On The Benefits of an Integrated Nuclear Complex for Nevada

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ON THE BENEFITS OF AN INTEGRATED NUCLEAR COMPLEX FOR NEVADA

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ABSTRACT

An integrated nuclear complex is proposed for location at the Nevada Test Site. In addition to solving the nuclear waste disposal problem, this complex would tremendously enhance the southern Nevada economy, and it would provide low cost electricity to each resident and business in the affected counties. Nuclear industry and the national economy would benefit because the complex would demonstrate the new generation of safer nuclear power plants and revitalize the industry. Many spin-offs of the complex would be possible, including research into nuclear fusion and a world class medical facility for southern Nevada.

For such a complex to become a reality, the cycle of distrust between the federal government and the State of Nevada must be broken. The paper concludes with a discussion of implementation through a public process led by state officials and culminating in a voter referendum.

I. INTRODUCTION

Nuclear waste disposal is a politically charged issue that has polarized Nevada. Concentration and isolation of nuclear waste in a location remote from the biosphere is environmentally appealing; it fulfills the spirit of the environmentalist lament, "Dilution is not the Solution to Pollution." Yet, Nevada's political leaders reject a Nevada repository, stating "Nevada is not a Nuclear Wasteland". A compelling argument for such rejection is the fact that Nevadans currently receive little direct benefit from nuclear electricity. The interconnected U.S. electrical system increases the Nevada system reliability but rarely provides Nevadans with the major benefit of nuclear power: Electricity without the air emission associated with fossil fuels.

The assumption of the responsibility for nuclear waste disposal by our national government (presumably because it is more likely to safeguard its citizens and the biosphere than is private industry) is regarded as a liability by Nevada leaders because the powers of the federal government can override those of Nevada. That is, the citizens of Nevada can be forced to bear risk or even harm in order to protect the much larger national population. This widely recognized transfer of risk from "the many" to "the few" is the root cause of the much ridiculed, but almost intuitive, "Not In My BackYard" - NIMBY - syndrome.

Clearly, Nevada leaders would be more positively disposed to a Nevada repository if that repository can be shown to be safe and if Nevadans can realize substantial economic benefits from nuclear waste disposal (beyond the immediate benefits of the site characterization program, the potential construction project, and a potential repository maintenance force).

This paper proposes an integrated nuclear complex to be located at the Nevada Test Site (NTS) which could benefit Nevadans, U.S. nuclear industry, the medical community (and those who need its services), and those who favor a permanent reduction of nuclear weapon inventories.

II. AN INTEGRATED NUCLEAR COMPLEX

This paper proposes a nuclear complex at the Nevada Test Site that could:
1) Demonstrate the new generation of safe, modular power reactors,
2) Provide the infrastructure to develop a virtually waste-free fusion reactor,
3) Disassemble excess nuclear weapons,
4) Destroy weapon and commercial plutonium,
5) Test transmutation schemes,
6) Dispose of high-level nuclear waste from commercial and defense nuclear reactors,
7) Dispose of low-level nuclear waste (primarily from medical uses), and perhaps chemical waste, and provide an infrastructure to monitor previous contamination of the Nevada Test Site by weapons testing.
8) Provide a southern Nevada location for a world-class medical facility that uses nuclear isotopes for diagnostic and treatment purposes (similar to facilities at Scripps and Stanford in California),
9) Provide electricity at a low cost to the citizens and businesses of Nevada, and
10) Stimulate the Nevada and national economies.

Each of these benefits is discussed below. The paper concludes with a discussion of implementation - how to involve the affected parties and break the history of distrust and confrontation.

III. NEXT GENERATION POWER REACTORS

Electrical power is the cornerstone of modern technological society. Even with electricity demand growing at a modest pace, new power production will be needed to keep up with demand and replace aging plants. With the growing sensitivity to the environmental effects of burning fossil fuels, society must find alternative sources of electricity.

Solar power is widely touted as the environmentally benign solution to U.S. power needs. Although solar will have a role, it is costly, and the production of its components may not be as environmentally friendly as is commonly assumed. A second option must be pursued to ensure the energy, environmental, and economic security of the U.S. Contrary to the rhetoric of many environmental activists, nuclear power is environmentally benign. Normal operation of nuclear plants produces almost no gas or liquid emissions, and their radioactive solid wastes are isolated from the biosphere. Worst case accidents for U.S. designs protect both the public and plant operators; the risk of such accidents is almost entirely an economic risk to the plant owners. Because nuclear waste is very compact compared to fossil fuel waste, it is feasible to isolate it from the biosphere; in contrast, much fossil waste is disposed of by dilution in the atmosphere (a source of acid rain). Nuclear power benefits are ignored by those who are unwilling to accept its known small risks; ironically, many of these critics accept enormously larger risks from other sources with no tangible benefit, such as cigarette smoking.

During the last decade, the U.S. has developed a new generation of nuclear power reactors which are modular, smaller than current plants, and inherently much safer. With some design modification, these reactors could burn plutonium-based fuels.

These advanced reactor concepts all employ enhanced safety features such as advanced and redundant controls, smaller and lower power density cores, passive cooling (the reactor can cool down from operating conditions without active intervention), and redundant containment. The concepts are currently at differing levels of design ranging from conceptual to prototype construction.

The furthest developed advanced reactor type is the set of Advanced Light Water Reactors (ALWR) currently proposed by several vendors. These reactors are evolved from current light water power reactors, but are typically smaller with improved instrumentation, control, and safety features. A 600 MWe ALWR (similar to a design currently under consideration in Japan) could be operated with a core composed of two-thirds regular fuel and one-third Mixed Oxide Fuel (MOX) containing a mixture of plutonium oxide and uranium oxide. If more rapid consumption of excess plutonium is desired, these reactors could be extended to higher plutonium fractions with further effort. The ALWR could be operated with either a once-through fuel cycle where the spent fuel would be disposed of in a geologic repository, or a closed fuel cycle with reprocessing of the fuel which could more completely consume excess plutonium.

Another well developed design is the Advanced Liquid Metal Reactor (ALMR) which builds on the existing liquid metal breeder reactors which have been built and operated in several countries. However, the ALMR is a burner rather than a breeder of plutonium. The current modular designs use several small reactors with passive safety features operating a common turbine. The fuel is a metal alloy rather than oxide which allows a very high burnup and easy metallurgical reprocessing. These reactors could also operate either a once-through fuel cycle or a reprocessing cycle which could result in nearly complete plutonium destruction.

The Modular High-Temperature Gas-Cooled Reactor (MHTGR) is also based on a tested reactor type, but with a small modular design with passive safety features. The reactor uses a high-temperature-tolerant carbide-oxide-graphite fuel which can be operated to extremely high burnup. This would allow a high
destruction fraction of plutonium in a once-through fuel cycle using either plutonium or mixed plutonium and uranium. The high core temperature results in efficient electricity production.

In addition, other advanced reactors have been proposed based on demonstrated Particle Bed Reactor and Molten Salt Reactor technologies which could efficiently consume plutonium and generate electricity. A final technology for plutonium disposal is the use of a large accelerator to drive either a subcritical core which could produce electricity, or a neutron source which would destroy plutonium and other unwanted actinide waste without producing power.

Congress is unlikely to fund full-scale demonstrations of the new technology without some compelling benefit of such demonstration. The continuing logjam in the nuclear waste disposal program also discourages the financial community, nuclear industry, and the average citizen from supporting new nuclear reactors, whether of the current or a new generation. Demonstration of the new technology plants and progress toward nuclear waste disposal could revitalize nuclear power; society would thereby benefit because of the environmental-friendliness of nuclear power.

IV. FUSION

Nuclear fusion is the ultimate solution to minimizing the source of nuclear waste while retaining the benefits of nuclear energy. The major product of fusion is helium which is not radioactive; only structural materials that are irradiated by neutrons from the reactions become radioactive waste. Nuclear fusion reactors can be designed to produce structural waste that decays within a century or two; geologic time scales are not an issue with fusion. The next step in the inertial fusion development program is construction of a National Ignition Facility (NIF) which will compress and heat small hydrogen targets. At the peak of compression, thermonuclear fusion begins at the center of the fuel. The helium product deposits its kinetic energy in the surrounding fuel which then fuses, producing more helium that heats more fuel, etc. This process is called ignition and propagating thermonuclear burn. A successful target will burn 30 to 50% of its compressed fuel, a reactor would burn 1 to 10 targets per second. The NTS is a candidate site for the NIF, which could use either a laser or a heavy ion beam (HIB) accelerator driver. A HIB could be time-shared with other applications, such as testing the capability to transmute long-lived nuclear waste into shorter-lived waste. A prototype fusion reactor would be the facility following the NIF.

V. WEAPON DISASSEMBLY

The NTS already has a substantial capability to disassemble nuclear weapons. Addition of other components of an integrated nuclear complex could make it possible to extract energy from this weapons material and dispose of the waste products. Generation of energy and disposal of the converted waste would enhance the economy and reduce the risk of nuclear proliferation. In addition, the disassembly facility would employ a significant number of Nevadans in highly paid jobs. If a safe transportation system is developed to transport commercial nuclear waste to Nevada, it could also safely transport weapons for disassembly.

VI. WEAPON AND COMMERCIAL PLUTONIUM DISPOSAL

Down-sizing of nuclear weapon inventories will produce a glut of plutonium. About 50 Mg of weapon-grade plutonium is estimated to be available in the U.S. by the year 2005. Enormous resources have been invested in this inventory, yet it has only two applications: Nuclear weapons that serve as a deterrent to war, and nuclear reactor fuel. The value of this plutonium, if burned in commercial nuclear reactors, is over one billion dollars (assuming that the fuel cost is 10% of the cost of nuclear electricity).

Commercial reactors will have produced about six times as much plutonium by the year 2000, and about a factor of twenty more during the lifetime of current U.S. reactors. The value of this plutonium, if burned in reactors, is over twenty billion dollars. If reactors are built at NTS as part of an integrated nuclear complex, they could be used to dispose of commercial plutonium in addition to weapon plutonium. The reprocessing plant needed to provide this capability would add additional highly paid jobs at the NTS. Some of the potential problems with a reprocessing plant, such as disposal of its low-level waste stream and proliferation-resistant transportation of the extracted plutonium, would be minimized at an integrated nuclear complex that includes plutonium burner reactors and an on-site disposal facility.

A once-through fuel cycle could utilize and destroy about two-thirds of the plutonium and contaminate the remainder with actinides and fission products, rendering it more difficult to divert for clandestine weapons
production. Other fuel cycles incorporating pyrometallurgical processing could achieve higher plutonium utilization with very little remaining in the final waste stream\textsuperscript{1,2}. Such fuel cycles would be well suited for a nuclear complex that includes the fuel source, reactors, and disposal site.

VII. TRANSMUTATION

Transmutation is the process of changing hazardous, long-lived radionuclides into non-radioactive or short-lived nuclides using neutrons from an accelerator or advanced reactor. Although transmutation may not currently be economically viable\textsuperscript{2} in the U.S., it could be demonstrated as a part of the proposed nuclear complex.

The heavy-ion beam fusion test facility mentioned in Section IV could test transmutation. It is also possible that some of the advanced nuclear reactors described in Section III could test transmutation. Because transmutation greatly reduces the amount of waste remaining for geologic time scales, it would decrease the demands on the performance of a high-level waste repository, or conversely, it would reduce the consequences if such a repository did not operate as predicted. In addition, testing transmutation would add more high-technology jobs to the southern Nevada economy and may also provide an impetus to help the University of Nevada system to develop additional research and educational capabilities in several technical disciplines.

VIII. HIGH-LEVEL NUCLEAR WASTE DISPOSAL

If Yucca Mountain is found to be suitable for nuclear waste disposal, it could be used to dispose of the waste from the proposed NTS integrated nuclear complex. Calculations for an extended dry repository indicate that the site capacity may exceed 300,000 tonnes of high-level waste\textsuperscript{2}, which should be enough to meet all U.S. needs prior to the commercialization of nuclear fusion. (The Nuclear Waste Policy Act limits the capacity of the first high-level repository to 70,000 tonnes.) For the extended dry concept, a higher capacity repository might actually be safer because additional waste heat could enhance repository performance by driving water away from the site; water is a prerequisite to release and mobilization of radionuclides.

Conversations with many Nevadans indicate that people are more concerned with the risk of transportation of waste into and through the state than they are with the risk of poor performance of a geologic repository at Yucca Mountain. If an integrated nuclear complex is built at NTS, the amount of commercial waste transiting the state could range from that projected for a 70,000 tonne repository to a factor of four more, depending on whether commercial fuel is reprocessed at NTS or prior to transport to NTS. Yet, the site might store four times as much high-level waste produced on site at NTS from advanced reactors and weapon disassembly. Nevadans would reap great economic benefit from the additional repository capacity without incurring much additional transportation risk.

IX. LOW-LEVEL RADIOACTIVE & CHEMICAL WASTE DISPOSAL AND NTS MONITORING

Low-level radioactive waste sites and chemical waste sites are typically near the surface, and they meet their licensing requirements by the use of liners and multi-walled containers. The regulatory licensing periods are typically decades. After this period of time ends, much of the radioactive waste will have decayed, but there will be a small fraction left. In the case of chemical waste, substantial amounts may not have chemically decomposed.

If this low-level radioactive and long-lived toxic waste could be disposed of at Yucca Mountain (assuming that site is found to be suitable for geologic disposal of high-level waste), the low level and chemical waste could be loaded in the repository. The waste stored would not greatly increase the repository performance requirements, particularly since (unlike high-level waste) it would not release heat, perturbing the natural environment of the repository.

If long-lived toxic waste were added to the repository mission, the repository would be a mixed-waste repository, and additional regulatory requirements would be added. The development of a thermally stable waste form for the toxic materials and safe transportation means are two prerequisites for locating toxic waste near a high-level radioactive waste repository.

The economic benefit of accepting this additional waste would be enormous. Almost every state in the country is struggling to site and develop low-level waste repositories (either as individual states or as members of multi-state compacts). Because of the difficulty others are encountering in providing this service (primarily to the medical community), the value of the waste disposal is much higher than was historically charged at the three low-level sites a few years ago. If Nevada agreed
to accept this waste, it could charge substantial fees and yet incur very little risk.

The series of about 1000 nuclear tests in Nevada has produced an underground region that is dotted with fused material consisting of vaporized rock and nuclear waste. There is currently an aggressive program to characterize this underground region to determine if any of this waste is being dissolved by the ground water. An integrated nuclear complex will provide an infrastructure to continue studies and, if necessary, remediate the contamination. An ongoing nuclear activity at NTS might increase the probability that future sessions of Congress would continue funding for environmental studies of radioactive contamination at NTS.

X. NUCLEAR MEDICINE FACILITY

Nuclear medicine has provided enormous benefits to the American public. Recent publicity about the use of human subjects to study the effects of radioactivity has horrified the American public. Even before these revelations, many people instinctively feared nuclear medicine; an example of the medical community's catering to this fear is the renaming of Nuclear Magnetic Resonance diagnostic equipment to Magnetic Resonance Imaging. Nevertheless, with proper explanations of the potential side effects (and their low consequence compared to the disease risks incurred if they are not used), the majority of Americans have opted to accept x-rays and use nuclear medicine and radioactivity when their doctors and dentists recommend it. Chest and dental x-rays and mammograms are only three examples of common medical procedures using radiation. Many other nuclear medicine procedures use short-lived radioisotopes to trace biological processes, to pinpoint tumors, and to focus treatment on diseased portions of the body. These procedures have saved many lives and added disease-free years to the lives of even more people.

Many nuclear medicine procedures benefit from proximity to a source of short-lived radionuclides, either a reactor or an accelerator. An integrated nuclear facility at NTS could provide such a source, providing the impetus for a world-class medical facility in southern Nevada. This facility would enhance the university system, add many highly paid professional medical personnel to the state's population, draw thousands of people here for medical treatment, and finally, provide a superb facility available to the citizens of southern Nevada.

XI. LOW COST ELECTRICITY FOR NEVADA

The proposed NTS nuclear reactors could be built at government expense with the goal of making this improved technology available to benefit consumers nationwide and to reinvigorate the U.S. nuclear industry (and hence the U.S. international balance of payments). The fuel costs could be borne by the nuclear weapons program since production of the fuel would simply be a step in the weapon disassembly/fuel disposal process. Reprocessing of commercial high-level waste could probably be financed from a portion of the value of the produced electricity if the capital expense of the burner reactors is borne by the government for the above reasons. Consequently, the electricity produced by these reactors would be an exceedingly valuable by-product, requiring the users to only pay for utility overhead, transmission lines and plant operation and maintenance costs.

Nevada Power is the largest utility in southern Nevada, serving the southern tip of the state, including Las Vegas and the Nevada Test Site. The only communities in Clark County not served by Nevada Power are Boulder City and the group of northeast county communities: Mesquite, Logandale, Moapa and Overton. The utility's 860 MWe coal-fired generating capacity in the county and owns another 255 MWe capacity near Page, Arizona. In addition, the utility owns 660 MWe of oil/gas peaking capacity at two plants in the Las Vegas valley. The utility purchases 4% of its power from Hoover Dam and another 45% of its power from other utilities. Clearly, there is room for additional environmentally-sound capacity in southern Nevada. Further, the National Energy Act of 1992 requires utilities to "wheel" or move excess wholesale power from generating location to user location; this requirement ensures that excess capacity can use the extensive intertie system developed to enhance U.S. power system reliability.

Depending on the plant type, a capacity of 600 to 8400 MWe would be required to dispose of 50 Mg of plutonium in 20 years. The peak demand on the Nevada Power Company system in 1992 was 2501 MWe. The annual sales of 10.1 TWe/yr represents an average load of 1150 MWe. Addition of a thousand MWe of capacity at NTS would allow the utility to cease buying outside power. Addition of three to four thousand MWe at NTS would completely serve all of southern Nevada (including the remainder of Clark County and all of the adjacent counties affected by the potential repository at Yucca Mountain).
If the new capacity at NTS were offered low cost to the utility customers in the affected counties, a consortium of utilities led by Nevada Power could be formed to manage and operate the power plants under the regulatory oversight of the Nevada Public Service Commission. Because the plants would have no capital or fuel expenses, the cost of the power from them would be minimal. In addition, the utilities would be able to sell the power from their current plants to generate funds for operation of the new plants, maintenance of the transmission grid, and dividends to stockholders. Therefore, the cost of power to customers in the affected counties would fall dramatically, the utilities would expand their employee bases, and the stockholders would have increased dividends.

The customers (in the Nevada Power Company portion\(^4\) of the affected area) are 44% residential, 19% commercial, 18% industrial, and 13% large casinos (the remaining 7% is not in any of these categories). These customers would benefit in those proportions from low cost power generated from an integrated nuclear complex. The direct annual benefit to an average residence would be hundreds of dollars. Some of the much larger benefit reaped by commercial, industrial, and casino customers would probably be returned to local customers of these businesses via reduced prices.

Distribution of the power generated by an integrated nuclear complex at NTS could be handled similarly to the way power from Hoover Dam is distributed. Prior to the construction of the dam, fifty year contracts were negotiated with users, which included two states, ten cities, and two utilities\(^5\). The revenues were used to retire the bonds of $175M used to construct the dam and related facilities. For the NTS project, a consortium of utilities under the regulatory oversight of the state would generate and distribute the power under long term contracts. Since the capital and fuel costs of the plants would be paid by other beneficiaries of the complex, there would be no bonds to retire or revenues to collect.

XII. STIMULATE THE LOCAL AND NATIONAL ECONOMIES

Each section above has alluded to an improvement in the local infrastructure, such as industrial capability, transportation infrastructure, and trained labor base. Trained people will be required to operate the facilities at the integrated nuclear complex, to operate the increased electrical utility industry in the affected counties, and to operate the new medical facility. In addition, the Nevada University system would be stimulated to provide trained people and to provide R&D support to the new technologies being demonstrated. Perhaps an institute could be created to support these activities, similar to the institute proposed to study high-level radioactive waste disposal\(^7\).

The low cost of electricity in the affected counties should stimulate industry to locate in them; electricity-intensive industry usually means large work forces of well paid blue-collar workers, a balance to the number of highly educated professionals required by the nuclear complex and the medical facility.

On the national level, the nuclear industry would be stimulated, spurring international sales and improving the balance of payments. In addition, solution of the low-level waste disposal problem should ease tensions in many states and alleviate a problem of increasing significance to the medical community.

XIII. IMPLEMENTATION

The integrated nuclear complex proposed in this paper would require the investment of several tens of billions of dollars in Nevada. In return, the federal government would fulfill its commitment to dispose of high level waste, reduce the risk of nuclear proliferation, and demonstrate the new generation of improved nuclear reactors developed with DOE funds. However, because of the distrust between the federal and state governments in Nevada, it would not be appropriate for DOE to unilaterally develop the concept and implementation for an integrated nuclear complex at the NTS; other parties such as the state government must be players in the development of the concept\(^8\).

The proposed integrated nuclear complex would bring many tangible benefits to Nevadaans at minimal risk. In addition, it would benefit several significant sectors of our national economy. However, there is a large barrier to its implementation: Lack of trust. Careful reading of Grant Sawyer's memoirs\(^9\) indicates that the fundamental objection of Nevada political figures is based on state's rights rather than concerns over safety. The actions of Congress in selecting Yucca Mountain as the sole site to be characterized alienated Nevada leaders who earlier had come to distrust the federal government due to its Bureau of Land Management control over a large fraction of the state's land. The alienation has evolved into an attack based on the safety issues of nuclear waste, but it should be remembered that the original distrust was based on the
federal government forcing a project upon a state with little power to influence it.

Senator Richard Bryan recently implied that\textsuperscript{10} scientific and institutional (DOE) arrogance led to historical testing of radiation effects on unsuspecting people that there is a perceived similar attitude among scientists and managers of the Yucca Mountain Project. The Sierra Club terms\textsuperscript{11} nuclear and fossil-fuel technologies "outmoded, expensive, polluting, and sometimes dangerous"; presumably, the adjectives "expensive" and "dangerous" were aimed at the nuclear option. Such rhetoric disturbs technical people who believe that nuclear technology is safe and environmentally appropriate. On the other side, there are proposals\textsuperscript{12} to ignore the state's opposition to the current lengthy program imposed by Congress and to accelerate it by establishing a surface storage site at NTS prior to completion of the site characterization studies; these proposals inflame critics within the state who feel that the state's rights are already being violated with the current program. Proposals for phased licensing are sure to similarly stoke the fires of distrust. Meanwhile, the National Academy of Sciences panel on trust urges\textsuperscript{13} that inclusion of concerned citizens and groups in risk assessment be "at the very earliest stages and be continuous".

For an integrated nuclear complex to become a reality, it must be desired by the citizens of the affected counties. A referendum is probably the appropriate means to assess such a desire. But, because there are a great many ways to structure such a proposal, a smaller group must develop the idea in preparation for submitting it to the voters. The group should include all affected parties: DOE, the State of Nevada, Nevada's congressional delegation, the affected electrical utilities, the nuclear industry, the medical community, local civic and political leaders, community groups, and interested individuals. Strong leadership will be required to organize such a group and lead it to formulation of a discrete proposal. Some of the group members could probably not serve as leader for several reasons: DOE and the nuclear industry are too distrusted, Nevada Power Company will not associate with the nuclear waste program or nuclear industry for fear of negative impacts on its rate cases, some state leaders have been such strong defenders of the states' rights position of Nevada that they might be perceived as too rigid, and local civic leaders would have difficulty coordinating the participation of high ranking DOE and Nevada officials. Perhaps the ideal candidate to organize such a group is the senior senator from Nevada. Senator Reid has been active in trying to find new missions for NTS, in support of the local economy. He has strong ties in both rural Nevada and urban Las Vegas. Although he has opposed the nuclear waste project, he has not taken the lead in such opposition. Finally, he is the senior member of the congressional delegation, and he has the clout to assemble such a varied group.

The authors would expect the deliberations of such a group to be contentious and scintillating. Nevertheless, it should be extremely public, with public observers and public comment at each session. Extensive reporting by the media could ensure that the community educates itself on the issues as the deliberations continue. Posturing should be discouraged by the chair, by a professional facilitator, and most of all, by the media. Since the voters will make the ultimate choice, settling this issue within a few years, politicians should not be tempted to posture to obtain votes, and advocates should be cautioned not to obfuscate the issues with rhetoric.

The authors have considerable trust in the good sense of the electorate. Political statements on one side and an orchestrated campaign by the nuclear industry on the other have succeeded in adding these entities to the list of those distrusted by the electorate. An open process with a reasonable time span (a year or two) would allow all parties to express rational arguments and assemble the pros and cons of the proposal for the reasoned judgment of the electorate. In the end, the voters would do the cost-benefit judgment.

CONCLUSION

The proposed NTS nuclear complex requires the cooperation of the Nevada and federal governments, industry, Nevada universities, and Nevada citizens. It represents an enormous opportunity for Nevada, in contrast to the large burden Nevada has shouldered to prevent a nuclear repository. In the competitive world economy, opportunities must be sought and nurtured; this proposal may be one such opportunity.

In Nevada, the proposed nuclear complex would provide a large number of direct, high-technology, jobs; this complex could exceed the benefits of NTS to the Nevada economy during the previous forty years. In addition, the inexpensive new power source, the favorable tax and regulatory climate already existing in Nevada, and the advanced technology base of the nuclear complex could attract advanced non-nuclear technology to Nevada. Examples include medicine, advanced transportation systems (such as electric or low emission vehicles) and advanced material processing.
(such as for solar energy components). Partnerships between the nuclear complex developers and Nevada universities could ensure that current Nevadans and their children receive the training to be a part of the new, hi-tech economy.

The project would directly benefit each Nevadan, both by a vigorous economy and by low cost electricity, and it could remove much of the public objection to a repository. Properly, Nevadans would be compensated for the inconvenience and minor risk posed by a repository and associated transportation system. Such compensation does not contradict the Governor's statement that "Nevada is not for sale". It retains Nevada control and is similar to the existing nuclear test program for which Nevada accepts inconvenience and risk in order to obtain the benefits of a stimulated economy and Nevada's contribution to national security. The proposed NTS nuclear complex provides similar benefits of a stimulated economy and Nevada's contribution to national economic security, and likely at even less risk.

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