

Nuclear Power Subsidies Derail the Renewable Revolution

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University of Vermont Janus Forum Debate
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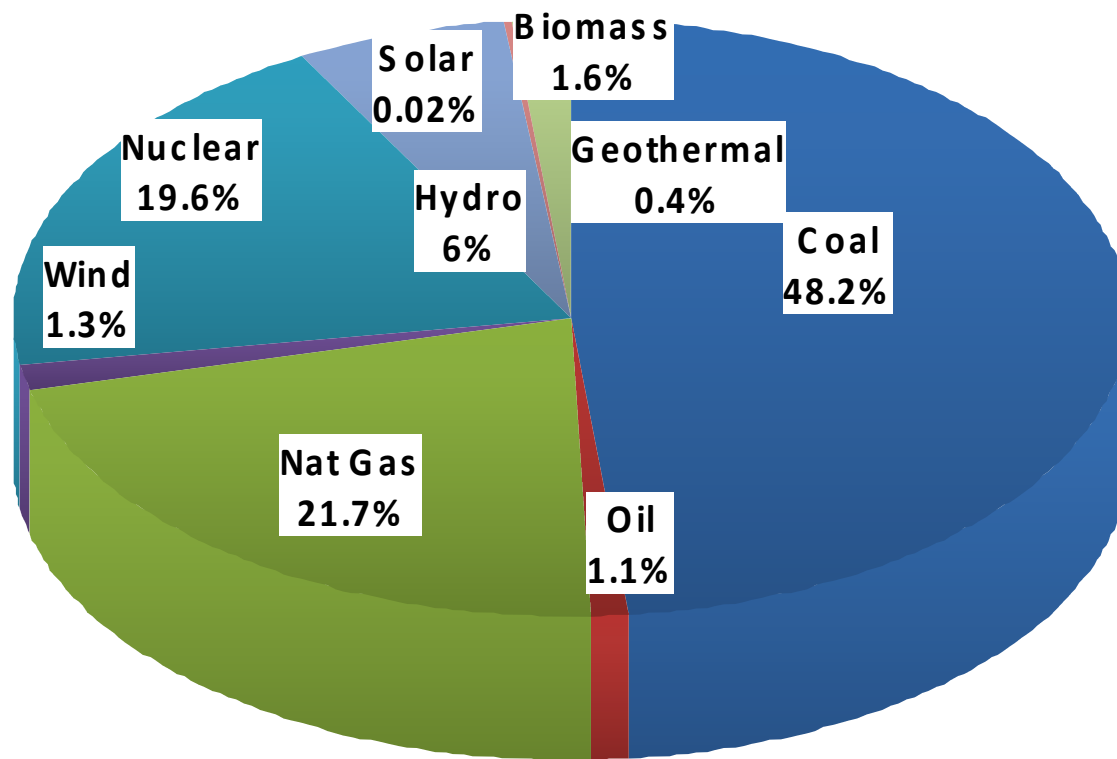
- Nuclear Power's Fatal Flaws

- Cost
- Waste/Proliferation
- Safety/Security

Competing Technologies—Renewables, Efficiency—are superior, cost-effective solutions

Nuclear Power Simply too expensive, too risky, too problematic

U.S. Net Generation by Energy Source, 2008





The Failed Renaissance : Reactors Canceled/Delayed Because of Massive Cost Projections

NRC Chairman Gregory Jaczko: New reactors will cost ~ \$10 billion each

www.azcentral.com/business/articles/2010/02/01/20100201biz-nuclear0202.html

And that's with cradle-to-grave corporate welfare: price-anderson, loan guarantees, production tax credit, taxpayers covering half of application costs, Clean Energy Deployment Administration, decommissioning

FPL postpones two new florida reactor projects in Jan '10 after regulators reject \$1 billion in rate increases www.sun-sentinel.com/business/fl-psc-increase-vote-20100113_0,5320042,full.story Based on this, Progress Energy

announces delay for its proposed Florida reactor <http://triangle.bizjournals.com/triangle/stories/2010/01/18/daily14.html>

Unistar withdraws New York reactor after failing to secure federal loan guarantees in Dec '09

www.syracuse.com/news/index.ssf/2009/12/application_reivew_for_buildin.html

South Texas reactor on hold after \$4 billion jump in costs, Dec '09 www.reuters.com/article/idUSN1115364120100111

Scana downgraded to BBB in Nov '09 over risk concerns associated with its plans to build two reactors

www.earthtimes.org/articles/show/fitch-rates-scanas-junior-subordinated-notes-bbb_1050101.shtml

Duke's South Carolina reactors delayed to 2021

http://charlotte.bizjournals.com/charlotte/blog/power_city/2009/09/nuclear_revival_may_not_arrive_on_schedule.html

In Sept '09 a co-op investing in Southern's planned new reactor at Vogtle was downgraded to

"negative" due to risks associated with building a new nuke [www.opc.com/oracle_cons/groups/public/@opc-](http://www.opc.com/oracle_cons/groups/public/@opc-web/documents/webcontent/ct_000404.pdf)

[web/documents/webcontent/ct_000404.pdf](http://www.opc.com/oracle_cons/groups/public/@opc-web/documents/webcontent/ct_000404.pdf)

TVA cancels three reactors, delays a 4th to 2022 www.timesfreepress.com/news/2009/aug/07/bellefonte-construction-pushed-back-again/

Ontario scraps plans in July '09 to build two reactors, citing \$26 billion price tag

www.thestar.com/business/article/665644

Exelon cancels nuclear expansion plans in June '09 [www.sfgate.com/cgi-](http://www.sfgate.com/cgi-bin/article.cgi?f=/n/a/2009/06/30/financial/f160326D89.DTL&)

[bin/article.cgi?f=/n/a/2009/06/30/financial/f160326D89.DTL&](http://www.sfgate.com/cgi-bin/article.cgi?f=/n/a/2009/06/30/financial/f160326D89.DTL&)

May '09: projected cost for PPLs new reactor jumps from \$4 billion to \$15 billion - Moody's downgrades

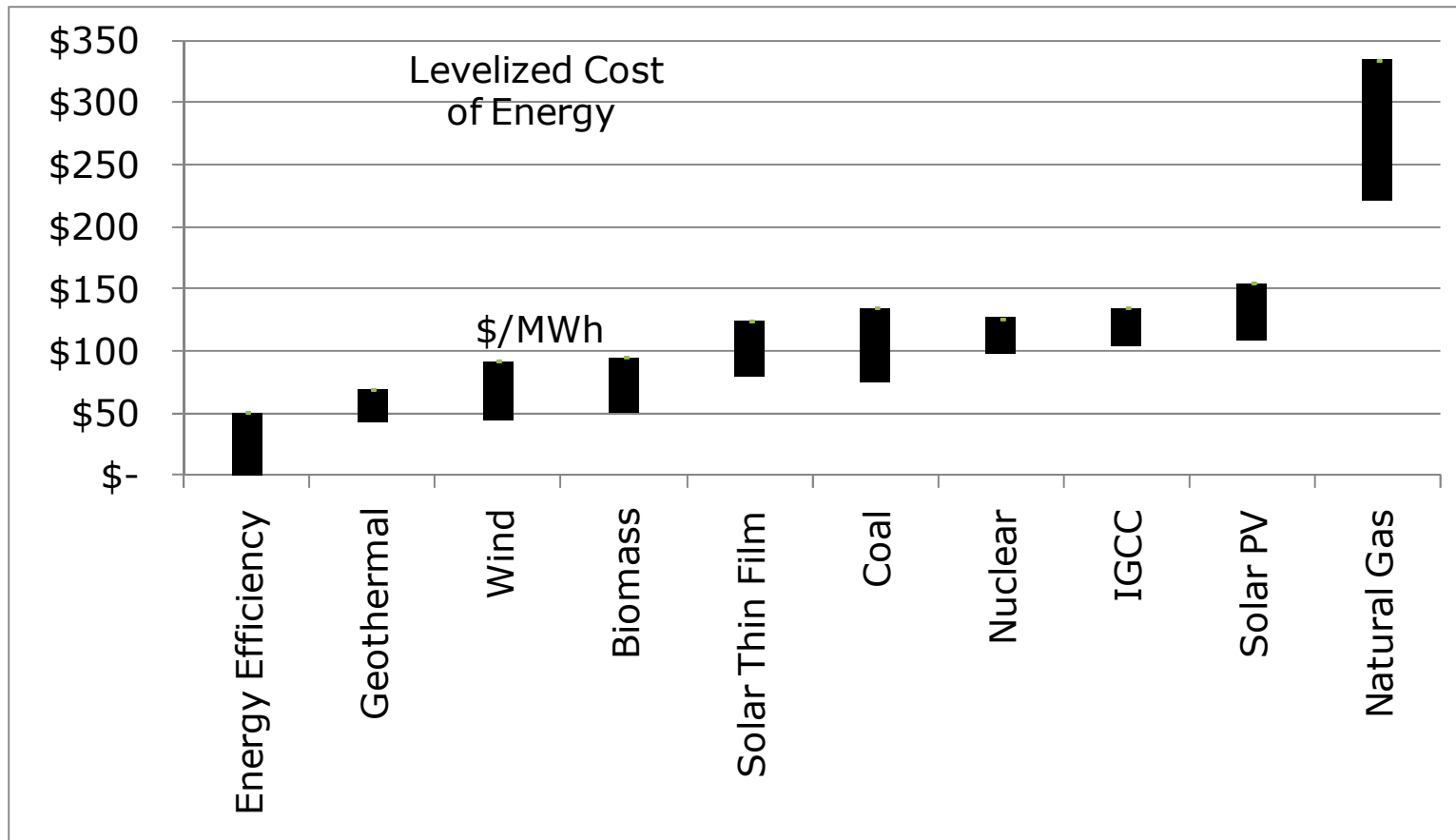
PPL to "negative" www.thestreet.com/story/10499503/moodys-changes-ppl-outlook-to-negative.html

April '09: Ameren suspends Callaway reactor www.komu.com/satellite/SatelliteRender/KOMU.com/ba8a4513-c0a8-2f11-0063-9bd94c70b769/d7e98869-80ce-0971-01b0-5ba68260a7c2

March '09 Entergy suspends Grand Gulf and River Bend

www.bloomberg.com/apps/news?pid=conewsstory&refer=conews&tkr=ETR%3AUS&sid=aQcR4U.m.9ic

Jan '08 Warren Buffett cancels Idaho reactor www.boiseweekly.com/boise/nuclear-dropout/Content?oid=935457



- Levelized costs include production & investment tax credit, but not loan guarantees. High end cost estimates for gas & coal assume 90% CCS.
- SOURCE: Lazard investment bank, "Levelized Cost of Energy Analysis, June 2008
[www.narucmeetings.org/Presentations/2008%20EMP%20Levelized%20Cost%20of%20Energy%20-%20Master%20June%202008%20\(2\).pdf](http://www.narucmeetings.org/Presentations/2008%20EMP%20Levelized%20Cost%20of%20Energy%20-%20Master%20June%202008%20(2).pdf)



- Waste
 - over 2,000 metric tons of high-level radioactive waste and 12 million cubic feet of low level radioactive waste are produced annually by the 104 operating reactors in the United States. No country in the world has found a solution for this waste. Building new nuclear plants would mean the production of much more of this dangerous waste with no where for it to go with Yucca Mtn cancellation
 - Reprocessing is the chemical process of extracting uranium, and plutonium from irradiated fuel after it is removed from a reactor.
 - Reprocessing process is extremely expensive, poses security and proliferation threats, leads to environmental contamination, and does not eliminate the need for a repository.



25% of U.S. reactors have experienced tritium leaks

<http://abcnews.go.com/Business/wireStory?id=9719847>

Oct '09 NRC rejects Toshiba's AP1000 for providing inadequate protection against earthquakes & tornados – more than half of planned new US reactors back to the drawing board

<http://online.wsj.com/article/SB10001424052748704112904574475613047969286.html>

A Joint letter from UK, French and Finnish regulators in Nov '09 demands that Areva redesign its EPR reactor to improve safety and security features

www.hse.gov.uk/PRESS/2009/hse221009.htm



- “We may not need any [nuclear or coal plants], ever... I think baseload capacity is going to become an anachronism. Baseload capacity really used to only mean in an economic dispatch, which you dispatch first, what would be the cheapest thing to do. Well, ultimately wind's going to be the cheapest thing to do, so you'll dispatch that first. People talk about, 'Oh, we need baseload.' It's like people saying we need more computing power, we need mainframes. We don't need mainframes, we have distributed computing...So if you can shape your renewables, you don't need fossil fuel or nuclear plants to run all the time. And, in fact, most plants running all the time in your system are an impediment because they're very inflexible. You can't ramp up and ramp down a nuclear plant. And if you have instead the ability to ramp up and ramp down loads in ways that can shape the entire system, then the old concept of baseload becomes an anachronism.” – Jon Wellinghoff, Chairman of the Federal Energy Regulatory Commission, April 2009



- Department of Energy: Wind Can Provide 20% of Northeastern US power needs by 2024
www.nrel.gov/docs/fy10osti/47078.pdf
- California Energy Commission Rejects Natural Gas Power Plant Because Rooftop Solar is equally cost effective
[www.cadesertco.org/Natural Gas & Electricity Journal 2009 August.pdf](http://www.cadesertco.org/Natural_Gas_&_Electricity_Journal_2009_August.pdf)
- As a direct result of FIT financing, Germany generates 4.5x more electricity from the sun than the U.S, and Spain 2.8x more (2008) www.eia.doe.gov/emeu/international/contents.html
- VPIRG: close Vermont Yankee and replace it with energy efficiency, renewables & biomass
www.vpirg.org/repowervt