

When Nuclear Plants Become Military Targets: What NPEC's War Games Show

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Nuclear Plants in War: It Could Be Awful

thejapantimes

COMMENTARY / WORLD

The risk of nuclear disaster in Ukraine

A Russian invasion raises questions about the country's 15 nuclear reactors and the dangers they pose



thejapantimes

COMMENTARY / WORLD

Preparing for a Russian nuclear meltdown

Addressing the risk of 'loose nukes' if Putin's Ukraine misadventure brings down his government

(Perhaps) It Won't Be as Bad as We Think

5 Key Resilient Features of Small Modular Reactors

These 5 features of small modular reactors bring resilience to the electric grid.

[Office of Nuclear Energy](#)



U.S. DEPARTMENT
of ENERGY

NATION/WORLD

Russians take Ukraine nuclear plant; no radiation detected after fire

by: Associated Press

Posted: Mar 4, 2022 / 04:30 AM PST

Updated: Mar 4, 2022 / 10:11 PM PST



Innovations in Reactor Technology

Modern nuclear reactors are designed with numerous safety features that minimize the risk of accidents. Small modular reactors (SMRs), for instance, **have several inherent safety advantages**. SMRs use passive safety systems that can function without human intervention or external power sources. These reactors are designed to withstand extreme events, including natural disasters, without releasing harmful radiation. Additionally, SMRs have a much smaller physical footprint and a smaller fuel inventory, which further reduces the potential impact of any incidents.



They're safer
than many say,
even in war.



In Any Case, We Will Prevail

Striking nuclear plants
is unlikely except,
perhaps, in total wars.



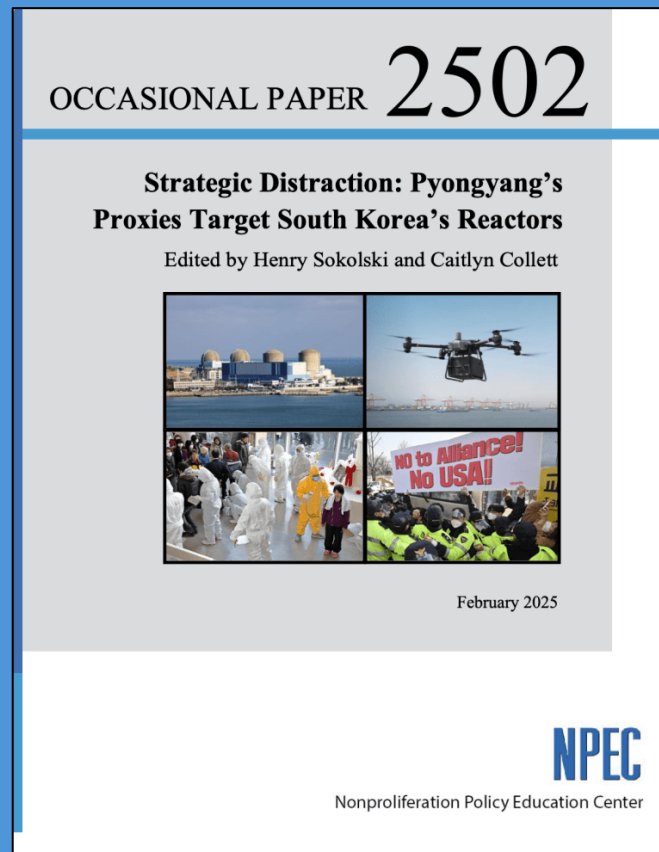
In a total war,
radiation leaks will just
be “background” noise.

There are military reasons to
hit reactors and we know how
to do this.

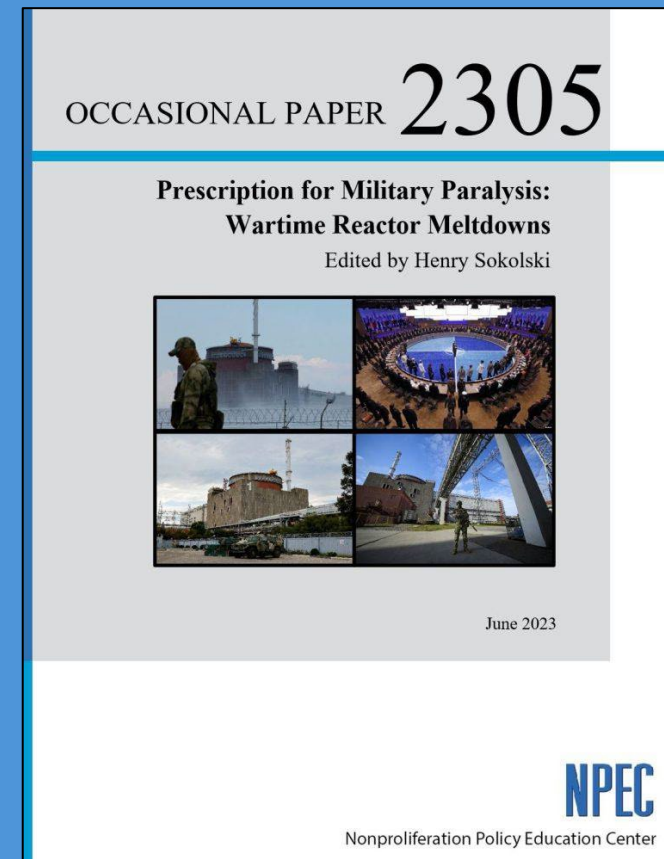
All these expectations discourage serious national planning even as the possibility of strikes against nuclear plants increases from:

- Russia (Ukraine)
- China (Taiwan)
- North Korea (South Korea)
- Israel (Iran)
- Metcalf Sniper Attack (2013)
- Moore County Substation Attack (2022)
- Pierce County Washington (2022)
- Clackamas Oregon (2022)
- Baltimore Plot (2023)

NPEC decided to test the conventional wisdom with two war games.



Korean Game



Ukraine Game

European Reactors in War: 2037

*Planned Polish
Nuclear Power
Plant.*



*Engles
Russian
Strategic
Nuclear Air
Base.*



*Cernavodă
Nuclear
Power Plant in
Romania.*



*Russian troops
attack
Zaporizhzhia
Nuclear Power
Plant.*

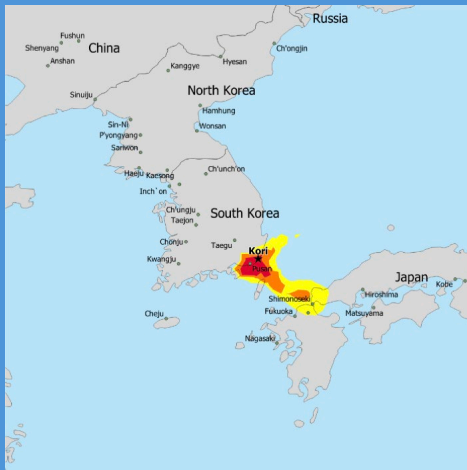


Strategic Distraction: Pyongyang's Proxies Target South Korean Reactors

*Relocation areas for
a hypothetical spent
fuel pool fire of the
Kori Unit-3.*



*Relocation zones
for a Kori Unit 3
loss of coolant
accident.*



What the Games Suggest:

- Incentives to strike reactors make them attractive targets.
- We're unprepared.



Radiation screening in Japan.



Added Proliferation Headaches: Fast Reactors & HALEU

Science

The weapons potential of high-assay low-enriched uranium

Recent promotion of new reactor technologies appears to disregard decades-old concerns about nuclear proliferation

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Prototype Fast Breeder Reactor.

What Should be Done?



1. **Public Discussion:** More forums/panels highlighting reactors as military targets.
2. **War Games:** Both classified and public, involving think tanks, U.S., and allies.
3. **Technical Studies:**
 - On current/proposed plant vulnerabilities.
 - On proliferation risks of SMRs, especially fast reactors and HALEU.
4. **Security Assessments:**
 - Evaluate costs/benefits of passive and active defenses.
 - Reconsider exports of bomb-adjacent technologies.

What Should be Done?

China's 102 nuclear power plants could be targets in future war, warns PLA

With the Russia-Ukraine war indicating that nuclear power plants are far from off-limits, China's PLA has warned that reactors close to the coast could come under attack in the event of a conflict.

Updated: May 10, 2025 11:11 AM EST

INTERESTING
ENGINEERING

May 14, 2025 5:28 AM UTC

Ghost in the machine? Rogue communication devices found in Chinese inverters



5. Create a Civil Infrastructure Defense (CID) initiative, which would include nuclear plants.

- Sanitize CUI and Critical Energy/Electric Infrastructure Information to enable public dissemination

6. Make NNSA redefine cooperative threat reduction by repurposing these efforts to a Nuclear Security Initiative (NSI) to undertake all the above.

7. The Defense Department should develop strategies to deter attacks against U.S. and allied electrical supply systems by putting hostile countries' electrical supply systems at risk. The strategies should emphasize temporary disablement.

Additional Reading

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Questions?

NPEC Website – www.npolicy.org

NPEC War Game Website – www.npecstrategygames.org

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