

CPS IS BETTING THE FARM ON STNP EXPANSION

Gambling on overpriced, excess capacity could be an economic disaster for consumers and the City of San Antonio

CPS could face a nuclear death spiral

An analysis of the choices facing San Antonio

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THE ECONOMICS OF NUCLEAR REACTORS: RENAISSANCE OR RELAPSE

Nuclear reactors are the worst possible energy investment today because they face marketplace risks, technology risks, execution risks, regulatory/policy risks and financial risks. Any one of these risks can undermine nuclear projects, combined they spell near certain disaster.

The key ingredients that lead to the death spiral that afflicted the nuclear utilities in the 1980s are all present in the current environment – declining demand, skyrocketing costs, investments that are too big for the utilities’ balance sheets, improving alternative technologies, policy uncertainty.

Market place risk

- In Texas electricity demand has declined 7% from 2008 to 2009 so there may not be any buyers for the 20% share CPS wants to sell off. If CPS goes forward with this deal it could remain stuck with an over budget, unsellable asset that produces power too costly to sell. Rate increases for San Antonio consumers would further depress demand. In the 70s this was known as the nuclear death spiral.
- All of the customers that CPS has said might be interested in buying a 20% the nuclear power plant add up to about half of the 540 MW CPS has to sell to get down to 20%. None of the other big generating companies have either interest, unmet capacity needs or good enough credit to buy a share.
- Recent estimates of the natural gas resources base have increased dramatically and the price has tumbled. The NYMEX price for natural gas for the end of 2021 is over \$4 below the peak hit in June 2008
- A recent study by Jeremy Rifkin for CPS has found that efficiency could meet the city’s need for energy at about ½ the costs of the STP expansion (\$0.043 per KWh for energy efficiency vs. \$0.085 per KWh) Buying efficiency will save the people of San Antonio over \$300 million per year or almost \$20 billion over the life of the reactors and would create thousand of jobs in San Antonio.
- The City’s Mission Verde proposal estimated that building codes could shave 79 MW off the city’s need for energy and weatherization could shave off 34 MW. The Appliance Standard Assistance project estimated the reduction in San Antonio from new appliance standards to could reach 223 MW by 2020.

Technology risk

- Cost estimates for nuclear plants have increased dramatically over the past five years, doubling or tripling. STP cost estimate have been rising, they are still lower than other utility estimates and much lower than independent estimates

- Until there is a guaranteed cost estimate, there is a substantial risk of rising costs, even then cost overruns could plague the deal as the did in the 80s when the fist two units were built.
- The range of the potential cost escalation of nuclear plant in the high cost case was three times as large as that for other technologies CPS analyzed.
- The most recent cost analysis by the California Energy Commission found fifteen supply-side options to be less costly than nuclear.

Execution Risk

- Of the 21 projects that have applied for licenses at the Nuclear Regulatory Commission, eighteen have suffered from one or more of the following problems, delay, cancellation, cost escalation or financial downgrade.
- The new generation of nuclear reactors are just that---new and uncertain.

Regulatory/Policy risks

- The NRC has granted interveners five contentions. CPS and its partners are asking for 16 variations to the “re-approved” reactor design.
- Federal climate change policy that mandates efficiency and renewables would further reduce demand for large, central station generators.

Financial Risk

- A prudent investor wants short lead-time, flexible projects that save capital, the antithesis of nuclear reactors.
- Wise business investors generally don’t invest more than 10% of their asset value in any one plant. Even at 20 percent, the nuclear plant expansion would be between 40 and 75 percent of capital assets, depending on how you count those assets on which CPS still owes money, which is too big of an investment risk, especially one that faces the risks associated with nuclear reactors.

STNP’s history may predict the future

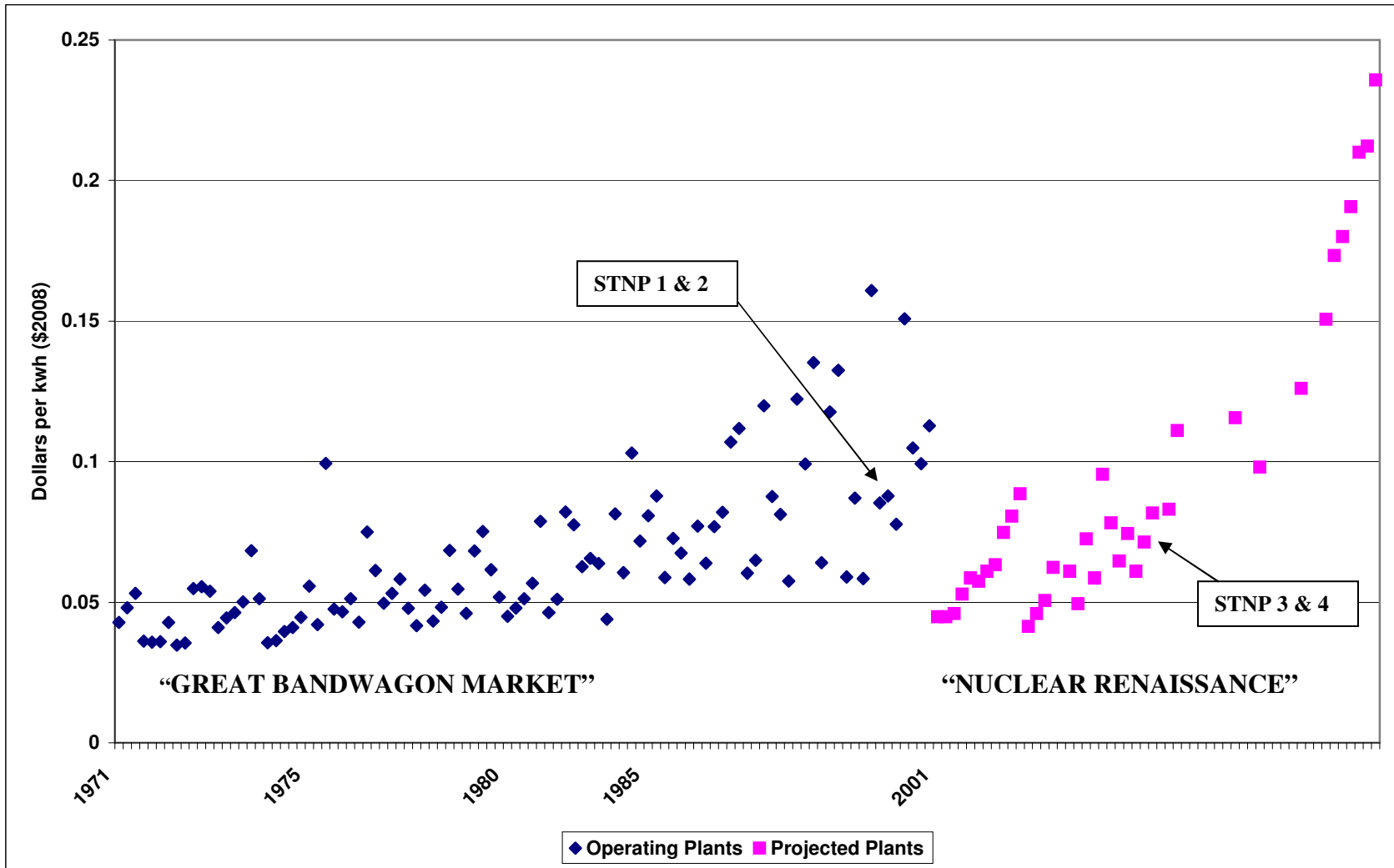
- The last time San Antonio got involved in a nuclear reactor project it was eight years late and the final cost was eight times the original estimate.
- As a result of the high construction costs, the nuclear power from the South Texas plant was far higher than the cost of competitive natural gas plants
- This resulted in a series of rate increases in San Antonio and sent the investor owned nuclear utilities in Texas into a “death spiral” because of the nuclear cost hangover. The demand by large users for rate relief drove into electric deregulation and caused the state to bail out the investor owned utilities by assessing a stranded cost fee on the customers of Houston Lighting and Power and Central Power and Light which they are still paying.

Conclusion

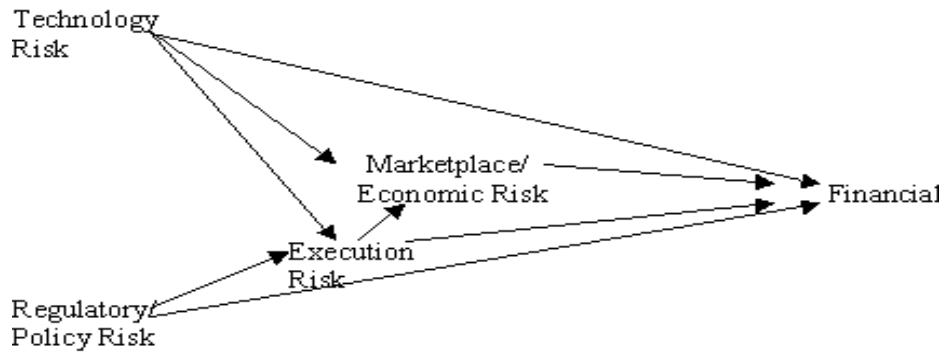
- Don’t bet the farm and get stuck with the mortgage. Invest in lower cost, less risky alternatives that can create jobs in the city.

Although the projected costs of the New STP reactors have been rising, they are still far below other estimates of the cost of new nuclear reactors

Busbar Costs of Completed Nuclear Reactors Compared to Projected Costs of Future Reactors,



Because new nuclear reactors face a number of severe risks, Wall Street has refused to fund them and has been downgrading the ratings of utilities pressing to build reactors. Captive ratepayers should not be forced to be unwilling investors in these projects.



TYPE OF RISK

SPECIFIC RISK

Technology

New Technology Risk
Supply-side alternatives
Demand-side alternatives

Regulatory/Policy

Regulatory Reviews
Lack of experience, changing requirements
Regulatory recovery of investment
Shifting Policy Agenda

Marketplace

Nuclear operating exposure will increase
Commodity and labor cost escalation and volatility
Uncertain demand growth
 Slowing due to recession
 Shifting due to excessive leverage, loss of wealth
Uncertain fuel costs
Rate shock reduces demand

Execution

Construction Risk
Counterparty risk
Lack of experience in construction
Complexity
Cost overruns and rework costs
Long Period
EPC contract

Financial

Size and cost
General financial conditions
Tight money and new liquidity requirements
Utility
 Existing debt and need to refinance
 Rising cost of debt
 Limited cash & equivalents declining due to recession
 Weak balance sheets
 Underfunded pension plans
Project
 High hurdle rate for risky projects
 Impact of large project
 Debt load and service burden impact
 Capital structure distortion
 Financial ratio deterioration



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Mark Cooper is a Senior Research Fellow for Economic Analysis at the Institute for Energy and the Environment; his current project is Energy Assessment. Dr. Cooper holds a PhD from Yale University and is a former Yale University and Fulbright Fellow. He has provided expert testimony in over 250 cases for public interest clients including Attorneys General, People's Counsels, and citizen interveners before state and federal agencies, courts, and legislators in almost four dozen jurisdictions in the U.S. and Canada.

Dr. Cooper has published numerous books and articles on energy, telecommunications and high technology industries. His energy related publications include: "The Economics of Nuclear Reactors: Renaissance or Relapse" (Institute for Energy and the Environment, Vermont Law School, June 2009); "A Consumer Analysis of Energy Efficiency and Renewable Energy Standards: The Cornerstone of Consumer-Friendly Energy/environmental Policy" (Consumer Federation of America: May 2009); "The Failure of Federal Authorities to Protect American Energy Consumers from Market Power and Other Abusive Practices," *Loyola Consumer Law Review*, 19:4 (2007); "Recognizing the Limits of Markets, Rediscovering Public Interest in Utilities," in Robert E. Willett (ed), *Electric and Natural Gas Business: Understanding It! (2003 and Beyond)* (Houston: Financial Communications: 2003); "Economics of Power: Heading for the Exits, Deregulated Electricity Markets Not Working Well," *Natural Gas*, 19:5, December 2002; "Protecting the Public Interest in the Transition to Competition in New York Industries," *The Electric Utility Industry in Transition* (Public Utilities Reports, Inc. & the New York State Energy Research and Development Authority, 1994); "The Seven Percent Solution: Energy Prices, Energy Policy and the Economic Collapse of the 1970s," in *Energy Concerns and American Families in the 1980s* (Washington, D.C.: The American Association of University Women Educational Foundation, 1983); "Policy Packaging for Energy Conservation: Creating and Assessing Policy Packages," in Jeffrey Harris and Jack Hollander (Eds.), "Improving Energy Efficiency in Buildings: Progress and Problems" (American Council for An Energy Efficient Economy, 1982). *Energy and Equity: Rising Energy Prices and the Living Standard of Lower Income Americans* (Westview Press, 1982).