



Nuclear Exports and Access to Nuclear Technology How to Find a Balance between Nonproliferation and Nondiscrimination

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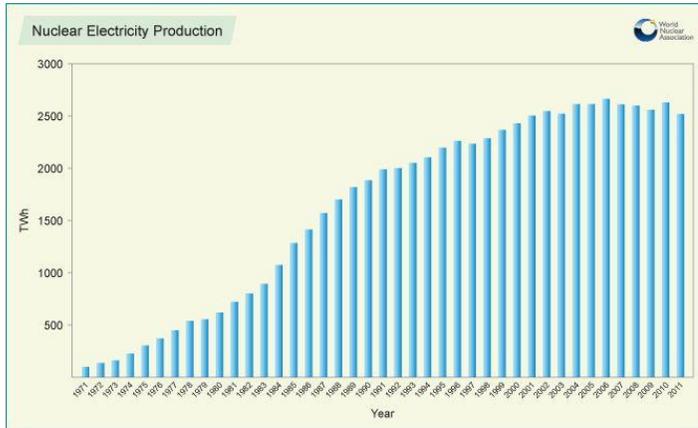
Framing the Debate: Three contested narratives on nuclear energy

1. **Future of nuclear energy:** Nuclear renaissance vs. nuclear decline
2. **Danger of nuclear energy:** Nuclear alarmism vs. nuclear all-clear
3. **Governance of nuclear energy:** technology restraint vs. inalienable rights /
unfettered access

Future of nuclear energy

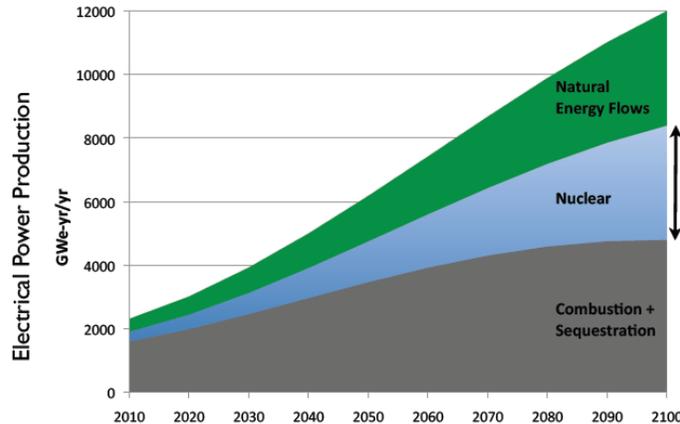
Narrative 1: Stagnation and decline

“...it will be practically impossible to maintain, let alone increase, the number of operating nuclear power plants over the next 20 years.”
(Mycle Schneider et al., World Nuclear Industry Status Report 2010-2011).



Picture taken from World Nuclear Association: Nuclear Electricity Production 1971-2011.

Narrative 2: Nuclear renaissance



A “typical” model integrating energy, environmental and economic constraints (see left picture):

Electricity demand grows from 2,000 GWe (2010) to 12,000 GWe (2100)
Nuclear power growth: 300 GWe (2010) to 3,600 GWe (2100)!

Picture taken from Robert J. Goldston: Climate Change, Nuclear Power and Nuclear Non-Proliferation, Science & Global Security, 19, 2011.

Dangers associated with the spread of nuclear energy

Narrative 1: Alarmists

- *„Peaceful nuclear cooperation and proliferation are causally connected because of the dual-use nature of nuclear technology and know-how.”*

Matthew Fuhrmann 2009, Spreading Temptation. Proliferation and Peaceful Nuclear Cooperation Agreements.

- *„Virtual nuclear weapon states.”*

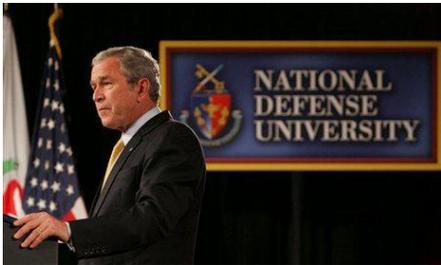
Mohamed ElBaradei 2009.

Narrative 2: All-clear

- *”If you have nuclear energy, you do for various reasons not want or get nuclear weapons. Nuclear energy becomes a kind of vaccination against nuclear weapons!”*

Lars van Dassen 2012, Learning from History in the Nuclear Age, or, Fumbling with Nuclear Numbers

Governance of nuclear energy



Narrative 1: Technological Restraint

“The ...Nuclear Suppliers Group should refuse to sell enrichment and reprocessing equipment and technologies to any state that does not already possess full-scale functioning enrichment and reprocessing plants.”

George W. Bush 2004, Speech at the National Defense University.

Narrative 2: Inalienable Rights

“The Nonaligned Movement rejects any attempts aimed at discouraging certain peaceful nuclear activities on the grounds of their alleged ‘sensitivity’ and emphasizes that any ideas or proposals pertaining to the non-proliferation of any peaceful nuclear technology are inconsistent with the objectives of the Non-Proliferation Treaty.”

Working Paper submitted by the NAM, NPT/CONF.2010/WP.46, 2010



Three (non-working) approaches to harmonize nuclear trade and nuclear non-proliferation

1. Nuclear newcomers pledge to forgo ENR („Gold Standard“)

Not required by all suppliers

Perceived as neo-colonial by some countries

Contradicts nuclear energy ambitions of some emerging nuclear energy countries

2. Newcomers pursue ENR within a multilateral framework

Lukewarm response by nonaligned countries

„A solution in search of a problem“

3. Self-restraint of suppliers on ENR

US example of phasing out plutonium economies not taken up by other nuclear suppliers

Multilateralization of existing commercial ENR lacks political will in advanced nuclear energy states

What lies ahead, what has to change

Harmonizing nuclear trade and nuclear nonproliferation requires some compromise from all parties involved:

1. Emerging and aspiring nuclear energy states must find some common language on how to restrain the spread of ENR.

2. Advanced nuclear energy states should lead by example and
 - a) start thinking about how to put their ENR facilities under some international control in the future („Acheson-Lilienthal reloaded“).
 - b) consider phasing out some of their proliferation-prone nuclear technologies

The road ahead – three scenarios

1. Nuclear energy is in decline.

business as usual

ritualistic skirmishes at NPT conferences on nuclear energy „inalienable“ rights etc.

2. Nuclear energy migrates from North to South.

Nuclear power stagnates or declines in OECD countries.

Nuclear power is on the rise in BRICS countries, MENA and SEA.

3. Nuclear renaissance, i.e. horizontal and vertical spread of nuclear power

Fuel issue unclear for this scenario (LEU, Th, Pu, D-T Fusion)

Conclusion

Finding a balance between Nonproliferation and Nondiscrimination will not be easy. At a minimum it requires

stronger integration of developing countries into the institutions of nuclear governance (NSG, IAEA, eventually OECD/NEA). Industrialized states cannot remain rule-makers and developing countries rule-takers.

readiness of advanced nuclear energy countries to lead by example in the realm of multilateral ENR and nuclear energy policies.

nuclear energy long-term perspective, which is economically viable, proliferation resistant and sustainable with respect to fuel availability.