issues

# Context for Decision

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- Many factors, in addition to non-proliferation concerns, must be weighed in selecting among the three options
- Current cost estimates:
  - » CLWR as low as \$675 million over 7 years
  - » Accelerator \$3.4 - \$4.4 billion over 7 years
  - » FFTF



EX 5

# Commercial LWR Proliferation Issues

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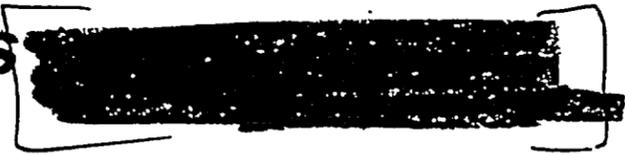
- Principal issue is departure from policy of maintaining ***separation of US civil and military nuclear activities***

## CLWR (2)

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- Policy evolved gradually during 1960s and 1970s
- Supports domestic nuclear power industry and US int'l engagement
- Supports US non-proliferation efforts
- Strengthened in recent years
- ***Never absolute - numerous exceptions***

EKS



## CLWR (3)

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- 1980 IAEA Voluntary Offer Agreement
  - » All CLWRs Eligible; none actually safeguarded
- IAEA has stated it could apply safeguards under Voluntary Offer Agreement even if reactor were producing tritium; not a safeguards violation

etc



# CLWR (4)

## Mitigating Factors

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- TVA is sole bidder (USG-owned -- mandate to serve US civil and nat'l defense -- history of support for enrichment program)
- Option -- Declare Watts Bar to be a DOE Defense Facility (redacted) EX5
- Maintain IAEA inspections
- Use unencumbered fuel
- Use DOE personnel



# Fast Flux Test Reactor Non-Proliferation Considerations

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- Civil/Military Separation: Civil DOE facility; could be declared to be a defense facility
- Plutonium Fuel -- *plutonium needed for fuel (after 18 months) has been declared excess, never to be used in (for) nuclear weapons*
- Benefit -- "Burns" excess plutonium



ex)

## FFTF (2)

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- HEU Fuel -- Unencumbered fuel available but use *runs counter to US policy to minimize use of HEU in commerce* [REDACTED]
- Benefit -- Burns HEU (but leaves ~40% enriched) [REDACTED] EXS

# Conclusions

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- CLWR -- Deviates from separation of civil and military nuclear activities, but impacts can be mitigated
- FFTF - Plutonium -- Lacks source of unencumbered fuel
- FFTF - HEU -- Departs from US HEU policy