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Attached are comments on the scope of the EIS for Units 3 and 4 at the South Texas Nuclear Project.

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Comments on Scoping of Environmental Impact Statement
for South Texas Nuclear Project Units 3 and 4

INTRODUCTION

The comments below are submitted on behalf of the general public, including potential intervenors in the Nuclear Regulatory Commission Combined Operating License proceeding for Units 3 and 4 of the South Texas Nuclear Project, by Lanny Sinkin, Attorney at Law.

These comments address the scope of the Environmental Impact Statement (EIS) that is going to be prepared for the two new nuclear power plants proposed at the site of the South Texas Nuclear Project.

GENERAL PRINCIPLES

The National Environmental Policy Act (NEPA) sets forth the requirements for an EIS. 41 U.S.C. Section 4321. The goal is to "use all practicable means … [to] fulfill the responsibility of each generation as trustee of the environment for succeeding generations." Ibid. Section 4331(a).

The EIS is required to be a detailed statement on the following:
(1) environmental impact of the proposed action,
(2) any adverse environmental effects which cannot be avoided should the proposal be implemented,
(3) alternatives to the proposed action,
(4) the relationship between local, short-term uses of the environment and the maintenance and enhancement of long term productivity, and any irreversible or irretrievable commitments of resources which would be involved in the proposed action, should it be implemented. Ibid. Section 4332(C).

Regarding environmental impacts, the EIS for STNP 3 and 4 should comprehensively address the potential environmental impacts of this project. To fulfill that obligation, the EIS should assess impacts that are direct, indirect, secondary, and cumulative.

To determine adverse impacts that cannot be avoided, the EIS should examine construction, operation, decommissioning, and waste disposal impacts.

Regarding alternatives, the EIS should directly compare alternatives to achieve the same purpose as Units 2 and 3. The EIS should certainly include the "no action" alternative and analyze how utilities would respond, if the decision were made to not continue pursuit of the project after the EIS is complete.

The required comparison between short-term use and long term viability should include intergenerational impacts.

The examination of irreversible and irretrievable commitments of resources should also look at the entire construction, operation, decommissioning, waste disposal cycle of nuclear power plants.

The proposed STNP Units 3 and 4 have a much different context in which environmental impacts are assessed than did nuclear plants thirty years ago. The state of the Earth is different and Human knowledge of anthropomorphic impacts on global

climate, species extinction, and other planetary scale effects has expanded rapidly. There are also security concerns based on recent events that either did not exist thirty years ago or were not seriously considered. The EIS for STNP Units 3 and 4 must take into account these new areas of concern.

STNP Units 3 and 4 are positioned to be the first new nuclear projects presented for public examination. Part of that examination will be taking a hard look at how comprehensively and honestly the EIS is prepared.

Precisely because NEPA is reduced to merely a procedural requirement to take a hard look and does not prevent even the worst environmental destruction, the integrity and comprehensiveness of the EIS process is critical to avoiding a decision ultimately producing disaster and regret.

ISSUES

GENERAL ENVIRONMENTAL IMPACTS

1 The entire process involved from start to finish of a nuclear project needs to be examined for direct, indirect, secondary, and cumulative impacts, e.g.:
Site preparation
The extraction of materials to build the plant
The transportation of the materials to the plant site
The construction process
The extraction of materials to produce the equipment to be installed
The transportation of that equipment to the site
The installation of that equipment
The extraction of uranium
The milling and enriching of uranium
The transportation of enriched uranium to the site
The operation of the plant
Potential impacts on endangered species

SITE SELECTION

The Exelon Corporation initially lands near the South Texas site for its proposed new nuclear power plant. These lands were at a lower elevation and closer to Matagorda Bay.

After learning from the NRC that the plant would have to prepare for a 20 to 30 foot storm surge, Exelon decided that building a sufficient structure would be too expensive. "Exelon Nuclear not coming to Matagorda County," Matagorda Advocate, December 20, 2007.

The decision made by Exelon raises questions about the STNP site for Units 3 and 4. The EIS should address the safety implications for the site of such storm surge in light of potential global warming impacts (see next section).

GLOBAL CLIMATE CHANGE

One of the new issues affecting decisions on nuclear power is the global concern over Human activity creating global climate change with unpredictable and potentially devastating results.

While the nuclear industry successfully used this concern to drive their lobbying effort for a new generation of nuclear power plants, the premise that nuclear power is a positive response to global climate change concerns may not withstand objective examination. The EIS should include such an objective examination.

These comments suggest the following issues be included in the EIS scope as contributing to that objective examination.

The context for evaluating emissions of gasses attributable to a nuclear power plant should include those gasses emitted during the following:
Site preparation
The extraction of materials to build the plant
The transportation of the materials to the plant site
The construction process
The extraction of materials to produce the equipment to be installed
The transportation of that equipment to the site
The installation of that equipment
The extraction of uranium
The milling and enriching of uranium
The transportation of enriched uranium to the site
The operation of the plant, including the emission of heat and evaporated water.[1]
The decommissioning of the plant
The transportation of radioactive waste, including high level, low level, and decommissioning waste to final storage
The preparation and operation of sites where the radioactive waste is to be stored.

2. The impact of climate change on the plant should include consideration of the following:

a. There is substantial evidence to support the prediction that melting the South Antactic ice cap and the Greenland glacier will cause a rise in sea level ranging from 6 to 12 feet.[2] Assuming that sea level were to rise to that extent, what would be the impact on:

(1) the operations of the plant

(2) the access to the plant from off-site, particularly by emergency response personnel and equipment

(3) the ability to evacuate the plant in case of emergency

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[1] Water vapor is a powerful green house gas. The EIS should provide a conversion of the amount of water vapor created by the nuclear plant operating process to the equivalent carbon dioxide emissions.

[2] This scenario is presented as a reasonable probability, not a worst case. The sea level rise would probably take place over an extended period of time and probably within the operating life of the proposed nuclear power plants.

(4) the ability to evacuate surrounding communities in case of emergency

b. There is a substantial evidence to support the prediction that climate destabilization will produce larger and more frequent hurricanes. Assuming that prediction to be true, what would the impact be on:

(1) the operations of the plant

(2) the access to the plant from off-site, particularly by emergency response personnel and equipment

(3) the ability to evacuate the plant in case of emergency

(4) the ability to evacuate the plant in case of emergency

c. Assuming that the nuclear plant would be taken off line during a potentially large hurricane, what would be the environmental impact of producing replacement power?

d. In examining potential hurricane effects, rising sea level combined with storm surge should be examined. An additional factor in this analysis should be land subsidence.

e. The potential exists for more frequent and more powerful tornadoes. That potential should be examined in the EIS.

f. Exelon Nuclear decided to move its proposed nuclear plant from Matagorda County to Victoria County based on concerns about the costs of preparing for a 20 to 30 foot storm surge. How would those same concerns apply to the STNP Units 3 and 4?

g. As sea levels rise, groundwater can be affected, both in terms of expansion into the surrounding soils and in water quality, e.g. salt water intrusion. The effects of such changes should be included in the EIS.

WATER

The South Texas Nuclear Project has a contract with the Lower Colorado River Authority (LCRA) that guarantees delivery of sufficient water for four nuclear reactors at the STNP site, either directly from the Colorado River or from highland lakes in times when the river flow is insufficient. That guarantee is operable under normal and drought conditions.

That guarantee, however, is based on the worst historical drought (1946-1957). If conditions arise that are worse than that historical drought, all users supplied by LCRA will be reduced proportionally.

The climate change study prepared for LCRA recommended a planning assumption that the impact of global warming on South Texas would be a reduction of precipitation by 5 to 20% and more frequent droughts. A Framework for Assessing Impacts of Climate Change, Lower Colorado River Authority and San Antonio Water System, July 2007. The combination of reduced precipitation, higher rates of evaporation and evapotransporation, and increased number of droughts suggest that relying on the worst historical drought may not be a conservative approach.

A conservative approach to evaluating the adequacy of the water supply available to STNP would incorporate the possibility that global warming would produce a drought worse than the worst historical drought at a time when available water is already reduced by reduced precipitation and increased evaporation and evaportransporation. That evaluation would consider:

-- the time frame within which the global warming impacts would be expected and the projected operating life of the reactors, including renewal of licensing and

-- the likelihood of a drought worse than the worst historical drought and the potential impact of such a drought on the operations of the reactors.

At the same time, there are credible studies that posit greenhouse warming as a precursor to rapid cooling. Schwartz and Randall, An Abrupt Climate Change Scenario and Its Implications for United States National Security, October 2003.

Any evaluation of potential global warming impacts should examine the potential impacts of this alternative scenario for climate change, including the impacts on available water.

There are also numerous studies underway regarding the needs of the bays and estuaries near STNP. Review of those studies regarding potential fresh water needs of the environment and potential effects on the availability of water to STNP should also be part of the EIS process.

LCRA is involved in negotiations with San Antonio to establish long term contracts for interbasin transfers of water. The storage of that water will be in a large open reservoir. The EIS should examine the potential impact on the proposed reservoir of an accident at STNP.

There is a need for measurements on the amount of radioactivity in the water currently flowing from the plant into Matagorda Bay to determine whether there is any leakage or release of any kind. If there is documentation of such leakage, that potential from two additional reactors should also be evaluated.

MATERIALS SHORTAGE

Some metals are increasingly in short supply. This shortage raises the potential for substandard metals or untested alloys to be supplied to the nuclear power plant. The EIS should examine the potential for environmental impacts from such materials being used.o

HUMAN HEALTH

Prior to STNP Units 1 and 2 going into operation, the public health data for the three counties closest to the site showed a cancer death rate 4.5% lower than the statewide rate. In the 16 years since the nuclear plants began operating, the cancer death rate in the three counties rose to more than 7% higher than the statewide rate. The statewide rate both went up, with the three county rate rising four times faster.

There is no obvious reason, other than the presence of operating nuclear power plants, explaining the data from the three counties.

Based on this data, an increased cancer death rate would be expected to result from the addition of two more operational reactors at the same site. The cumulative impacts analysis for the STNP II reactors should address this question. Source: Joseph J. Mangano, MPH, MBA Radiation and Public Health Project, January 24, 2008.

There is also a recent study indicating that operating nuclear power plants adversely affect infant mortality rates. Source: Joseph J. Mangano, “Improvements in

local infant health after nuclear power reactor closing," Environmental Epidemiology and Toxicology (2000) 2, 32-36

ENVIRONMENTAL HEALTH

There is a need for a baseline of current animal, bird, fish, reptile, and other non-Human creature level of radioactive uptake, so that a later comparison can determine health effects of reactor operation.

RADIOACTIVE WASTE

One environmental effect of nuclear power plants that cannot be avoided is the production of radioactive waste. Generally, such waste is categorized as high level or low level.

The production of high level waste dangerous to every generation coming after ours is an intergenerational crime of the highest magnitude. That this crime is committed in order to supposedly provide those living today cheaper electricity, much of which is spent on entertainment and frivolous pursuits only compounds the seriousness of the crime.

Those pushing for continuation of this criminal activity justify their position by claiming that Humans will solve the radioactive waste problem. That claim to be able to solve a problem that stretches up to 250 thousand years into the future is dubious at best and arrogantly dangerous at worst.

The EIS should examine the likelihood that a solution to the high level waste disposal issue will be forthcoming any time in the near future and the consequences for STNP, such as indefinite on-site storage, if such a solution is not forthcoming. The analysis should acknowledge the loss of support for the Yucca Mountain long-term disposal facility.[3]

The on-site storage analysis should include the potential for a terrorist attack on the fuel storage area and develop mitigation measures that can withstand attacks, such as a deliberate airplane strike on the plant or an explosive projectile launched from the ground.

The low level waste analysis should examine the likelihood of off-site storage being available for such waste.

The intergenerational aspect of producing high level waste for every generation coming after us so that we can have supposedly cheaper electricity should be a part of the analysis of unavoidable impacts of pursuing the project.

Additional radioactive waste is produced in terms of the irradiated structures and equipment in the nuclear plant. A comprehensive examination of the likely method of decommissioning should also be part of the EIS.

Waste produced from uranium mining, including tailings, is another waste which should be included in the analysis.

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[3] For example, in the last presidential debate that included Barak Obama, Hillary Clinton, and John Edwards, all three stated that Yucca Mountain was not a suitable facility for long term storage of highly radioactive waste.

ALTERNATIVES

The intergenerational crime noted in the previous section makes the analysis of alternatives particularly important. The question becomes: If there are alternative means of meeting the power needs that the nuclear plants are intended to meet and given that nuclear power produces high level radioactive waste, is there any excuse for not pursuing other alternatives and leaving nuclear power as a last resort?

The global climate change question discussed above obviously calls into question using any fossil fuel central generators as an alternative.

There are numerous other alternatives, however, that are safe and far more benign environmentally.

One of the applicants, CPSEnergy, has reclassified energy conservation as power generation. This essentially treats energy conservation approaches the same as baseload.

The alternatives analysis should look at the rate at which alternatives are coming into use and project both what is likely and what is possible. A secondary question to be anwered is: Taking the same funds as will likely be spent on the nuclear plant and investing those funds in direct or subsidized implementation of alternative strategies, could the same amount of energy be saved and/or generated with far less environmental impact? A related question is: Would investment in the alternative technologies buy additional time before new generating capacity would be needed, allowing for still further innovative alternatives and improvements in existing alternatives?

Another framing of the environmental analysis is whether the investment required to bring the nuclear plant to completion, including waste disposal and decommissioning, will foreclose investment in alternative paths toward saving or producing the same amount of energy that would have far fewer environmental impacts.

The alternatives analysis should examine at least the following:

1. Energy efficiency and conservation, such as

a. changing building codes that are leading to more energy efficient buildings,

b. retrofitting of existing buildings that is lowering their energy consumption

c. the redesign of appliances that is leading to replacing older units with more energy efficient units

d. the “small is beautiful” alternatives, such as solar powered attic fans

e. existing studies by utilities in the service area regarding possible reduction of energy demand through conservation and efficiency.

2. Alternative energy, such as

a. major breakthroughs in solar energy that are lowering the per watt cost to a level competitive with other sources

b. new developments in storage which would permit solar and wind energy to be included as base load plants

c. scenarios in which solar, wind, biomass and other sources provide most of the baseload with the available natural gas plants filling in as needed.

d. wind energy potential, acknowledging that some environmental impacts, such as the impact on birds, must be addressed

e. wave energy

f. temperature differential energy extraction (ocean)

g. biomass as baseload

h. previously suppressed technology, such as Tesla coils

This list is far from comprehensive.

The alternatives analysis should also consider the vulnerability of a central generating station on the coast with long transmission lines to the major urban centers versus dispersed units, such as home solar units. Obviously, taking down a transmission tower is far easier than attacking a nuclear plant and still achieves interruption of power as a tactical objective, even if no radioactive release results.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The most obvious irreversible and irretrievable commitment of resources is the money that will be spent on building the nuclear plants that will not be available for implementation of alternative energy strategies. Once begun, nuclear power plants will demand continuing investment and can be expected to absorb a far higher level than presented when the project is being sold to the utility and public.

The analysis of this irreversible and irretrievable commitment of financial resources should evaluate the impact of that commitment on the ability to pursue implementation of alternative energy strategies, such as conservation, efficiency, solar, wind, and biomass.

Regulatory Mitigation

To the extent the mitigation measures in the EIS include regulatory oversight and enforcement, the EIS should consider the current situation facing the Nuclear Regulatory Commission. The challenges include the following:

(1) 104 aging reactors in operation, many near the end of the life cycle. These reactors are more prone to component failure, accidents, and breakdowns. Heightened oversight by the NRC is, therefore, required.

(2) Loss of senior experienced personnel. Hundreds of NRC staff members with decades of experience and carrying a large part of the institutional memory of the agency will be retiring over the next ten years.

(3) Hiring hundreds of new personnel. To replace the retiring personnel and respond to the increased workload for the NRC resulting from current conditions and planned expansion of nuclear power, hundreds of new personnel will have to be hired. The hiring process itself is a significant burden on existing staff.

(4) Training of new personnel. The hundreds of new people coming into the agency will have to be trained by existing personnel. The training process will also be a significant burden for existing staff.

(5) With hundreds retiring, the new personnel will have to be trained to take on significant responsibilities very quickly.

(6) Newly trained personnel will take on significant responsibilities after only a short tenure in the agency.

(7) Applications for new licenses are flooding in. The passage of loan guarantees set off a “gold rush” of license applications. Each application involves the review of thousands of pages, significant interaction with the license applicant, and evaluation of existing stardards applicable to the application.

(8) Documents that formed the basis for past licensing decisions have not been updated in years because there were no new applications. The standard review plan and the preliminary safety analysis report are central documents that are seriously outdated and have to be revised. These revisions should be carried out with the involvement of senior staff before they leave the agency.

(9) Interventions and hearings may also become part of the licensing process. The rules provide for people whose interests are affected by the proposed nuclear plant to seek status as intervenors in the licensing hearings and present contention identifying the issues they wish to pursue. To the extent intervention petitions are successful and contentions are accepted, staff will be tasked with responding to the contentions and participating in the hearings.

(10) New license applications are coming from companies with little or no nuclear experience. The design, engineering, and construction companies will generally not have been involved in nuclear plant construction for at least 20 years. The lack of experienced companies requires an even greater level of NRC scrutiny during the construction phase.

(11) Advanced boiling water reactors are an evolutionary change from previous boiling water reactors and exist primarily in Japan. Foreign companies will be needed to advise and guide the United States companies in the construction and operation of these reactors. Some of those companies come from a very different culture as relates to being transparent about safety matters, accidents, and errors. NRC will need to oversee the work of these companies with an emphasis on ensuring that there are no cultural barriers to adequate oversight and performance.

(12) There may be licensing proceedings opened up for the Yucca Mountain high level waste storage facility. The proceeding already has a massive public record and will be one of the most complex administrative proceedings ever held, if the proceeding goes forward.

To respond to all these convergent challenges, the NRC will have to perform at super Human levels of competence and perfection. There is no historical support for concluding that the NRC, or any other Human group, is capable of performing at that level. To the contrary, all the factors identified above predict a high likelihood of failure in one aspect of the regulatory scheme or another, and probably multiple failures ranging from the minor to the catastrophic.

Placing the burden of new license applications on an agency already stretched to its limits will contribute to the likelihood of those failures.

The agency responsible for ensuring the safe construction of new nuclear plants is not equipped to perform that responsibility in a manner ensuring the health and safety of the public.

The EIS should evaluate how the overwhelming challenges facing the NRC make reliance on regulatory oversight and enforcement for mitigation of environmental impacts at least problematic.

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