U.S. Civilian Nuclear Cooperation: Conditions and implications

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Some Background

- International nuclear cooperation – an outgrowth of Atoms for Peace program
- Guidelines found in Section 123 of 1954 Atomic Energy Act, as amended
- More than two dozen agreements in place
  - Several pending entry into force – Russia, Australia
  - A few under negotiation – Jordan, Vietnam

Controlling the atom

- Tight restrictions from1945 to 1954 -- very limited cooperation, mainly to secure uranium for the U.S. nuclear weapons program
  - Congressional control gradually tightened
- US as dominant supplier through 1970s
  - Reactors plus enriched uranium
  - Supply disrupted in mid-1970s; led to URENCO consortium
- 1978 Nuclear Nonproliferation Act – responding to nonproliferation events, but also to ensure stable supply relationships
- Existing agreements were to be renegotiated after 1978; all but a handful were

Recent History: Nuclear enthusiasm

- Nuclear enthusiasm
  - Bush Administration
  - World Nuclear Association (John Ritch)
  - American, French, Russian, US (plus China, Korea, India) industry
- Rest of world catching on
  - 30 (plus Taiwan) have nuclear power reactors; an additional 50 now want them
    - **UAE, Vietnam, Turkey are closest**
    - **But the real growth is happening in Asia**
  - Implications for proliferation

Caveat: More enthusiasm than reality

- Nuclear's share of electricity production will decline, absent major (billions and billions) investment
  - Now 15%; will go down to 10%
- Energy security is about resource diversity and nothing else
- Climate change
  - Urgent now, now 20-30 years from now
  - Not a major player in reducing CO2

Nonetheless, policies have had impact

- Big push for nuclear energy
  - Many nuclear cooperation agreements being signed, everywhere
    - **E.g., Jordan has signed 9 such agreements recently**
  - Few have kinds of restrictions we have
- Impact of AQ Khan, Iran
  - Push for enrichment, reprocessing restrictions
  - GNEP, Nuclear Suppliers Group haven't worked
- On top of it all, India nuclear cooperation agreement
  - Sends wrong message
  - Makes state push for their perceived "rights"
    - **E.g.,consent for reprocessing, enrichment**

State of Play

- Bush administration
  - GNEP for global nuclear architecture (VOLUNTARY RESTRICTIONS)
  - NSG/G-8 to restrict (SUPPLY-SIDE)
  - Individual nuclear cooperation agreements (UAE, Russia, Jordan) (AD-HOC)

- Obama administration
  - GNEP/INFF for global nuclear architecture (VOLUNTARY RESTRICTIONS)
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Why this is not good

- GNEP
  - Revamped into international nuclear energy framework
  - No takers yet for “cradle-to-grave”
  - Some of the advanced reactors require reprocessing
  - “Leap-frog” technologies?
- NSG still failing to agree on new restrictions; G-8 moratorium on new e/r plants is over
  - Modest agreement on less restrictive criteria
    - **Exception for Additional Protocol for Brazil, Argentina**
    - **No language about countries that have previous agreements not to enrich or reprocess**
    - **Widespread agreement on NPT membership – is this really progress?**
- Ad hoc approach: limited success
  - Right now, just UAE

What's Next

- US no longer the dominant supplier
- Still need to get new suppliers to buy-in to additional restrictions
  - South Korea, China, India
- Possible that without legally binding limits, there are few options to restrict enrichment, reprocessing
  - Even though they are no economic reasons to expand

Possible Approaches: New restrictions in AEA?

- Section 123 of AEA has nine requirements
  - Full-scope safeguards plus physical security, etc. Requires US consent to transfer, store, alter in form or content
- Additional Protocol should be a new condition
- No e/r for NNWS?
  - Some problems with this (Germany, NL, Japan, ROK?)
- Liability?

Possible Approaches: New supply architecture

- Fuel leasing
  - Minimal approach – 10-yr contracts
  - Maximal approach – cradle to grave = changing competitive landscape forever
- Multinational facilities
- Regional Fuel Cycle Centers

All of these are optional, modest, and have limited support. Will miss not just those with intent to proliferate, but also obdurate NNWS

Possible Approaches: New treaty

- Make all (existing plus new) e/r multinational facilities
- Use Fissile Material Cutoff Treaty (FMCT) as the vehicle
  - Argument is: if not making fissile material for weapons, there's no need for a national facility
- This legally binding approach
  - Levels the playing field
  - Ends the haves versus have-nots
  - Provides another layer of transparency for national facilities
  - Reduces the risk that national facilities can be misused

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