



PUSH THE PAUSE BUTTON ON MORE NUCLEAR PLANTS

Before committing to a costly mistake we've made before, let's consider some facts.

Nuclear Energy Has Five Fatal Flaws

1 - Cost

The last time we tried to build a nuke it took three times as long as estimated to build it, coming in eight years late and costing 6 times more than originally promised!

Despite the old promise that nuclear energy will be “too cheap to meter”, nuclear plants have turned out to be enormous cash cows. Construction of nuclear plants is so expensive that they cannot be built without government subsidies.

- The 2005 energy bill includes over \$13 billion in tax breaks, subsidies, and other incentives to the nuclear industry for example the Production Tax Credit for electricity produced by reactors. 1.8 cent tax credit per kwh for the first eight years would cost \$5.7b.

If reactor designs are inherently safe, why aren't they insurable?

- The bill also extended the 1957 Price-Anderson Act (a subsidy), which limits the amount of primary insurance that nuclear operators have to carry to \$300 million and caps total liability of nuclear operators in the event of an attack or serious accident. Actual accidents can be much more costly. The balance will put on the taxpayer.

What's most galling is that Washington and the nuke builders know new nuclear plants will cost more and take more time to build than promised.

- Risk Insurance: The 2005 energy bill gives \$2 billion away in risk insurance to pay industry for any delays in construction and operation licensing for 6 new reactors due to Nuclear Regulatory Commission or litigation.
- Loan Guarantees and Power Purchase Agreements: The nuclear industry now has unlimited federal loan guarantees for 80% of construction cost of new reactors. They can borrow at government treasury bond rates rather than at rates typically paid by a large utility making a risky investment.
- Within 20 months after commencing construction, the Western world's only current nuclear construction project by Areva in Finland was already 2 years behind schedule and is 25% percent over budget.
- Taiwan's Lungman reactor has fallen 5 years behind schedule and China's Tianwan project took 2 years longer than planned.

How will the cost of nuclear plants impact San Antonio?

NRG is proposing to build the nukes for the same price per kilowatt hour as STNP cost at completion 25 years ago, but what part of the increase in steel, concrete and labor don't they include in the cost estimates?

San Antonio has a long and sad history with nuclear power. The city invested 28% in the South Texas Project's first two reactors in 1972 (currently 40%). The reactors ended up \$5.6 billion over budget and almost a decade late.

- San Antonio's final bill on the nuke is unknown to the public.
- We already have the less expensive solution to our growing demand for electricity: energy efficiency and renewable energy.
- **The CPS-commissioned report by KEMA Inc. showed that the city can save 1220 megawatts of electricity by adopting stronger building codes and enhanced retrofit programs. That's more than the 40% share (1080 megawatts) CPS would get from the two new reactors.**
- The study did not even consider increased power from solar energy programs, which would have much lower capital costs if done in coordination with the city of Austin and the Lower Colorado River Authority.

Who is NRG?

NRG Energy, Inc. holds a 44% ownership share of the South Texas Project. What kind of history does this company have?

NRG just climbed out of bankruptcy in 2003, and paid \$2 million earlier this year to settle allegations of manipulating natural gas markets. The recently agreed to pay half a million dollars to settle allegations of intentionally misleading New England regulators.

2 - Security

STP Is Not The Most Secure Plant

Even after 9/11, security at the nation's remaining 103 operating reactors is still unprepared. Plants are still warned months in advance of force-on-force mock terrorist attacks, allowing them excessive time to prepare for the tests.

- These tests are run every 3 years. In contrast, Department of Energy tests are run annually.
- Almost half the plants tested between 1999-2001 failed to prevent the mock attackers from simulating damage that would result in significant core damage and risk of meltdown.

Secure? – not on our watch

A 2006 Union of Concerned Scientists report detailed numerous security weaknesses at the South Texas Project. :

- Non-functioning radios and degraded bridge floors inhibit the performance of security personnel during an attack. New security posts were installed hastily and do not provide adequate protection from the elements. Excessive heat, flooding, or cold can impair officers' ability to defend the nuclear plant.
- The training for vehicle checks is inadequate. Security personnel have to locate a hidden dummy pipe bomb on a vehicle but are not trained to search for plastic explosives or other devices.
- Safety conscious work environment: Security officers who raise safety concerns to Wackenhut, STP, or the NRC are subject to retaliation by management. A December 30, 2005 NRC report stated: *"Attempts to resolve several issues with Wackenhut management has been met with hostility and has created a chilled work environment"*

NRG will have to maintain separate security between the two sites at STP since security needs are different between construction and operation, further complicating security protocol.

When STNP was built there were over 400 allegations that the plant was unsafe, 71 of them were investigated. These allegations included:

- falsified x rays of welds
- corroded and improperly supported piping
- counter fit bolts that didn't meet strength tests
- improperly installed valves
- HVAC coatings aren't fire resistant

3 - Safety

Leaks At South Texas Breach Reactor Vessel

Are you confident in the NRC's ability to identify potential safety problems before they become serious?

- Mismanagement by First Energy Nuclear Operating Company and lax oversight by NRC allowed severe degradation of the nuclear reactor vessel head at Davis-Besse in Ohio to go unnoticed for years until it was discovered in 2002 that a mere three-eighths of an inch of metal cladding was all that contained the essential coolant pressure boundary of the reactor vessel.”
- A General Accounting Office 2004 report sternly criticized the NRC for not discovering the problems at Davis-Besse, finding that the NRC's inadequate oversight prevented an earlier shutdown, even though it was fully aware of the potential of the problem.

Oh it's just a little leak!

Technicians at the South Texas Nuclear Project, about 90 miles southwest of Houston, have found residues indicating that cooling water leaked from the vessel through two penetrations where instruments are inserted into the core, according to the company that operates the plant.

MATTHEW L. WALD / NY Times April 18, 2003

The observed cracking was due to primary water stress corrosion of the Inconel Alloy 600 nozzle material. The licensee also concluded that the most likely root cause of this cracking involved fabrication-related defects which may have created conditions that lead to initiation of this nozzle cracking.

<http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/prv.html>

You still can't trust the NRC.

A 2002 NRC Office of Inspector General report revealed that many employees were concerned that the NRC “was becoming influenced by private industry and its power to regulate is diminishing.” Only slightly more than half of NRC employees reported feeling that it is “safe to speak up in the NRC.” (OIG 2002 Survey of the NRC's Safety Culture and Climate).

4 - Radioactive Waste

Unresolved after 50 years of trying

It should be no secret that generating nuclear energy produces tons of high and low-level radioactive waste that remains dangerous to living systems for hundreds of thousands of years.

What is less known is that radioactive and toxic waste is produced at every stage of the fuel cycle.

- Uranium Mining and Processing: Mining and enriching uranium results in radioactive contamination of the environment and risks to public health.
 - 3 types of mining: sub-surface, mountain-top removal, and in situ leaching which produces radon contamination of groundwater among other things.
- In 2005, water contamination from uranium mining forced some residents of Ricardo, Texas to stop drinking well water (AP as quoted in Sierra Club)
- There was also contamination at the Karnes City mines.
- Enrichment: Toxic hydrogen fluoride gas and depleted uranium.
- Waste from Reactors: 54,000 tons and counting
 - Yucca Mountain is not approved. Outstanding safety issues exist (water seepage, cask corrosion).
 - Texas Private Fuel Storage disposal site consolidating irradiated is not a permanent solution.
 - Reprocessing, Fast Reactors, and Transmutation, in addition to being extremely expensive and dangerous, do not eliminate the need for a repository.

5 - Proliferation

It's hard to keep a secret

The expansion of nuclear energy and nuclear weapons go hand in hand. The more nuclear technology is diffused the more likely that it will fall into the wrong hands.

- The Fatal Flaw of the Non-Proliferation Treaty: Article IV allows and even encourages signatories to develop nuclear technology for “peaceful purposes” and share technology among signatories. The International Atomic Energy Agency (IAEA) is designated as regulator of this activity.
- In the US, two companies -USEC and the European firm Urenco- have applied to the NRC for permits to build and operate uranium enrichment facilities. *Urenco is a European company that has been implicated in the security breaches that led to the establishment of the AQ Khan nuclear technology black market that fueled the nuclear programs of states like Pakistan, North Korea, and Iran.*

COMMON Myths

The Job myth

There has not been a new reactor built in the U.S. in decades. Who will get the construction jobs if new reactors are built? Japan has experience building the GE Advanced Boiling Water Reactor (ABWR), but there are no ABWR's in the US currently. The potential reliance on international labor belies the promise of new jobs for Texans.

The Solution to Global Warming Myth

Nuclear energy is not a viable global warming abatement strategy.

- The mining and enrichment of uranium, the construction, maintenance, and decommissioning of nuclear reactors produce enormous fossil fuel emissions estimated to be about 1/3 of what a gas plant would produce.

Nukes aren't Cool

- To operate safely, reactors need a lot of cool water. The availability of cool water is becoming more scarce. Nuclear plants in France had to shut down during summer heat waves in 2003 and 2006 because the cooling water was too hot. Texas is mighty hotter than France. And an increase in drought conditions and extreme weather events will make it more likely that NRG will have to compete with surrounding farms and communities for water. Nuclear plants will have to go off-line if the projected increase in global temperature is accurate, reducing supply and driving up the price of electricity.

Don't Make the Nuclear Mistake Again

Respected energy expert Amory Lovins told the Austin City Council in 1986 that “It's cheaper to save electricity than to make it.” That still holds true. By making a stronger commitment to energy efficiency and buying more renewable energy San Antonio can save money for its citizens and protect the health and well-being of Texas and our neighbors.

Before committing your ratepayers to more nuclear uncertainty, shop around for the best deal on low carbon energy. Compare the prices between other low carbon energy sources such as energy efficiency programs, renewable energy resources with storage and IGCC with carbon sequestration before agreeing to build a new nuke.