

The Cost of Nuclear Power in Texas

A new report prepared for Public Citizen's Texas office resolves the key questions left unanswered about CPS' proposed partnership with the South Texas Nuclear Project (STP) expansion. The report, entitled *Costs of Current and Planned Nuclear Power Plants in Texas: A Consumer Perspective*, solves the mystery of STP's potential real cost, its impact on consumers, and reveals the opportunities in energy efficiency and solar power development that could be lost as STP drains CPS' available financial resources.

STP's Real Potential Cost

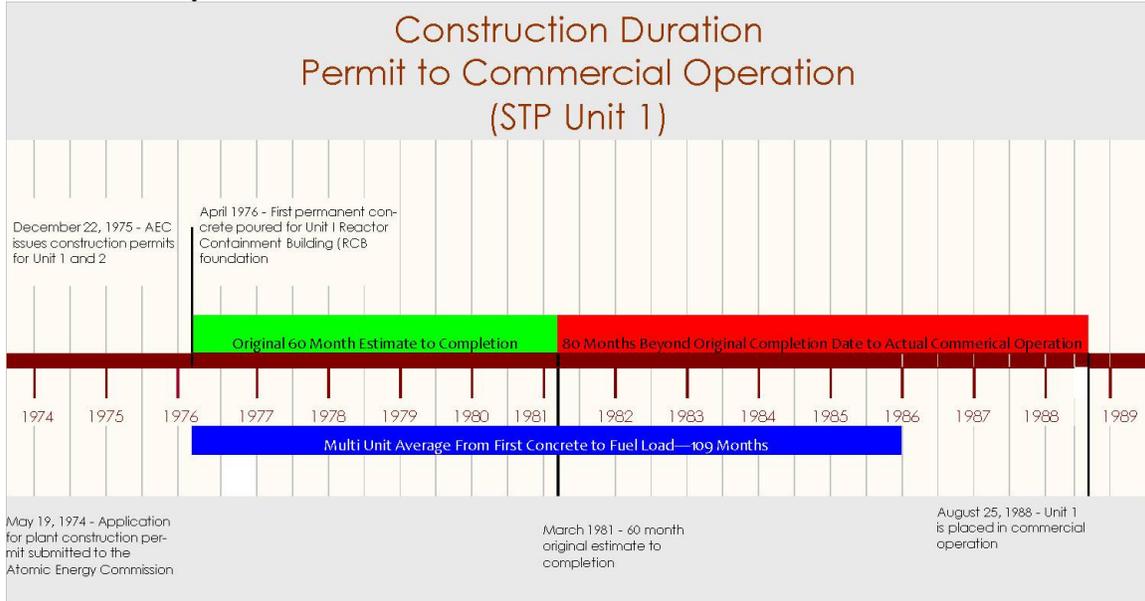
Given the history of cost overruns and delays from the last generation of nuclear power plants, the construction cost and schedule for STP (\$8 billion with a four year completion time) are incredibly optimistic.

- Most nuclear power plants built in the last round left a legacy of cost overruns and construction delays, but STP was among the worst.
 - STP's total cost, including interest and capitalized finance charges, was \$8.25 billion, *61% more expensive* than the industry average for that time.
 - STP's total construction time was more than 11 years – nearly *seven years over the planned construction time* of 5 years.
- According to a major report developed by the Nuclear Regulatory Commission on Quality Assurance/Control breakdowns at U.S. nuclear power plants that used STP as a case study, **the root cause of construction difficulties and delays was the inexperience of the project team**, which had never before been involved with constructing a nuclear plant. Cost overruns and construction delays were largely due to higher than expected labor and material costs, lower than expected productivity, and excessive amounts of rework.
- The study also found that the “single most important factor in assuring quality in nuclear power plant construction is prior nuclear construction experience.”

The issues which caused STP's major cost overruns and construction delays **have not been resolved** in preparing for the proposed expansion – indeed, they may be worse.

- History may repeat itself in the case of STP. NRG, who will construct the proposed additional two boilers at Bay City, has **no nuclear construction experience**.
- Though NRG has chosen a pre-approved design that has been built before, they have proposed to make 42 amount of variations to the design, such that it might ought to be considered a totally new design. As it has been 20 years since the last nuclear plant was built in the United States, the pool of qualified personnel, engineers, and project leaders has diminished substantially.
- NRG claims it can build STP in just four years – a substantially shorter schedule than even St. Lucie 2, which even with the best schedule performance among plants completed in the 1980s took six years to build. Given the history of

nuclear power plant construction and the challenges facing NRG, this is highly unlikely.



Consumer Impacts

The current low cost of nuclear energy in Texas does not tell the whole story of its real impact on ratepayers. Consumers continue to pay the legacy costs of STP’s bungled and hugely expensive construction through non-bypassable charges on their utility bills.

- Customers in ERCOT continue to pay **\$3.4 billion** for nuclear assets through these transition charges, as well as **\$45 million** a year for nuclear decommissioning.
- Even customers who buy into CPS’s Windtricity program must pay for the cost of the nuclear power plant.
- If NRG has not recouped the full expense of the plant once it is decommissioned, they will continue to collect fees from consumers -- even after the plant ceases to produce power.

Potential Impacts of Future Nuclear Generation Projects

SUBSIDIES

- Nuclear industry has been very successful at securing federal subsidies for this new wave of nuclear projects in the form of loan guarantees, production tax credits, investment tax credits, insurance
- Of these, loan guarantees impose the greatest risk on taxpayers. The Congressional Budget Office has stated that the likelihood of default on these loans is **50% or greater**. In the last wave of nuclear power plant construction, at least 40 nuclear power plants were abandoned prior to completion – proof that the risk to taxpayers is real and substantial

DOMINANT MARKET SHARE

- Both NRG and Luminant are the dominant power generators in the ERCOT market, based on market share. If both of these companies build their proposed nuclear

power facilities, they will have the even greater potential to exercise market power, and drive up generation prices to reduce the losses that will inevitably result from cost overruns and construction delays.

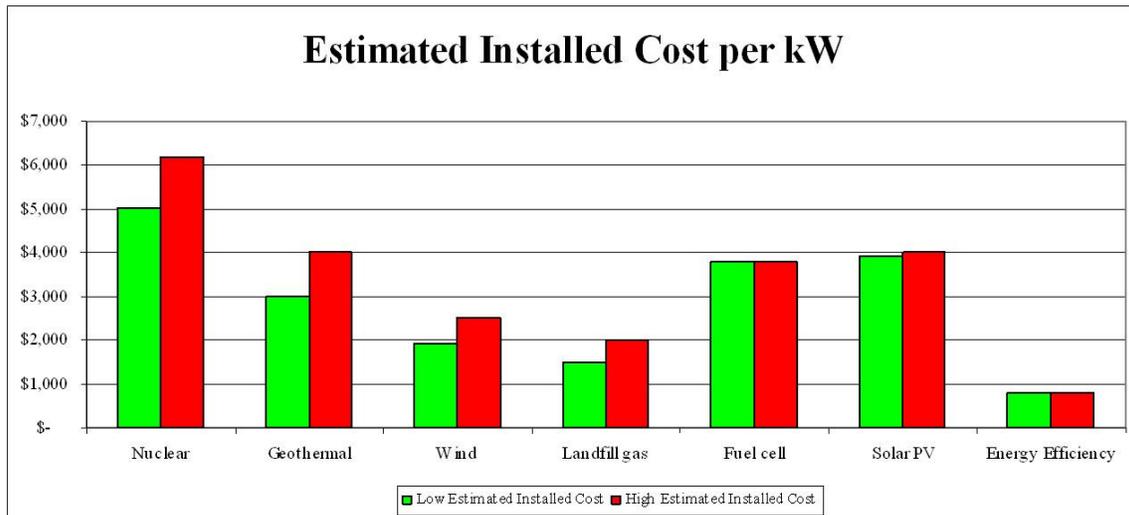
- Potentially, the high cost of nuclear capacity could indirectly translate into higher power prices for all Texas consumers.

Comparison of Cost of Nuclear to Alternatives/ Opportunities Lost

A reasonable estimate of the real cost in 2008 dollars of building a new two unit nuclear power project is \$5,022 - \$6,160 per kW. If construction began in 2012, and ordinary inflation is 2%, this implies a nominal cost of \$7,000-\$8,130 per kW, or \$20-22 billion.

How does the cost of nuclear power compare to other alternatives?

- A new nuclear plant will be **50% more expensive over its life than the primary conventional alternative**, combined cycle gas generation.
- Energy efficiency is widely accepted as the most cost effective resource, typically one-half as costly as constructing new gas peaking plants. Texas could achieve **15,000-18,000 MW of energy efficiency** over the next 10 years **at just 15% of the annualized capital cost per kW of the nuclear option.**
- The real installed cost of \$5,022 - \$6,160 per kW is higher than any of the following estimated installed cost per kW:



- The massive capitol outlays for nuclear power options may also **drain available financial resources for making advancements in deploying alternative resources such as San Antonio's Mission Verde plan.**

The full report can be downloaded at <http://www.citizen.org/texas/> or http://www.cleanenergyfortexas.org/downloads/nuclear_report_breakdown_full.pdf