

# US policy objectives for the critical medical isotope $^{99}\text{Mo}$

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Mo-99 Topical Meeting

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# Outline

- The President's nuclear defense policies
- Nuclear Security Summit objectives
- U.S. Mo-99 policy goals
- Domestic and International activities



# President Obama in Prague



Now, one of those issues that I'll focus on today is fundamental to the security of our nations and to the peace of the world — that's the future of nuclear weapons in the 21st century.

President Obama, Prague, April 2009

The President and his Administration are highly focused on nuclear security and preventing nuclear terrorism



# Nuclear Security Summit April 2010



- President Obama hosted 46 other countries and 3 international organizations
  - Discuss important steps that the world can take to increase nuclear security and reduce the chances that terrorists would steal nuclear material.
- All countries signed up to a Work Plan, including minimizing the use of HEU in civilian applications



# Minimizing HEU Use is a Key Nuclear Security Summit Commitment

Minimizing the use of HEU in civilian applications:

Participating States will consider, where appropriate, converting highly-enriched-uranium fueled research reactors, and other nuclear facilities using highly enriched uranium, to use low enriched uranium, where it is technically and economically feasible;

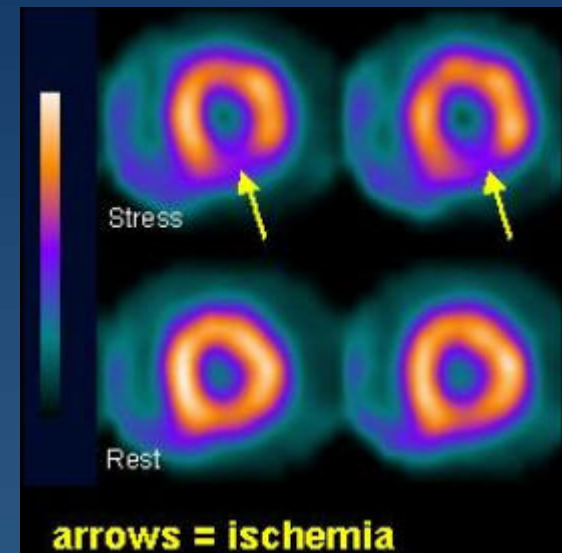
Participating States, as appropriate, will collaborate to research and develop new technologies that require neither highly enriched uranium fuels for reactor operation nor highly enriched uranium targets for producing medical or other isotopes, and will encourage the use of low enriched uranium and other proliferation-resistant technologies and fuels in various commercial applications such as isotope production;



# Mo-99 Policy Objectives

- Ensure reliable supply of Mo-99 for 30 million worldwide patients annually
- Eliminate HEU use in Mo-99 production
- End subsidies and establish an economically-sound industry

Balance improving nuclear security with maintaining a reliable medical isotope supply.



# HEU Minimization or Elimination

- Heads of State will gather in Seoul in March 2012 for the next Nuclear Security Summit and will discuss steps that they have taken on the Work Plan.
- The US intends to provide deliverables that advance the Work Plan on HEU minimization.
- Senate Bill 99 passed the Senate November 17 – strongly supports the Administration’s policy objectives and codifies much of the legal path forward
- May letter to President Obama from Representatives Markey and Fortenberry expressed concern about HEU use in Mo-99 production and the potential cost differential of LEU-based versus HEU-based Mo-99



# Strategy

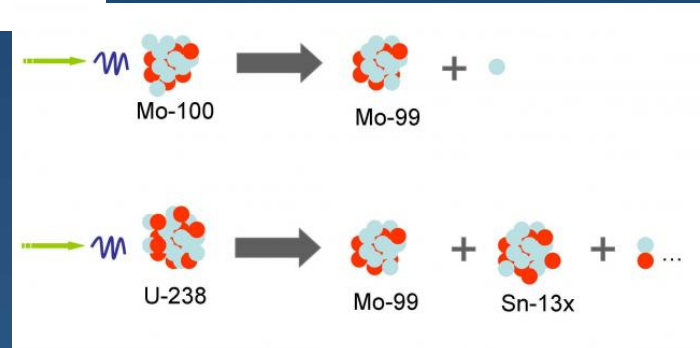
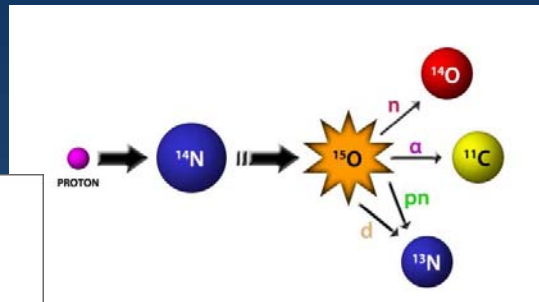
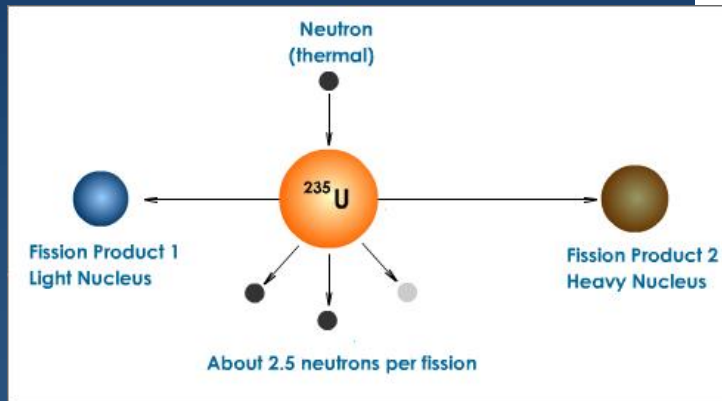
- Engage as needed to mitigate future crisis
- Coordinate with stakeholders to implement the route to full-cost recovery and proper reimbursement rates
- Encourage non HEU-based Mo-99 procurement
- Engage with Congress to consider ways to ensure the preferential procurement of medical isotopes produced with non-HEU-based processes.





# Strategy

- Implement HEU minimization technologies
- Encourage the development of domestic suppliers
  - The industry in general needs to have new, sustainable capacity developed to ensure global reliable supply



# Government Action is required

- Replacement capacity for aging facilities and the structure of the current industry was not addressed for many years.
- Supply disruptions resulted
  - 2007 – National Research Universal (NRU) Reactor in Canada shut down for safety reasons
  - 2008 – MAPLE reactor project in Canada cancelled
  - 2010 – supply again restricted due to NRU safety issues and a scheduled outage at the Dutch reactor



# Approach

Complicated range of issues, help needed from large number of departments/agencies

⇒ White House lead

- Interagency Working Group – meets as needed, typically quarterly
- Stakeholder’s Group – meets every ~6 months
- Engage with U.S. Congress (e.g. S.99 and predecessor bills, Markey/Fortenberry letters)
- USG engagement in international fora
  - Organization for Economic Cooperation and Development – Nuclear Energy Agency/High-Level Group on Medical Radio Isotopes (OECD-NEA/HLG-MR)
  - Bilateral discussions on HEU minimization and supply
  - Coordinate with IAEA efforts in this arena



# Interagency Working Group

- DOE/NNSA/Global Threat Reduction Initiative (GTRI)
- DOE/Office of Science (DOE/OS)
- DOE/Nuclear Energy (DOE/NE)
- Food and Drug Administration (FDA)
- Department of Health and Human Services/Center for Medicare and Medicaid Services (HHS/CMS)
- Department of State (DOS)
- Department of Homeland Security (DHS)
- Nuclear Regulatory Commission (NRC)
- Department of Transportation (DOT)
- National Institutes of Health/National Cancer Institute (NIH)
- Office of Management and Budget (OMB)
- OSTP and National Security Council (NSC) Staff



# Stakeholder's Group

- Interagency working group
- Covidien
- Lantheus Medical Imaging
- Council on Radionuclides and Radiopharmaceuticals
- Health Physics Society
- American Association of Physicists in Medicine
- American Society for Therapeutic Radiology and Oncology (ASTRO)
- American College of Radiology
- Society of Nuclear Medicine
- National Association of Nuclear Pharmacies
- American Society of Nuclear Cardiology



# This is a Good Story in the Making

- The world is concerned that terrorists can use HEU to build an improvised nuclear device to destroy lives. We are using these materials to save lives.
- The medical isotope production community has the rare opportunity to help advance the mission of the Nuclear Security Summit.
- There is a good narrative developing here: A community working together to prevent nuclear terrorism while assuring the reliable supply of isotopes for the benefit of the global medical community.



# Conclusions

- Help ensure supply of Mo-99 for 30 Million patients annually
- While eliminating the use of HEU in medical-isotope production
- And transitioning to an economically-sustainable market for Mo99



*“This supply of a significant quantity of Mo-99 from LEU-based production clearly shows the technical and economic viability of this method. In the future, we expect that the medical community will be able to procure this isotope entirely from suppliers who use LEU and other non-HEU-based production methods that support nuclear security and HEU minimization goals.”*

*Gary Samore, Special Assistant to the President and White House Coordinator for Arms Control and Weapons of Mass Destruction, Proliferation, and Terrorism*

