

# Fissile Material Cutoff: A Nuclear Security Perspective

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# Nuclear security

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“The overall objective of a ... nuclear security regime is to protect ... society ... from malicious acts involving nuclear material and other radioactive material”

IAEA Guidelines, INFCIRC/255 Rev. 5

# Fissile Material Cutoff Treaty

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- “A non-discriminatory, multilateral and internationally and effectively verifiable treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices.”
- Could address “other issues, such as the management of [fissile] material.”

Report of Amb. Shannon, 1995

# Nuclear security: Responsibility of states

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Nuclear Security Summits reaffirmed/stressed

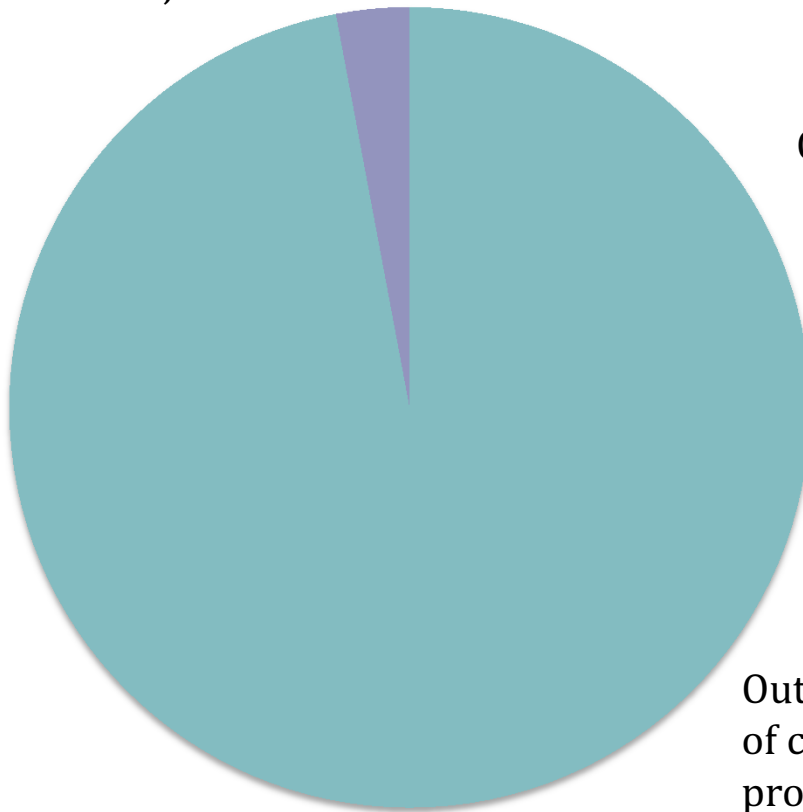
“the fundamental responsibility of States ... to maintain effective security of all nuclear materials, which includes nuclear materials used in nuclear weapons, and nuclear facilities under their control”

# Global fissile material stockpile

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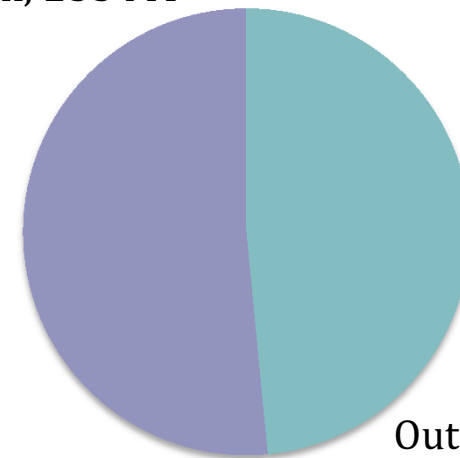
## HEU, $1440 \pm 130$ MT

Civilian, 40 MT



## Plutonium, $495 \pm 10$ MT

Civilian, 255 MT



Outside  
of civilian  
programs,  
1440 MT

Outside  
of civilian  
programs,  
240 MT

Source: International Panel on Fissile Materials

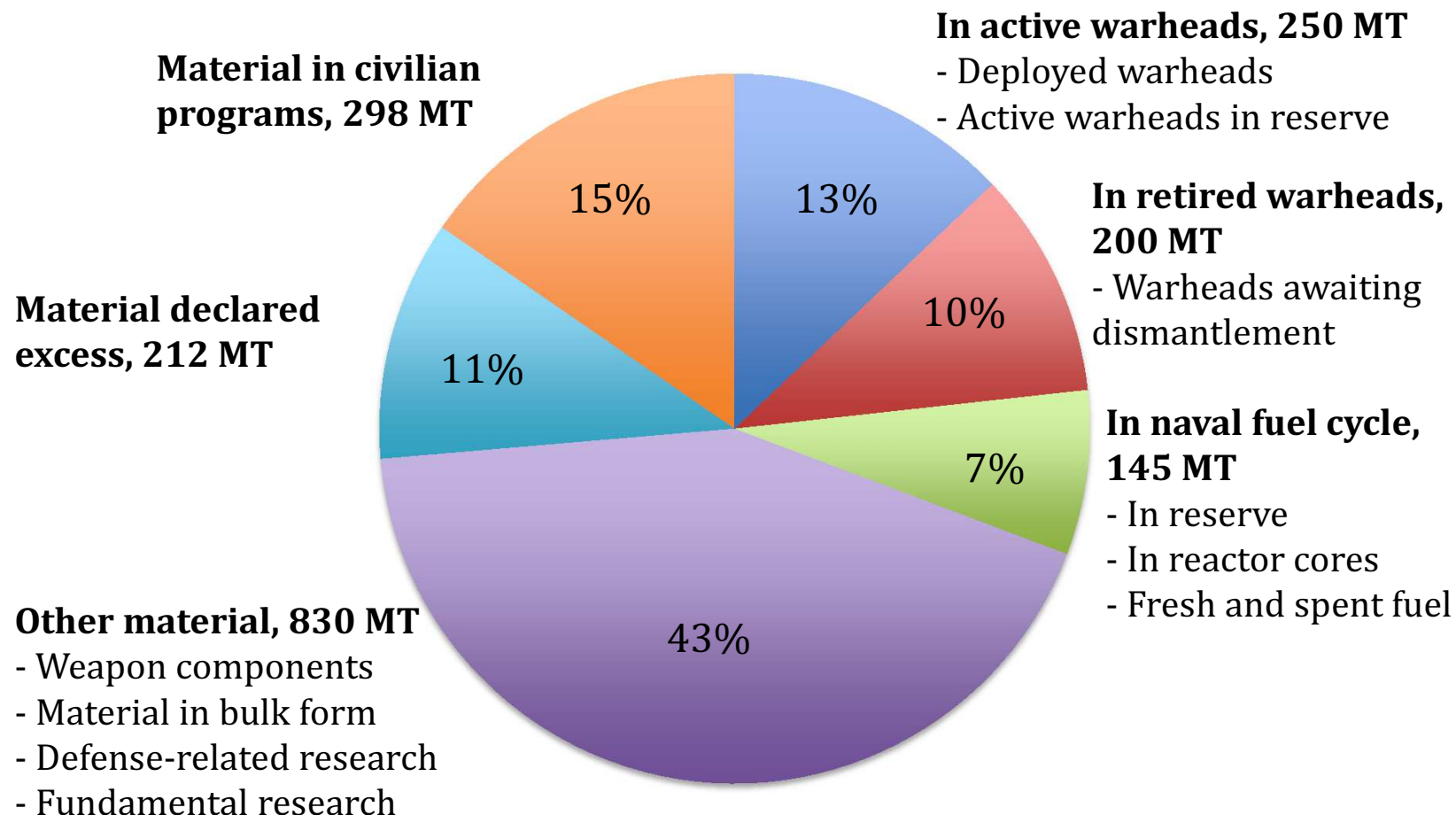
# Security of military material

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- Is military material better protected?
  
- Recent incidents
  - August 2007, Minot AFB, United States
    - Unauthorized and undetected transfer of six nuclear cruise missiles
  - July 2012, Y-12 Complex, United States
    - Security breach at HEU Storage Facility
  
- Challenges of securing military materials
  - Secrecy
  - Regular transfers of material
  - Different protection for different categories

# Global fissile material stock: categories

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# Nuclear security regime

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- Convention on the Physical Protection of Nuclear Materials
  - Material in peaceful use in international transport
- Amendment to the Convention
  - Material that is “not in military use or retained for military purposes”
- Convention for the Suppression of Acts of Nuclear Terrorism
- UNSC Resolution 1540
- IAEA
  - Development of guidance and standards
  - Assistance to member states
  - Peer review and advisory services
- WINS
  
- Almost no obligations regarding protection standards
- Enforcement and verification is extremely difficult



# FMCT scope and nuclear security

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- Potential FMCT scope
  - (as suggested by the International Panel on Fissile Materials)
  - Civilian material
  - Fissile material production facilities (including former military facilities)
  - Material declared as excess for military purposes
  - Material declared for use in military reactors
- Safeguards at military facilities
  - IAEA access to facilities
  - Openness to peer-review, cooperation, exchange of best practices in nuclear security

# Excess weapon-origin plutonium

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## ■ United States

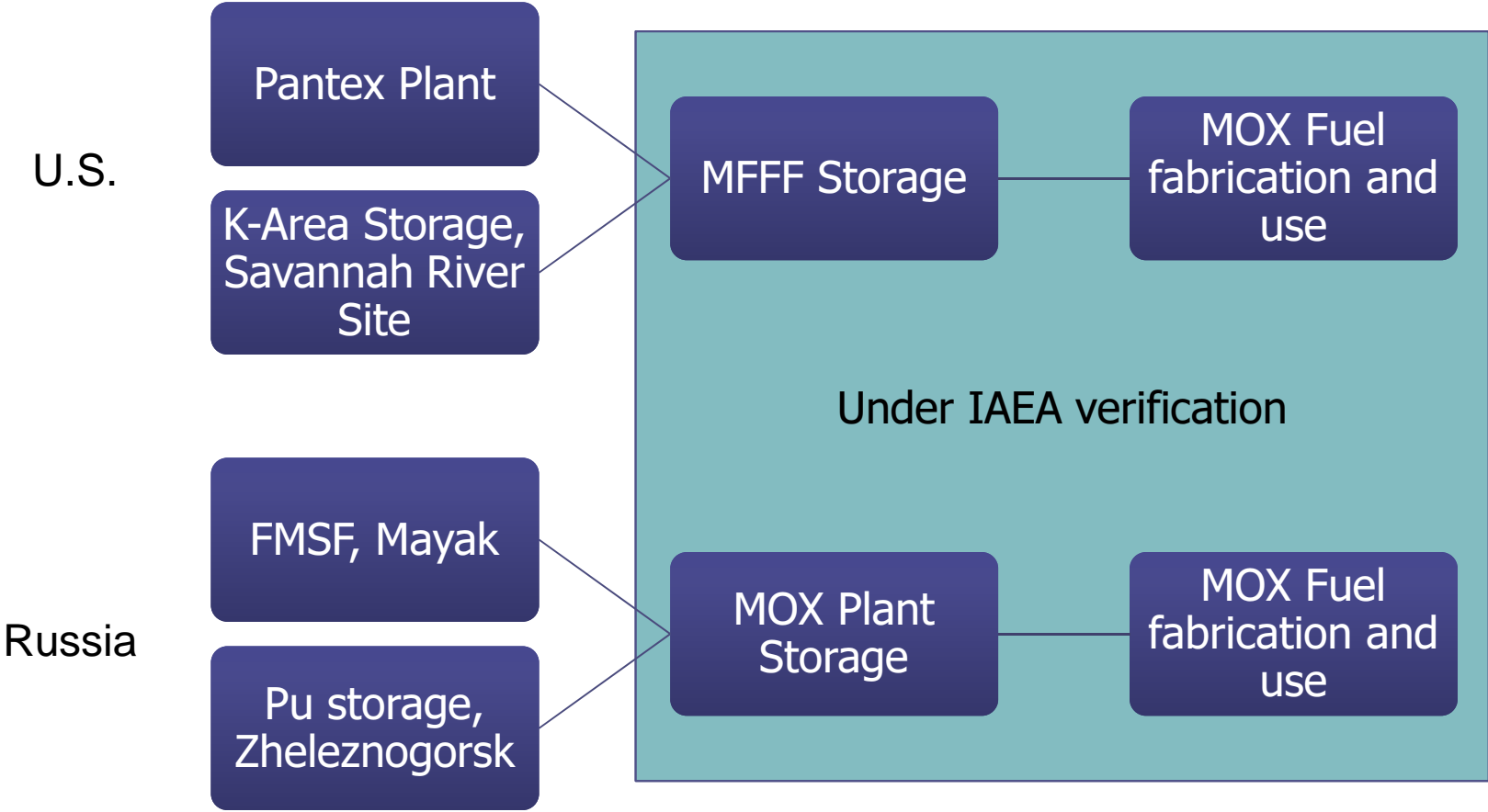
- More than 50 MT declared excess
- 23.4 MT is at Pantex in weapon components
- 8.8 MT at the Savannah River Site
  - About 2 MT are under IAEA safeguards
- More than 34 MT to be disposed of as MOX (U.S.-Russian agreement)

## ■ Russia

- Up to 50 MT declared excess
- 34 MT to be disposed of in fast reactors (U.S.-Russian agreement)
- 6 MT will not be used for weapons

# Plutonium disposition program

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# IAEA safeguards and nuclear security

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- Safeguards scope
  - “safeguards will be applied ... for the exclusive purpose of verifying that [fissile] material is not diverted to nuclear weapons or other nuclear explosive devices.”
  
- Safeguards of military facilities and materials
  - IAEA deals with peaceful use of materials
  - Voluntary offer agreements with weapon states
  - New safeguard agreements may be needed for FMCT

# Voluntary Offer Safeguards Agreements

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	<b>Scope</b>	<b>Right to withdraw</b>
United States	All materials and facilities “excluding only those facilities associated with activities with direct national security significance”	Yes
United Kingdom	All materials and facilities “subject to exclusions for national security reasons only”	Yes
Russia	“Some of its peaceful nuclear facilities, namely several nuclear power stations and nuclear research reactors”	Yes
China	“Some of its civilian nuclear facilities”	Yes
France	Civil nuclear materials and facilities safeguarded by Euratom	Yes

# Some conclusions

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- Nuclear security makes a stronger case for fissile material cutoff
- FMCT would help address security of military materials
- Important to include excess material and military reactor material in the scope of FMCT
- FMCT safeguards arrangements should facilitate openness, assistance, sharing of best practices